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NIGER:
A SOCIAL AND INSTITUTIONAL PROFILE

MICHAEL M HOROWITZ

with the assistance of

Eric J. Arnould
Robert B. Charlick
John H. Eriksen
Ralph H. Faulkingham
Curt D. Grimm
Peter D. Little
Michael D. Painter
Thomas M. Painter
Candelario Saenz
Muneera Salem-Murdock
Margaret O. Saunders

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Institute for Development Anthropology
99 Collier Street
Binghamton, New York 13902

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PREFACE

Niger is in crisis. The precipitous drop in the value of uranium exports has resulted in a sober reassessment of the possibilities and approach to economic development in the country. A few years ago one heard development planners seriously discussing Niger as a future sahelian Kuwait, where all citizens would find their basic needs provided for, and the industrial and mining sectors of the economy would be so productive that any food short-falls would readily be made up on the international market. Today the talk is of severely cutting back on the ambitious portfolio of planned infrastructural improvements in view of great budgetary constraints, mounting debt, and the possibility of bankruptcy and default. A most pessimistic scenario.

Yet within that scenario there is also a hope and an opportunity. The collapse of the mining-industrial sector has forced donors and the government of Niger to look once again at the small-scale rural food producers who constitute the vast majority of Niger's private sector and to find in them the basic resource for development. Rural and regional development have become anew the centerpieces of Niger's development posture, and a new approach has been elaborated, the Development Society, that seeks to place more of the decision-making in the hands of the peasantry, with their dynamic and open-ended production systems. These peasants—farmers, herders, fishermen—and the small-scale traders who are their marketing links, have intimate knowledge of the environment, and have demonstrated a willingness to invest their labor, lands, and limited capital in productive activities where the likelihood of benefit is reasonably clear.

Rural and regional development is not easy. It will require not only considerable technical and financial assistance, but also patience and courage, especially the latter. For it to succeed, both government and donors must be willing genuinely to share power with this private sector, to involve them intimately in the development process as jural equals. It is to facilitate greater collegiality among the people, the government, and the donors that this Social and Institutional Profile has been prepared. Emphasizing those sectors that will dominate the development dialogue for the remainder of the 20th century—food production, human resource development and education, health and population—the Profile presents basic descriptive information and analyses to assist those responsible for the identification, design, implementation, and evaluation of development programs and projects in Niger.

Without being encyclopedic, we have tried to be thorough in our treatment of these sectors, and comprehensive bibliographies are attached to each section to direct interested readers to more detailed information. Despite our cautions, there are sure to be errors of fact and interpretation. Some of these will be due to lack of current information; others perhaps to a misreading on our part. We would be most grateful to readers who identify such errors or who are aware of more recent materials to bring them to our attention and to the attention of USAID/Niamey. We shall then be able to rectify the errors and keep the Profile both accurate and timely.

The authors wish to acknowledge the generous support of Agency for International Development officers and consultants in Washington, Paris, and Niamey, and to single out for especial thanks Peter Easton, Frank Egi, Art Fell, Pat Fleuret, Myron Golden, Wayne King, John Lewis, John Lovaas, Jim Lowenthal, Annette Pinckney, Celeste Robertson, Irving Rosenthal, Jesse Synder, Gloria Steele, Connie Stevens, Wilbur Thomas, Curt Toh, and Ray Waldron. We wish to thank also Ambassador William Casey and Deputy Chief of Mission Michael Southwick for their courteous interest.

The considerable number of American social scientists who have had the privilege of carrying out long-term field work in the Niger Republic—some of whose names are listed as co-authors of this document—is testimony to the receptivity of the country to foreign scholars. All of us have enjoyed a rarely experienced warmth of hospitality in Niger, and much of that hospitality has been offerred by the extraordinarily talented and creative group of Nigerien social scientists who staff the Institut de Recherches en Sciences Humaines of the Université de Niamey. IRSH has provided us with official support, with interested and helpful colleagues, and often with a bed and meals. We hope that this document reaffirms the faith they have shown in our work, and we wish to dedicate it to its first and its current Nigerien directors: Drs. Dioulde Laya and Arouna Hamidou Sidikou.

MMH

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INTRODUCTION

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The Niger Republic is a land-locked nation in West Africa with an area of about 1,267,000 square kilometers.[1] Niger shares borders with Nigeria and Benin on the south, Upper Volta and Mali on the West, Algeria and Libya on the North, and Chad on the East, extending from 11°37' to 23°33' North latitude and from 0°06' to 16° East longitude. Three-fourths of the total area receives less than 300-350mm of rainfall per year, with about half of the nation falling in the Sahara Desert.

The national capital is Niamey, on the Niger River in the southeast corner of the nation. The total population reported as of the 1977 census was 5,098,428. For 1979 the estimated GNP was $1,410 million, or $270 per capita (Europa Yearbook 1982:1099). While the official language is French, five indigenous languages are widely spoken: Hausa, Zarma, Fulfulde, Kanuri, and Tamasheq. There are small pockets of Arabic, Gourmantche, and Tubu. About 95 percent of the population is Muslim.

Overview of Government and Administration

Niger became a self-governing member of the French Community on December 18, 1958, and gained independence on August 3, 1960. Hamani Diori, head of the Parti Progressiste Nigérien (PPN), the national section of the Rassemblement Démocratique Africain (RDA), became Prime Minister in 1958 and served as President from 1960-1974. In the coup d'état of April 1974, he was replaced by a military government led by Lieutenant-Colonel (now Colonel) Seyni Kountche, who has remained chief of state ever since. The 1960 constitution was suspended following the coup d'état, and military rule prevails. Col. Seyni Kountche serves as President of the Supreme Military Council (CMS) and President of the Council of Ministers. He also personally holds the positions of Minister of National Defense and Minister of the Interior.

As of June 1982, the national government had the following ministerial organization (including some of the various sub-ministerial offices involved in development activities):

Presidency

- National Commission for the Formation of the Société de Développement
- Kandadji Dam Authority High Commission

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[1] Other sources give lower figures (e.g., 1,186,408 km^2 in the 1982 edition of Encyclopedia Britannica), but this is the figure adopted for recent USAID documents such as the 1979 Agricultural Sector Assessment.

Ministry of Foreign Affairs and Cooperation

Ministry of Commerce

Ministry of National Defense

Ministry of Rural Development

- Agricultural Service
- Livestock and Animal Industries Service
- Water, Forests, Hunting, and Fishing Service
- Niger Union for Credit and Cooperation (UNCC)
- National Office for Hydraulic Agricultural Development (ONAHA)

Ministry of National Education

- Arabic Education Office
- Literacy Office
- Centre for Training Literacy Workers (CFCA)

Ministry of Higher Education and Research

- National Institute for Agronomic Research (INRAN)
- University of Niamey
  - Social Science Research Institute (IRSH)
  - Agronomic College

Ministry of Finance

- Topographic and Cadastral Service

Ministry of Labor and Public Administration

- National School for Administration (ENA)

Ministry of Hydraulics

Ministry of Information

Ministry of the Interior

Ministry of Youth, Sports and Culture

Ministry of Justice

Ministry of Plan

- National Development Council

Ministry of Post Office and Telecommunications

Ministry of Public Health and Social Affairs

Ministry of Public Works, Transport, and Urban Development

Nigerien territorial administration since 1965 is based on a system of seven départements (states or provinces) and 35 arrondissements (districts), headed by prefects and sub-prefects respectively, appointed and responsible to the central government. Since the 1974 coup d'état, the prefects have been military officers and the sub-prefects primarily civilian professional administrators. There are also a number of postes administratifs (administrative posts) in important market towns, headed by chefs de poste, also responsible to the central government. Several of the largest cities, seats of prefectures, are administered independently as either villes (Niamey, Maradi, and Zinder) or commune (Tahoua), in which the chief administrative officer is the maire (mayor) rather than a sous-préfet (Donaint and Lancrenon 1972:65).

Department and district boundaries are shown in Map One and their estimated populations and areas in Figure One. Departments and districts (with the exception of Madarounfa and Mirria) carry the name of their principal city, the seat respectively of the prefecture and sub-prefecture.

In the rural areas of southern Niger, the administrative system consists of progressively larger units of village, canton or district, arrondissement, department, and nation. Large towns are subdivided into administrative wards, whose heads fulfill roughly the same functions as village heads. Niger's pastoral Tuareg and FulBe populations, on the other hand, are administered at the local level through non-territorial groupements nomadiques and tribus.

Officials at the department, arrondissement, and national levels are drawn from the modern civil service of specially trained fonctionnaires. Those at the canton and village level are chosen by at least quasi-traditional criteria and are not viewed as fonctionnaires.

Agricultural development activities, at the national level, including both crop production and animal husbandry, are under the authority of the Ministry of Rural Development (MDR). However, the national agronomic research institution, the Institut National de la Recherche Agronomique du Niger (INRAN) was transferred in 1979 from the MDR to the Ministry of Higher Education and Research (MESR). The social science research organization, Institut de Recherche en Science Humaines (IRSH, formerly CNRSH and earlier IFAN) is also under the MESR. In 1973 IRSH was made part of the new Université de Niamey.

MAP 1

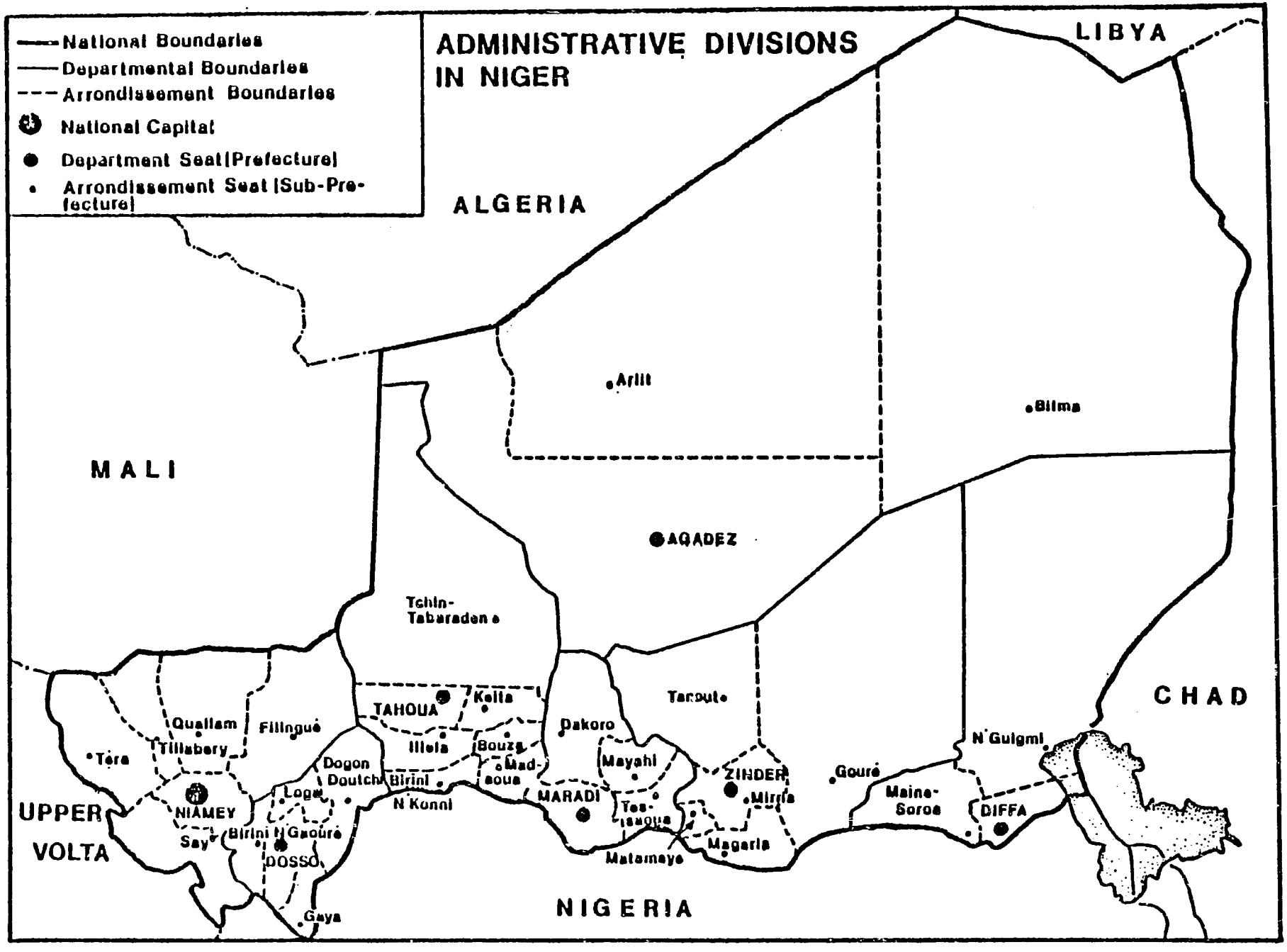

ADMINISTRATIVE DIVISIONS IN NIGER
National Boundaries
Departmental Boundaries
Arrondissement Boundaries
National Capital
Department Seat (Prefecture)
Arrondissement Seat (Sub-Prefecture)
LIBYA
ALGERIA
MALI
CHAD
UPPER VOLTA
NIGERIA
Arlit
Bilma
AGADEZ
Tchin-Tabaraden
TAHOUA
Keita
Illela
Bouza
Madaoua
Dakoro
Tanout
Mayahi
MARADI
Tessaoua
ZINDER
Mirria
Magaria
Matameye
Goure
N'Guigmi
Maine-Soroa
DIFFA
Tera
Ouallam
Tillabery
Filingue
NIAMEY
Say
Dogon Doutchi
Birini
N'Konni
Logo
Birini N'Gaoure
DOSSO
Gaya

FIGURE ONE

Population, Area, Density by Administrative Division

Department/District	Population (x 1,000) 1981*	1977*	1977**	Area (km^2)	Density (Pers./km^2)
Niamey	1,334.9	1,171.7	1,094.0	90,293	12.1
Niamey			293.8	8,299	35.4
Tera			294.0	12,444	19.6
Tillabery			123.2	7,975	15.4
Ouallam			154.5	20,497	7.5
Filingue			206.9	24,346	8.5
Say			71.6	16,732	4.3
Dosso	761.7	692.8	657.0	31,002	21.2
Dosso			147.0	7,800	19.0
Loga			72.1	3,691	16.8
Birni N'Gaoure			108.5	4,423	24.5
Dogondoutchi			230.0	11,044	20.8
Gaya			108.5	4,044	26.8
Tahoua	1,080.7	994.5	1,042.0	106,677	9.8
Tahoua			215.5	8,805	24.5
Tchin-Tabaraden			114.1	73,540	1.6
Illela			127.5	6,719	19.0
Keita			130.8	4,860	26.9
Bouza			116.4	3,589	32.4
Madaoua			174.5	4,503	38.7
Birni N'Konni			163.2	4,661	35.0
Maradi	1,056.6	944.3	865.0	38,531	22.4
Mararounfa			163.4	3,540	46.2
Guidan Roumdji			133.6	4,505	29.7
Dakoro			151.2	16,213	9.3
Mayahi			142.2	6,424	22.1
Tessaoua			171.4	5,319	32.2
Aguie			103.2	2,580	40.0
Zinder	1,116.6	1,003.7	1,062.0	145,430	7.3
Mirria			359.4	12,423	28.9
Matameye			104.2	2,109	49.4
Magaria			1.3	8,021	41.3
Tanout			154.1	33,947	4.5
Goure			113.0	88,930	1.3
Diffa	179.3	166.7	154.0	140,216	1.1
Diffa			50.0	6,979	7.2
N'Guigmi			30.0	118,126	0.3
Maine-Soroa			74.0	15,111	4.9
Agadez	157.4	124.7	98.0	714,801	0.14
Agadez			74.4	164,118	0.14
Arlit			14.6	234,026	0.06
Bilma			9.0	316,657	0.03
TOTAL	5,687.2	5,098.4	4,972.0	1,267.00	3.90

* République du Niger 1982:31; ** Arizona 1980:65.

Transportation and Communications

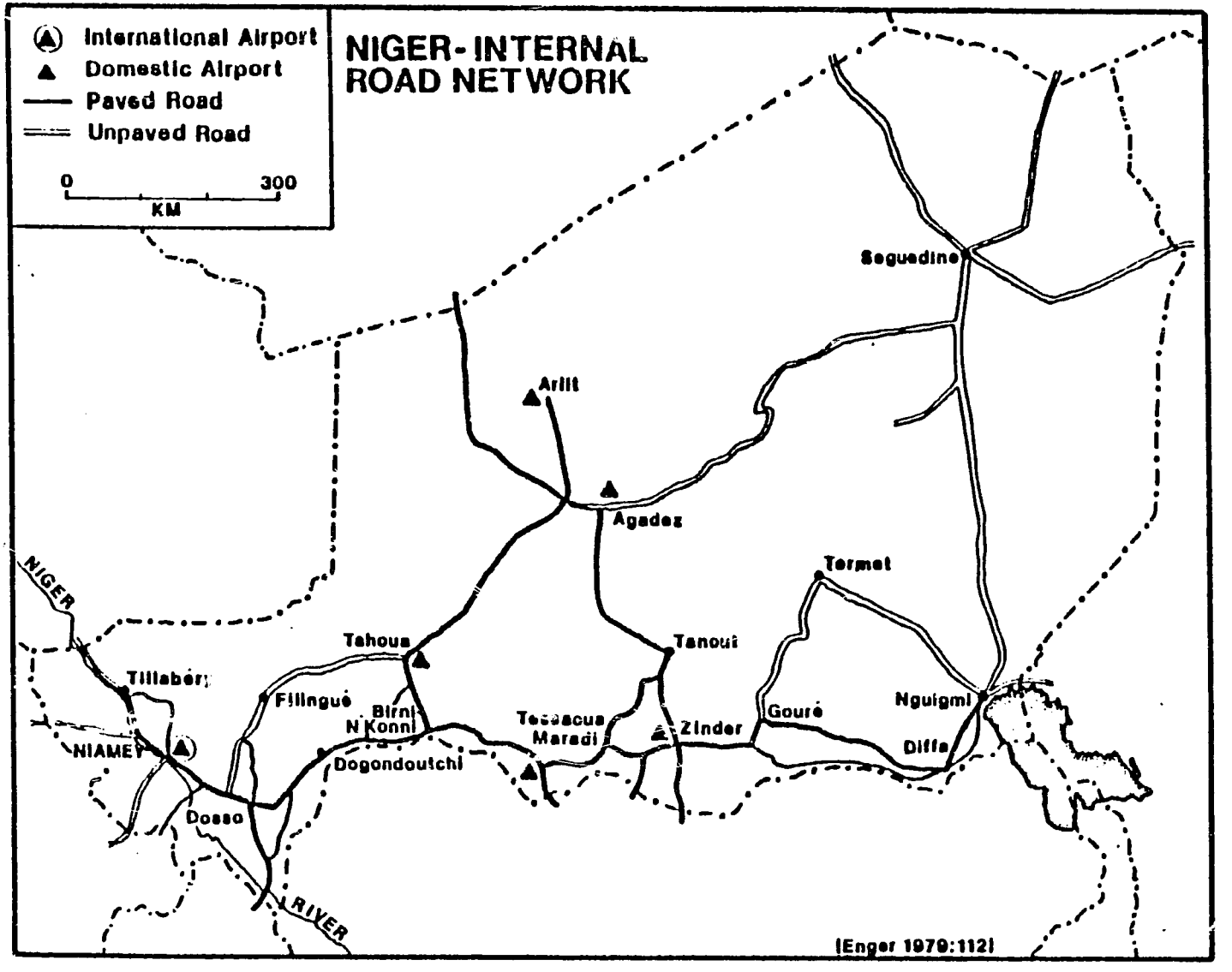
A. Roads and Airports. The following map diagrams the internal transportation network of Niger, including main roads (major links in the network of routes nationales) and airports. There are no railroads in Niger; the closest railheads are in Ouagadougou (Upper Volta), Parakou (Benin), and Maiduguri (Nigeria). There is some seasonal traffic on the Niger River.

With a large land mass dependent primarily on surface transportation, the Niger government has devoted substantial efforts to improving the highway system from the rudimentary and totally unpaved network of laterite and sand tracks inherited from the French at independence. In 1963, for example, the only blacktopped stretch of highway outside a town in the entire country connected the Niamey airport with the presidential (ex-governor's) palace, a distance of a few kilometers. Transport costs were astronomic, due in part to the tremendous beating incurred by trucks and buses, and many of the roads became virtually impassible during the rains. By 1978, the 7,657 kilometer network of national highways included 1,892 kilometers of paved roads and 2,840 kilometers of improved but unpaved roads (République du Niger 1980:322). A major contribution to the surface transport system was made by the Canadian-financed "route à l'unité," a hard-surfaced road connecting the Departments of Zinder and Diffa, and extending Route National No. 1 from Niamey in the west some 1,600 kilometers to N'Guigmi on Lake Chad. This is the principal east-west axis in the country. R.N. 1 also runs along the north bank of the Niger River 200 kilometers northwest to the Mali border. A still unpaved road connects Niamey with Upper Volta (and beyond to Ghana and the Ivory Coast), and there are hard-topped roads from Dosso into Benin, and from Maradi and Zinder to Nigeria. A hard-surfaced road ties the uranium mines of Arlit to Agadez and Tahoua, thence to R.N. 1 with connections westward to Niamey and eastward to Maradi and Zinder. By 1980, there were 8,219 kilometers in the national network, of which 2,671 kilometers were paved (Europa Yearbook 1982). According to the World Bank (IBRD 1980), Niger devoted 8.5 percent of government expenditure to roads and communications, compared with 6.9 percent in Togo, 5.0 percent in Sierra Leone, 4.4 percent in Upper Volta, 4.0 percent in Mali, 1.7 percent in Ivory Coast, and 0.9 percent in Senegal. The fraction of public revenue expended on roads and communications was substantially exceeded only in The Gambia (19.6 percent) and Nigeria (23.3 percent). Thus, Niger at least would seem not to confirm Keith Hart's observation (1982:47) that the

> liberation of the state from colonial fiscal restraint has seen massive increases in public expenditure on infrastructure and social services... Construction has been favored more than transport: where the colonial regimes built roads and bridges, their successors raise multistory buildings and fill them with government officials.

This is not to deny the recent and short-lived construction splurge in Niamey, encouraged by a uranium windfall whose sudden collapse was unanticipated

MAP 2


NIGER-INTERNAL ROAD NETWORK
International Airport
Domestic Airport
Paved Road
Unpaved Road
0
300
KM
Seguedine
Arlit
Agadez
Termet
Tahoua
Tanout
Tillaberi
Filingué
Birni N'Konni
Tessaoua
Maradi
Zinder
Gouré
Nguigmi
Diffa
NIAMEY
Dogondoutchi
Dosso
NIGER
RIVER
(Enger 1979:112)

even by expert economists (cf. IBRD 1981:i). But these government office buildings and a hotel were in addition to, not substitutes for, a vigorous road improvement policy.

Niger has a modest domestic vehicle inventory:

Category	1977*	1978**
Cars	11,419	
Vans	7,406	
Total	18,825	20,750
Motorcycles/scooters	1,899	2,634
Heavy trucks	3,321	3,597
Buses/coaches	542	646
Road equipment	1,115	1,402
Agricultural tractors	75	ND
Trailers	908	1,093

(*République du Niger 1980:321; ** Europa Yearbook 1982:1107)

The listing of vehicles registered in Niger does not give an accurate indication of road use, for many of the heavy trucks rolling along the nation's highways come from Benin, Ghana, and other countries; and many of the privately-owned vehicles are registered in Nigeria. Especially in Zinder and Maradi, it is not unusual to see new Mercedes-Benz and Peugeot cars with Nigerian license plates parked on hotel grounds, as merchants from Kano and other large cities tend to their affairs in Niger.

The Niamey international airport in May 1983 is served by Air Afrique, Air Algerie, Air Mali, Nigeria Airways, and UTA, providing Niger with direct access to Abidjan, Algiers, Bamako, Bordeaux, Brazzaville, Cotonou, Dakar, Jeddah (one flight weekly), Kano, Lagos, Lome, Mopti (one flight/week), N'djamena (one flight/week), Nouakchott, Ouagadougou, and Paris. Air Niger offers domestic services from Niamey to Agadez, Arlit, Maradi, Tahoua, and Zinder. In 1982, Air Niger retired its aged DC-3 and DC-4 from regular service, and introduced Hawker Siddeley 748 Turboprops. In 1978 there were 20,000 passengers on domestic flights, along with 962 metric tons of freight and 60 tons of mail (République du Niger 1980:321).

In 1982, Niger enjoyed a remarkably extensive modern telephone system, with direct internal and overseas dialing capability. While the capital city, Niamey, naturally has the largest network, some 4,000 lines (Ibid.:331), all the department capitals, all the arrondissement seats (with the single exception of Bilma, isolated in the north-eastern desert region and dependent on radio communications), and many of the administrative posts (such as Ayorou, Balleyara, Gazaoua, Gotheye, Goudoumaria, Iferouane, Malbaza, Tillia, and Torodi) and market towns (like Guidiguir, Guidimouni, and Tchadoua, among others) participate in the system. Niger also has telex service, with approximately 200 stations in Niamey, twelve in Maradi, eight in Zinder, two in Arlit, and one in Tahoua.

B. Information Media. Domestic publications, radio, and television are owned by the state and managed in its behalf, under the auspices of the Service de l'Information. While short-wave radios bring in external broadcasting in French and Hausa (from France, BBC, Voice of America, Radio Kaduna, and elsewhere), the contents of domestic broadcasting are rigidly controlled. The Office de Radiodiffusion-Télévision du Niger (ORTN) programs in French and the national languages. Since 1979, the television network which began as a closed-circuit support of primary education, became generally available, and color telecasts are received in all major cities and in many rural areas. According to Mark Hukill, about 1,800 villages had television receivers operating on solar batteries by the end of 1982. The potential impact of radio and, especially, television in the dissemination of information to remote areas of Niger is monumental, and only just beginning to be utilized.

In 1981 an estimated 103,000 radio receivers and 5,000 television sets were in use (Europa Yearbook 1982:1109). Television sets were sold in the Niamey Grand Marché in 1981, and short-wave radios and cassette tape recorders can be purchased there and in many rural markets as well.

The Service de l'Information publishes three French-language periodicals: the daily newspaper, Le Sahel (circ. 3,000), the weekly magazine Sahel-Hebdo (circ. 3,000), and the quarterly magazine Nigerama. An additional French-language publication, the Journal Officiel de la République du Niger, appears monthly or bi-monthly and provides a record of official government actions.

Periodicals in indigenous languages are limited to mimeographed small circulation materials produced by the adult literacy service (Service de l'Alphabétisation), such as the Muryar Damagaram (Hausa) published in Zinder in the early 1970s. No aggregate statistics on such news publications exist. The well-known Nigerian Hausa-language newspaper, Gaskiya ta Fi Kwabo, seemed to have very modest circulation in Niger in the early 1970s. Niger and Nigeria employ somewhat different systems for transcribing Hausa, rendering it difficult for a person literate in one system to read materials in the other. Nigeriens comfortable with Arabic script can read Hausa materials—usually religious tracts—published in Adjami.

Ecology

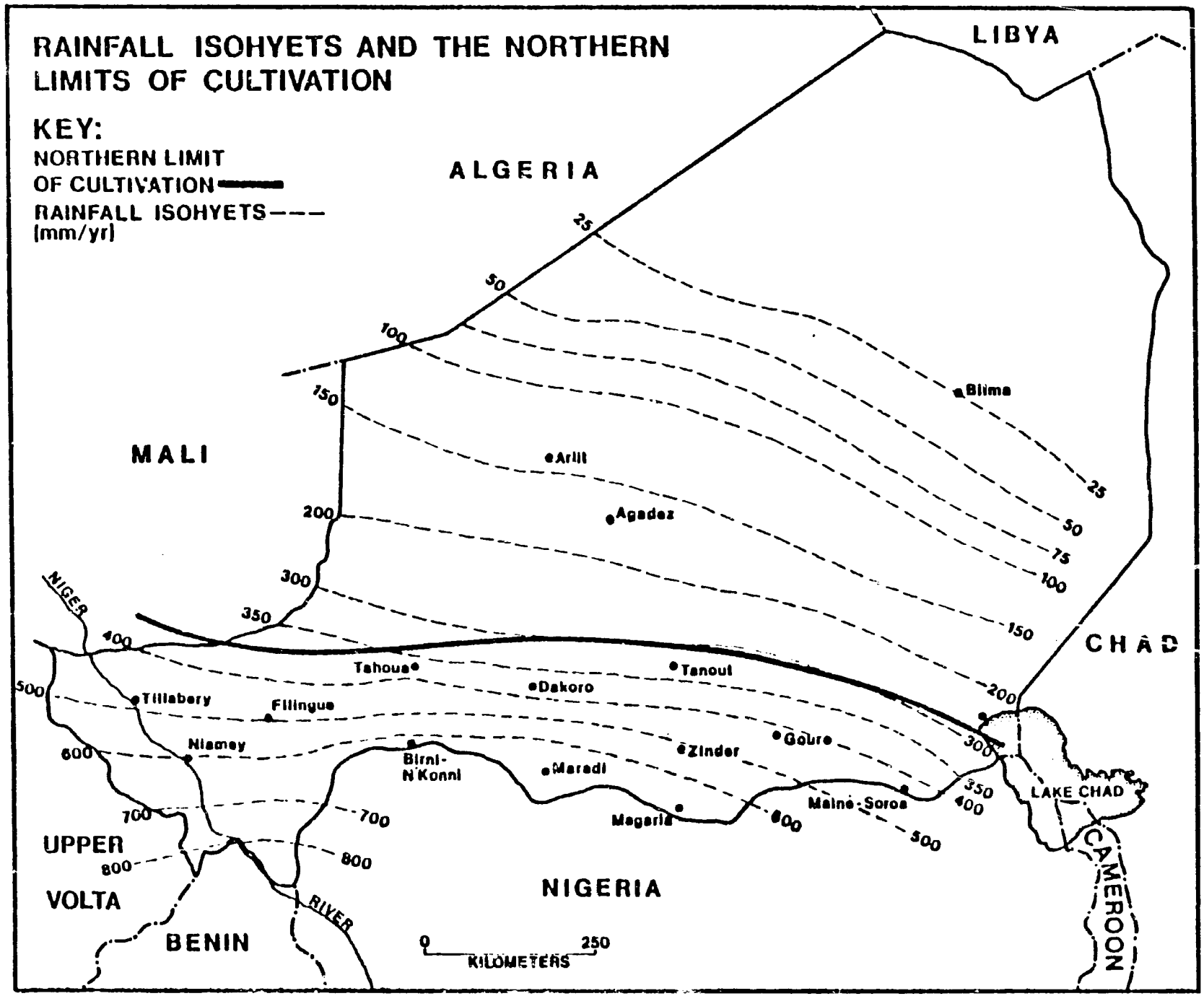
From the early 1970s, when the world donor and scientific communities awoke to environmental issues in the Sahel, there has been a recurrent emphasis on the especial vulnerability of the populations of that area to the effects of deficit rainfall within an overall context of low biological productivity. They key words characterizing that environment in the literature have been drought, desertification, deforestation, and degradation. All of them point to a situation of general aridity, marked by severe and unpredictable variations in the quantity, frequency, and distribution of rainfall. Recently, the work of the Dutch-Malian team, Production Primaire au Sahel (Penning de Vries and Djitèye 1982), has underscored the importance

also of soil nutrients, especially nitrogen and phosphorus, in determining a region's biological productivity. Thus, the condition of the environment, and its long-term capacity to sustain biological yields, are functions of the availability of water, the availability of soil nutrients, various geomorphologic characteristics (such as slope), and the nature of its pastoral and agricultural exploitation. While the initial literature pointed an accusing finger at pastoral herding as the principal cause of environmental degradation—through overgrazing that exceeds the carrying capacity of the range—field investigations now point both to the resilience of much of the range to short term intensive exploitation and to the likelihood that it is the increasing extension of agriculture into low rainfall marginally productive zones that is the principal cause of such secular degradation as can be demonstrated (Horowitz 1979). All of the recent studies agree on one point: hard data about the sahelian environment and the contiguous saharan and sudanian zones are far too scarce to justify commitment of large sums of money and the elaboration of extensive development efforts. The exceptionally poor performance record of development projects dealing with livestock and rainfed agriculture, as well as irrigated agriculture, in these drylands is testimony to the dubious assumptions—both environmental and socio-economic—on which they are based.

A. Precipitation. Niger is the most purely "sahelian" of the sahelian countries, in which almost none of its territory penetrates the intermediate rainfall area (ca. 1000-1500 mm/year) of the sudanian zone. Only the southernmost point of the country, in the Gaya district, regularly enjoys an annual precipitation of more than 800 mm, and even the extensively populated "groundnut basin" along the southern border with Nigeria, the most populous area of the country, averages between 500 mm and 650 mm mean annual rainfall. On the other hand, more than 75 percent of the country's land mass lies above the 300-350 mm isohyet, beyond which cultivation is untenable on a sustained rainfed basis, and about a third to half of the country is even too arid for pastoralism. Most authors agree that at least some of Niger is "sudanian," some "sahelian," and some "saharan," but there is no consensus on exactly where the lines should be drawn. A recent CILSS publication (Nicholson 1982) defines the Sahara as receiving less than 50 mm/year, the sahel as between 100 to 400 mm/year, and the sudan in excess of 400 mm. Others (Arizona 1980:2) give the sahel a far wider latitude, from less than 250 mm in its northern reaches to as much as 750 mm/year as it grades into the sudanic zone. A number of field workers insist that the "true" sahel is congruent with the range of the cram-cram (Cenchrus biflorus), a nettle-like annual grass that causes much misery among those who unwarily walk in sahelian rangelands, yet which is an important component of ruminant diet and, on occasions of great food scarcity, is consumed as well by humans.

Roughly equivalent to the 300-350 mm isohyet is the official "limite nord des cultures," dividing the country into a southern "zone des cultures" and a northern "zone nomade" (Bernus 1974). The initial intention of the division was to

MAP 3


RAINFALL ISOHYETS AND THE NORTHERN LIMITS OF CULTIVATION
KEY:
NORTHERN LIMIT OF CULTIVATION
RAINFALL ISOHYETS (mm/yr)
LIBYA
ALGERIA
MALI
CHAD
NIGER
UPPER VOLTA
BENIN
NIGERIA
CAMEROON
LAKE CHAD
RIVER
Blima
Arlit
Agadez
Tahoua
Tanout
Dakoro
Tillabery
Filingue
Niamey
Birni-N'Konni
Maradi
Zinder
Goure
Magaria
Maine-Soroa
0 250
KILOMETERS
25
50
75
100
150
200
300
350
400
500
600
700
800

preserve the purely pastoral use of sahelian rangelands, by denying compensation to farmers who cultivate in the nomadic zone when their fields are invaded by animals. (Several cases of conflict between herders and farmers are explored in the description of the customary tribunal annexed to the section on Islam and Customary Law.) A combination of declining productivity, rising population, and the removal of lands from domestic production of grain to commodity production of groundnuts has resulted in a northward movement of cultivation, beyond what in the Sudan Republic is called the "agronomic dry boundary" (Ibrahim 1978; Horowitz and Badi 1981). Despite the official bias toward pastoralism, there is clear evidence not only of a movement northward but also of farmers successfully challenging herders' land rights, and having those challenges supported by the authorities (Urry et al 1979; Koechlin 1977). The long term consequence of the northward migration of cultivation is a rapid degradation of the cultivated lands and a compression of the pastoral range (Ibrahim 1978), as the number of animals required for direct support of the pastoral population increasingly loses access to the southern reaches of their transhumant orbits.

Rainfall in Niger shows wide annual fluctuations in quantity, frequency, and distribution during the summer rainy season which may last from three to five months. The decade 1968-1977, which included the great drought of 1968-1974 (Gallais 1977), shows a notable deficit in comparison with the thirty-year average for 1948-1977 (Ferguson 1979:4):

	Ave. Yearly Rainfall (mm)		Number of Days of Rainfall	
Station	1948-77	1968-77	1948-77	1968-77
Niamey	599.0	518.2	56.4	51.5
	100	- 13.5	100	- 8.7
Dosso	613.9	498.9	41.4	36.2
	100	- 18.8	100	- 14.3
Tahoua	420.8	352.0	48.5	44.8
	100	- 16.4	100	- 7.6
Maradi	580.2	460.1	49.3	43.7
	100	- 20.7	100	- 11.4
Agadez	150.7	97.4	25.9	22.6
	100	- 35.4	100	- 12.7
Zinder	501.1	373.8	44.8	40.8
	100	-25.3	100	- 8.9
Goure	357.4	239.0	30.6	25.8
	100	- 33.1	100	- 15.9
N'Guigmi	228.4	144.0	20.0	14.2
	100	- 36.9	100	- 29

Deficits range from 14 to 37 percent for total rainfall and from eight to 29 percent for the number of rainy days. A good distribution of rain is even more important than the total fall, to provide regular moisture at critical points in the growing cycle. During the drought, there was a marked southward

shift of the rainfall isohyets, and a consequent southward migration of pastoral herding. Official labelling of "drought years" can be misleading, for substantial deficits are part of the "normal" variation in precipitation. Drought obtains when several deficit years occur one after the other. Thus in Maine-Soroa, 1968 and 1969 were drought years because they occurred in sequence, whereas 1965, which enjoyed less rainfall than 1968, was simply a "normal" bad year.

Mean annual precipitaiton for the decade 1961-1970 at Maine-Soroa was 431.6 mm during forty days of rain, most of which fell during July and August (Horowitz 1972a:103):

Year	Total rainfall in mm./days of rainfall	Percent of fall in July-August
1961	564.6/48	89.1
1962	483.6/36	90.2
1963	362.5/48	66.0
1964	650.4/38	87.7
1965	271.7/37	67.8
1966	432.1/42	66.3
1967	490.8/36	86.5
1968	343.7/47	46.8
1969	224.4/35	58.2
1970	492.2/32	67.5

standard deviation = 125 + mm
standard deviation = 5.6 + days

Precipitation was highest in 1964 when 650.4 mm fell during 38 days, and lowest in 1969 with 224.4 during 32 days. This extreme variation in an environment so dependent upon its brief cultivating season, means that the farmer has little assurance that any particular strategy about when to plant will result in the optimal harvest. Not only is the total variation great, as can be seen in the standard deviations, but the farmer has no indication from the first onset of the rains as to what will follow. For example, in 1969 rains fell successively on the 11th, 12th, 13th, and 16th days of May. Most of the farmers had sown their fields, but rain did not fall again until the 24th and 28th days of June, and much of the seed was therefore lost. On the other hand, in 1965, which had the second lowest total rainfall of the decade, the rains began on June 6th, and continued to fall on the 10th, 12th, 13th, 14th, 16th, 20th, 22nd, 24th, and 25th, which allowed the seedlings a firm hold. In 1967, one of the high years with 490.8 mm, there was only one day of rain in April, one in May, and two widely separated days in June. Then 332.5 mm fell during 14 days in August.

Donaint (1975:10) provides useful information on average precipitation, frequency of rainfall, length of the rainy season, and temperature variations for six stations in diverse parts of the country:

Station	Annual Rainfall	Days of Rain	Duration of Rainy Season	Average Temp. Max.	Min.
Bilma	23 mm	4	August-September	36°4 C	17°9 C
Agadez	140	21	June - September	36°4	18°8
N'Guigmi	200	25	June - September	34°6	19°6
Zinder	500	45	May - October	35°2	20°9
Niamey	600	58	May - October	36°1	21°6
Gaya	880	44	April - November	33°9	22°3

Note that as the average rainfall increases, the difference between average temperature maxima and minima decreases, with less distinctly marked "hot" and "cool" seasons.

The Aïr Massif constitutes an exception to the general principle that rainfall increases in quantity along a north-south gradient, and some of the highlands—Monts Todra, Baguezane, and Greboun reach heights of 1,800, 1,900, and 2,000 meters respectively—enjoy 250 mm/year, sufficient to sustain pastoral herding by the Kel Aïr Tuareg (Bernus 1981), despite their locations along isohyets in the less than 100 mm band. East of the Aïr, productive activities are limited to a few oases, the most prominent of which is Bilma, while west of the Aïr is the southern range of the Kel Ahaggar Tuareg, whose center is in the Algerian highlands north and west of Tamanrasset (Keenan 1977).

While rainfall is generally low and often capricious in Niger, ground water resources are considered good, both in the quantity and quality of water available (BRGM 1975).

> The African Shield, or Precambrian basement complex, underlies most of Africa, including Niger. The Aïr Massif, the western corner of Niger, and a small area near Zinder, are part of this but in the rest of the country various sedimentary formations overlie the ancient basement complex. The Nigerien portions of these sedimentary basins are generally good groundwater reservoirs, and Niger is one of the most well-situated Sahel countries with regard to groundwater resources (Arizona 1980:15).

The comparatively easy recovery of water for aquifers 100 to 300 meters deep facilitated the extensive program of bore hole constructions, either equipped with diesel pumps or, in the southeastern corner of the nation that taps the Manga Kappe and in the Agadez sandstone water table, under artesian pressure. In the pastoral zone, these bore holes led to a concentration of animals in close proximity to the wells, requiring long treks between water and pasture in the dry season; to the abandonment of many

shallow dug wells, from which water had to be drawn laboriously by hand; and to breakdowns in the range management agreements among pastoral peoples (Marty 1972). Bernus discusses this situation in the region of Tchin Tabaraden, within the USAID-financed Niger Range and Livestock Project (now known as the Integrated Livestock Development Project);

> ...the decree of 25 July 1961, which intended to reserve the boreholes and their surrounding pastures to certain groups of pastoralists with traditional rights in the region, and to forbid free access to all the new pumping stations could not be put into effect. To give good quality water to some and refuse it to others has always been an insurmountable obstacle, in principle and in practice. The choice is always difficult, because of the risk of favouring important chiefs and the richest pastoralists who reserve for themselves exclusive use of boreholes near their camps. In the second place, the Fulani [i.e., WoDaaBe], new to the region, cannot be denied water on the pretext that they are not counted in the district census and pay their taxes in the southern circumscriptions. Faced with disputes between Fulani and Twareg, the government thought of preserving the Abalak and In Waggeur boreholes, in the east and northeast part of the Tchin Tabaraden district, for the Twareg, and leaving the boreholes of Tofamanir, Tamaya and Abouhaya to the Fulani. But in the end, this ethnic distribution was never applied. There is free access to all the pumping stations (1977: 63).

Further discussion of groundwater resources may be found in the sections on irrigated agriculture and pastoralism in this report.

B. Soils. The Draft Environmental Report on Niger (Arizona 1980:18-22) summarizes data on soils from a classification prepared by the Inter-African Committee for Hydraulic Studies (CIEH). Five soils categories were used, based on agricultural or grazing potentials:

Class 1: Generally good soils. These soils do not have any serious limitations, and are able to produce good yields of suitable, climatically-adapted crops.

Class 2: Generally moderate to good soils which have slight to moderate limitations which may restrict their use. Yields of climatically-adapted crops are moderately good.

Class 3: Generally poor to moderate soils. These soils have limitations of moderate intensity, are usually of fairly low natural fertility, and generally give low to moderate yields of climatically-adapted crops under traditional systems of management.

Class 4: Generally poor soils. These soils have moderately severe to severe limitations and, under traditional systems of management, give generally poor yields.

Class 5: Soils generally unsuited to cultivation, though sometimes locally suitable for rough grazing or other extensive uses. They suffer from limitations which are generally severe enough to exclude cultivation, such as shallow depth, steep slope or very unfavorable soil reaction (extreme acidity or salinity/alkalinity), virtually preventing crop growth unless improved.

Class 1 soils are hydromorphic soils by the French terminology. In the FAO mapping system they are Gleysols (humic, eutric and undifferentiated), Fluvisols, eutric and undifferentiated gleyic Luvisols, and gleyic Cambisols. In Niger these are found along the Niger River and its tributaries, in the major dallols extending towards Aïr, in some of the dry stream beds of south-central Niger, and along the border with Nigeria near Lake Chad.

Class 2 soils are also hydromorphic soils excluded from Class 1, such as acid humic and vertic hydromorphic soils, those gleyed throughout, or immature soils over sandy alluvium. A few ferruginous or brown subarid soils are also included here. Their distribution is in general similar to Class 1, and like Class 1 they are usually found in association with other classes.

Soils of Class 3 are Tropical Ferruginous (plinthic and ferric luvisols in FAO terminology) and desaturated Ferallitic soils (FAO: ferric and orthic Acrisols, some Nitosols). These are common in southwest and southcentral Niger.

Class 4 soils are made up of two major groups. Light textured and sandy soils with little profile development, mainly immature, Reddish Brown Subarid, and Tropical Ferruginous over eolian sands (FAO: Regosols, luvic, cambic, and ferralic Arenosols) comprise the first group. The second group consists of heavy textured vestisols. This class, especially the light textured group, is the most common one of the Sahel, and these soils extend all across Niger south of about 17° N.

Class 5 is comprised of loose shifting sands, shallow lithosols, and saline soils. The vast majority of Niger is of this type. Generally, a band of shallow lithosols extends from the Sahel into the desert until it merges with the completely raw mineral soils of the Sahara. In the east, these raw desert soils extend to the area around Lake Chad (Ibid.:19-20).

Some soil mapping of Niger was carried out by ORSTOM for the preparation of a "Carte Pédologique de Reconnaissance de la République du Niger." Three sheets covered the southern (agricultural) zone, one for Niamey, one for Maradi, and one extending from Zinder east to Lake Chad.

While imprudent pastoral and especially agricultural practice exacerbate environmental degradation in Niger, the "sparse plant cover" itself, independent of human food producing activities, renders "many areas subject to wind erosion or water erosion during short, heavy rains" (Ibid.:22). Some

claim that heavy rains tend to compact the soil surface, reducing its absorptive capacity and increasing runoff and consequent erosion, and reducing the quantity of sub-surface moisture available for plants. A similar claim is sometimes made about grazing, that the hooves compact the soil. Other scientists feel that given the high sand content of sahelian soils, water absorption is affected only modestly if at all by natural and animal compaction. Traditional methods of hoe cultivation have been criticized for not dealing with the problem of relative imporosity of the soil, and the technical package containing animal traction with emphasis on plowing has been proposed as a solution.

Nigerien farmers categorize soils and landforms in terms of their perceived agricultural potential. Donaint (1975) has inventoried much of this ethno-agronomic knowledge in Hausa, Zarma, Kanuri, Tamasheq, and FulfulDe. Hause farmers, for example distinguish between upland fields of loose sandy soils (gona) (Class 4 in the CIEH classification), suitable for rainfed cultivation of millet, groundnuts, and cowpeas, and heavy soils of low-lying marshy areas and riverine alluvia (fadama), suitable for fruit trees and irrigated market gardening. This is only the crudest level of classification, as many different micro-ecological zones are identified and utilized by Nigerien farmers.

C. Ecological Zones and Land Use. To prepare the 1979-1983 Plan, the Government of Niger identified six ecological zones, based primarily on rainfall, soils, land use, water resources, and population density (République du Niger 1980:438-439):

(1) The pastoral zone:

(a) Permanent pastures;

(b) Rainy-season pastures.

(2) The transitional zone, between the pastoral and agricultural areas.

(3) The low agricultural potential zone (also accorded low priority for rural development investments during 1979-1983).

(4) The agro-pastoral zone, assumed currently to be of good potential but under-utilized.

(5) The "critical" agricultural zone, characterized by a high risk of the environmental degradation.

(6) The valleys, dallol, and goulbi zones (comprised of active and fossil rivers with irrigation potential).

Land use maps reflecting this classification were prepared for each department, and are reproduced as Annex I to this section of the report. Official land use data as of 1977 are summarized as follows (Ferguson 1979:2):

Use	Hectares ($x10^6$)	Percent of Total Area
Total Area (Land and Water)	126.700	100.0
Unused for Agriculture	96.700	76.3
Agriculturally Useful Area (exclusive of rangelands)	30.000	23.7
Arable Land	15.000*	11.8
Grazing-Fallow Land	9.630	7.6
Cultivated Land	3.150	2.5
Of which:		
Rainfed	3.129	
Irrigated;	.031	
Of Which:		
Traditional Management	.026	
Modern Management	.005	
Other	1.620	1.3
Forest	.600	0.5

* The GON considers about 15 million of the 30 million ha. of land suitable for agriculture to be cultivable. The remaining 15 million ha. is thought to be useful only for seasonal pasturelands and a vegetative reserve covering soils too poor for productive activities (AID 1981:1).

Note that of the total land area of 126,700,000 hectares, less than a quarter is considered to be potentially suitable for agriculture (exclusive of open-range grazing), and only half of that amount, or 15,000,000 hectares is labeled "arable land" (terres cultivables). Since only 3,149,500 hectares, or about 2.5 percent of the total national land area, is reported as actually under cultivation, this leads to a curious and potentially pernicious conclusion: that there is no land shortage in Niger. The fact is that these gross categories do not realistically reflect the availability of good farm lands that can be worked with low energy labor intensive technology. The reported loss of

soil fertility in the southern agricultural zone and the movement of cultivation northward into the pastoral zone are testimony to a far more serious situation than a superficial reading of these gross figures would seem to indicate.

The Niger Government also recognizes that contradictions exist between these official figures and the actual situation, noting that "it is probable that there has been a significant under-estimation of the amount of land in cultivation" (République du Niger 1980:45). The official figures indicate a marked increase in the amount of land cultivated between 1968, the first year of the great drought, and 1977, on the order of 23 percent in Dosso, 24 percent in Maradi, 26 percent in Diffa, 35 percent in Niamey and in Tahoua, and 64 percent in Zinder (Ferguson 1979:3, see Table 1 on the following page). These data are subject to a number of questions and interpretations, and their reliablity and validity--as is the case of almost all statistical information in Niger--is dubious. One of the most important contributions that the donors might make to Nigerien development is seriously to upgrade the data collection and analysis capacities of the Ministry of Rural Development (as well as of the other Ministries--Public Health, National Education, Plan--that are involved in development planning, identification, implementation, monitoring and evaluation).

Intensive field studies, such as those of the University of Bordeaux in Maradi Department, confirm that far more land is being farmed than recognized in the official statistics, and that official figures on yields per unit land are unduly optimistic: the gross harvest is produced on a substantially larger area of cultivated land than assumed in government calculations, and net farm production and income, therefore, are far lower. Discrepancies in these figures are acknowledged in AID's 1979 Niger Agricultural Sector Assessment (Enger 1979:9, references omitted):

> Figures for cultivated land area are indeed disparate. The planning office in Maradi, drawing from the University of Bordeaux studies, estimates that cultivated land in Maradi Département was 35.9 percent of total areas as opposed to Ministry of Rural Development estimates of 12.6 percent. In the Département of Zinder, the University of Arizona, using remote sensing techniques, indicates an almost 50 percent higher degree of land exploitation than the MDR estimates (10,400 sq km vs. 15,000 sq km). The Département of Niamey planning office also cites several discrepancies with the MDR estimates.
>
> If one assumes that the total annual production figures are reasonably accurate, then underestimating total acreage cropped distorts yield data. Consequently, our correlation analysis may only reinforce what specific Département studies have already shown - that the acreage cultivated is vastly greater than the figures given in MDR data, while yields are, on the average, much less. If the trend of acreage expansion is greater than the rate of growth of population..., then yields may be declining. This conclusion would support our marginal land hypothesis. It may well

TABLE 1

AREA IN CROPS BY DEPARTMENT, 1968-1977*
(000 HECTARES**)

Department	Useful for Agriculture	Percent of Department Area	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Niamey	8,730	97	640	1009	1010	970	1021	750	755	521	856	865
Dosso	3,100	100	457	434	477	484	402	382	474	489	518	561
Tahoua	3,618	34	398	390	380	368	380	373	421	166	450	536
Maradi	3,502	91	398	407	367	385	424	427	462	404	440	493
Zinder	5,585	38	386	376	404	430	434	361	452	541	524	634
Diffa	2,465	18	47.9	54	61.6	92.4	15.8	21	38	33.3	41.2	60.3
TOTAL	30,000		2327	2670	2700	2729	2677	2314	2602	2154	2819	3149

* The whole of the Agadez Department (41.5 million hectares) is considered outside the 30 million hectares of the "useful" agricultural area. There are, however, scattered oases within the Department.

** The physical area cropped.

(Ferguson 1979:3)

also reflect more accurate rainfall/yield relationships, as would logically be expected. To adjust the data and rerun the correlations is difficult - not only in determining an adjustment factor for the entire country, but also in determining how far back to make the adjustments.

In any case, because the food production strategy of the GON is developed around improving crop yields, more accurate yield data is critical.

The amount of unused land available for cultivation is therefore under question. With an estimated annual population growth of 2.7 percent (resulting in a projected population of some 10 million persons by the beginning of the next century), there is heightened concern over increasing pressure on limited agricultural resources and, unfortunately, an economically feasible technical package for substantial yield improvements in the rainfed sector has not yet been offered to Nigerien farmers. Shortened fallows and inadequate fertilization threaten serious soil deterioration, and the northward extension of farming pushes herders into ever more precarious positions as their better pastures are lost to high risk low return cropping. Yet faced with limited capital and labor with which to intensify production on existing lands, the lateral extension of cultivation onto marginal soils is a rational, though short-term, compensating strategy for loss of soil fertility. The problem is appreciated by the Niger Government (République du Niger 1980:48):

> Le problème de la dégradation et de l'apprauvrissement des sols est donc d'une exceptionnelle gravité. Il évolue aussi avec une exceptionelle rapidité, du fait de la conjugaison permanente et une progression constante des facteurs physiques, humaines, et animaux...

Several recent studies have pointed to the significant role played by both French colonial and Niger Government policies in increasing the demand for and commoditization of arable land (Reyna 1979; Sutter 1979; Franke and Chasin (1980). The French administration imposed a capitation tax very early in the colonial period and required that it be paid in cash rather than in kind, with the explicit intention of forcing peasants and herders into a monetarized economy and raising funds for colonial administration. The introduction of groundnuts as an export cash crop in the 1930s was another aspect of this policy. Demand for imported consumer goods grew rapidly, and cash also began to replace goods-in-kind in traditional gift exchange relationships (Hausa biki) and in wedding arrangements. With a rapidly growing need for cash, sedentary farmers increased groundnut production at the expense of the staple food grains. This competition between domestic and export crops was already noted with concern by observers in the 1950s (Nicolas 1960).

Franke and Chasin (1980) argue that rapid monetarization, combined with worsening terms of trade for groundnuts following the entry of France into the Common Market and the termination of preferential prices for African crops, was a major factor in pushing farmers even further northward into the more precarious farming regions near the 350mm isohyet during the 1960s,

causing overgrazing in the reduced pastures remaining available to herders. Others argue that the good weather alone encouraged that northward movement. Because of the unusually favorable climatic conditions, not just groundnut producers but also grain farmers and herders took advantage of the new lands that became available through better rainfall. Everyone then was trapped by the drought and the southward migration of the 300 mm isohyet, which shifted from its 1952 position between Agadez and Tanout to between Filingue and Niamey by 1973 (Bernus 1981:12). Reyna (1979) notes that land tenure legislation enacted in 1961 and 1963 made it disadvantageous to leave fields in fallow and beneficial to cultivate the largest possible area to facilitate establishing formal title to the land.

After independence the Nigerien government maintained the capitation tax and in fact increased it rapidly, some 1400 CFA per taxable person by 1977. Following the increase in uranium-mining revenues in late 1977, the military government discontinued the national head tax leaving in force only the small arrondissement tax of 350 CFA per taxable person. But doing away with the head tax had relatively little affect on the overall monetarization process, because such taxes were only one of many cash obligations faced by rural Nigerien households. Given the sharp decline in public revenues from the mining sector, one wonders how much longer the Niger Government will wait before restoring some form of national head tax, and what the political consequences of such an inevitably unpopular move will be.

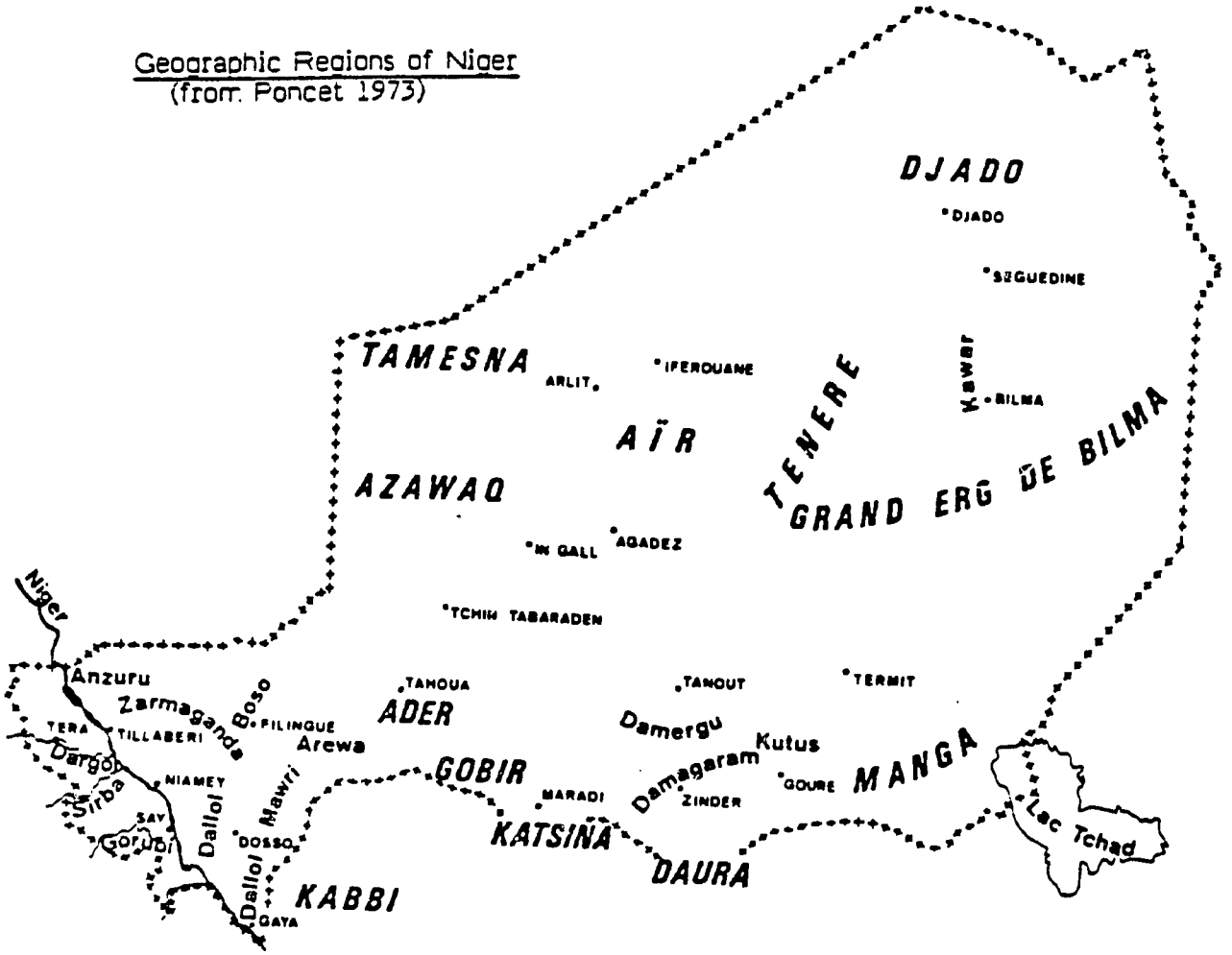
Ethnicity, Population, and Settlement

In rural areas of Niger, geographic regions continue to be referred to by their pre-colonial names. While there is a general association between ethnicity and geography, in many cases these regions were not ethnically homogeneous but rather they organized under a single over-arching political structure a number of peoples segmented by language, history, occupation and ethnicity.

A. Ethnicity. The term "ethnic group," which has replaced the earlier and now rejected notion of "tribe," does not itself necessarily imply a cultural unit whose members all share a sense of common identity. For example, one of the five major linguistic divisions of the country, Kanuric, is usually referred to by non-speakers of the language as "Beri-beri," the term used in the Niger Country Development Strategy Statement FY 83 listing of ethnic groups in Niger (AID 1981:3). Yet the people of Mangari and surrounding areas see themselves as members of a number of different groups with distinct histories who happen to speak closely related languages: Dagara, Manga, Mobeur, Sugurti, Jetko, and Kanembu. To outsiders, they are all "Beri-beri;" but they themselves recognize no common group identity (Horowitz 1972a). Poncet (1973:18), whose ethnic classification generates some 30 groups in Niger, advises caution in using the term "ethnic":

> La notion même d'ethnie est battue en brèche. Loin de refléter l'unité d'une population, elle s'avère être la dénomination commode par laquelle les uns et les autres se différencient de leurs voisins, les critères de différenciation variant dans le temps et dans l'espace.

Geographic Regions of Niger
(from Poncet 1973)



Thus it is important not to assume much more than a linguistic classification in the conventional division of Niger into five principal groupings (AID 1981:3):

Language Grouping	Approx. Percent of Total Population	Approx. 1977 Population
Hausa	56.0	2,855,000
Zarma/Songhai	22.0	1,121,500
FulfulDe	8.5	433,500
Tamasheq	8.0	408,000
Kanuric	4.3	219,000
Arabic, Tubu, Gourmantche	1.2	61,000

As it is misleading to assume that language implies ethnicity, it is also misleading to assume an unambiguous occupational or ecological commitment on the basis of language. Thus, the literature is replete with references to

"Hausa traders," "Songhai farmers," and "'Fulani' (using the Hausa word adopted in the English literature for FulBe) herders," as if the linkages were inevitable and exclusive. Of course, pastoral herding is more likely to be accomplished by persons speaking FulfulDe or Tamasheq than by those who speak Hausa or Songhai. But there are many FulBe traders, farmers, clerics, school teachers, government officials, and soldiers. Most Hausa-speaking peoples are not merchants. And so on.

The issue of ethnic group identity is complex and relative, or rather, situational. That is, ethnicity is a resource that individuals elect to make use of in relating to other persons as well as a unit of common identity. As a situational event, the level of ethnic identity invoked may be a function of the social distance between the individuals involved. Persons who are members of the same lineage of WoDaaBe, for example Bi-Bidenke or Suduskayel, need not refer to any higher level of segmentation, and will explore kinship or sublineage connections between them. Members of different lineages will refer to those differences if they are seeking to distance themselves from each other, or they will refer to their common WoDaaBe* membership if they wish to undercommunicate their differences. A BoDaaDo (singular of WoDaaBe) and a Pullo (singular of FulBe) may refer to their separate and distinct commitments to Islam (WoDaaBe are seen as indifferent Muslims, at best), if they are seeking to emphasize their separateness, or to their common language, FulFulDe, if they wish to come together.

In recent years, many of the smaller units which functioned importantly in the past have combined as political interest groups on the national level. Indeed, the coming together of peoples in very large ethnic groupings—i.e., "Hausa"—is itself a product of the modern political state. There is a certain irony in this event, as the political state, or rather those who control it, see in the potential segmenting functions of ethnicity a danger to the sense of nationhood they are trying to create. This is especially true where, as almost everywhere in Niger, large ethnic units cross national boundaries. Thus, while Hausa-speakers are the largest linguistic group in Niger, they are but a small fraction of the huge Hausa-speaking community located in Northern Nigeria. Similarly, the Songhai of the Niger River, see their origins and perhaps their compatriots in Mali; the Manga still refer to themselves as talaka ("commoners") of the Kanuri Shehu in Maiduguri; Nigerien Tubu east of Termit have historic ties to the Teda of Tibesti, in Chad; Arabic-speaking and Tamasheq-speaking (the latter a sub-branch of Berber) peoples find themselves wooed from the north, by Algeria and especially by Libya. The Niger Government is particularly sensitive about this issue, and does not favor investigations that seem likely to encourage ethnic differentiation. Memories remain fresh of the civil war in Nigeria, and of ethnic hostilities in other neighboring states.

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* Throughout this report, we have used the generic term "FulBe" to refer to speakers of FulfulDe. The common term, "Fulani," is a Hausa word, rarely employed by the FulBe themselves. The French term, "Peul" or "Peulh," derives from a mishearing of Pullo, the singular form of FulBe.

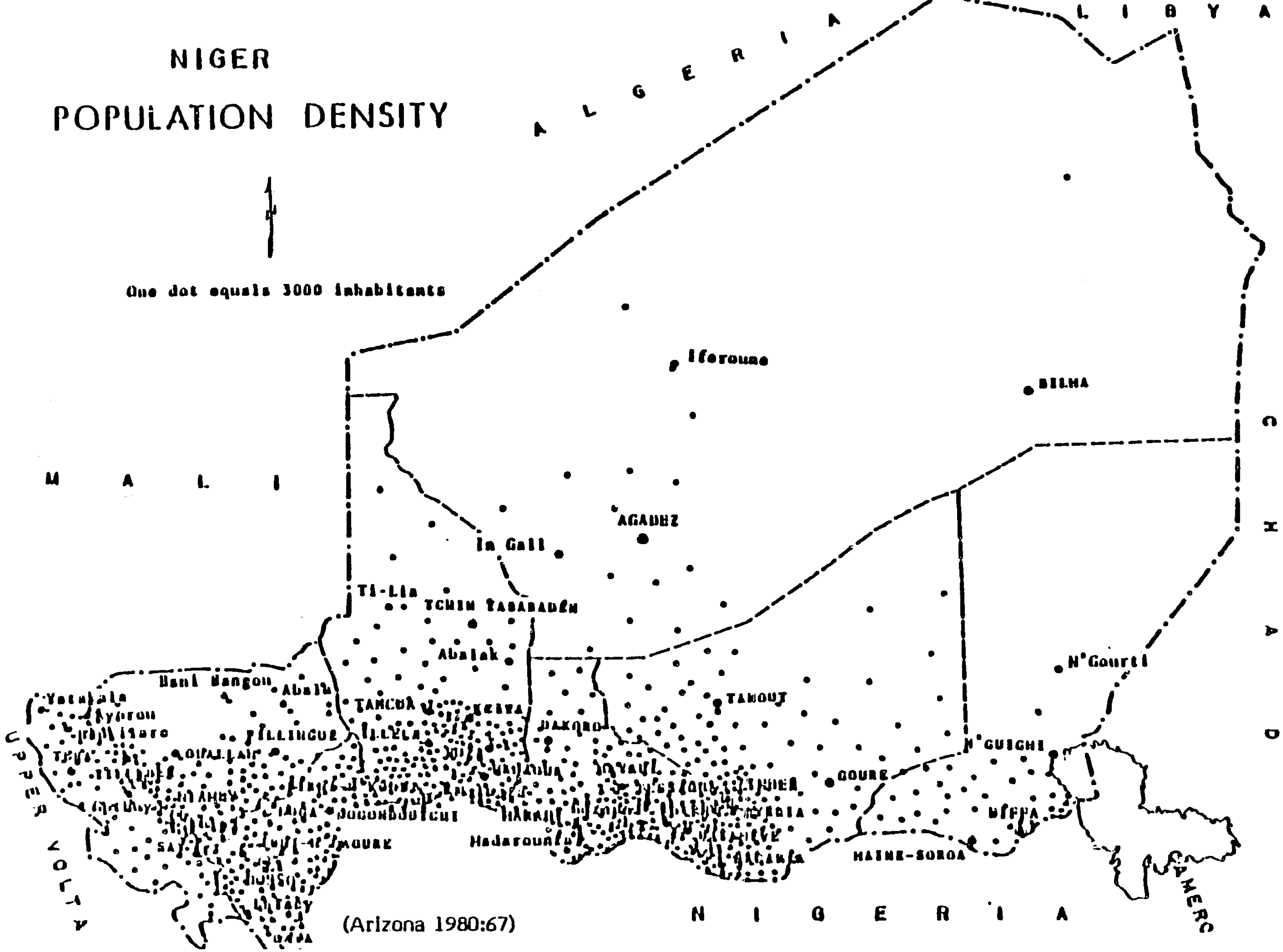
Ethnic groups are also segmented by class and caste. A number of free-born or aristocratic groups maintained relationships of dominance over others who, often adopting the former's language, provided certain economic and social services to them. In Tamasheq, "Iklan" refers to captive groups, Tamasheq-speaking, who provide services to their Tuareg captors. The term "Buzu," apparently of Hausa-origin, similarly refers to persons in a captive status to Tuareg. "Bella" is the corresponding term in Songhai, and "Harratin" in Arabic. Some terms are used occupationally, but with caste-like (i.e., tending to strict endogamy) implications: "Sorko" refers to Songhai-speaking fishermen along the middle Niger River; "Daggara," a Kanuric-speaking group of farmers around Kelle, means "water-carrier" in Maine-Soroa, where young Daggara men migrate as laborers (Horowitz 1974).

The temptation to equate language with ethnicity and with occupation is understandable; but that temptation is to be avoided as it leads to quite false understandings and conclusions. This is not to say that cultural information is irrelevant to the development planner. On the contrary, it is of such importance, that the planner must be assured that it applies to the specific situation in question. And that normally requires on the ground investigation.

B. Settlement Patterns and Population Density. More than 85 percent of the Nigerien population is rural and food-producing, living in some 8,000 villages across the agricultural zone, in a few oases in the north, and in mobile herding communities. FulBe and Tuareg groups include pastoral specialists, semi-sedentary agro-pastoralists, and full-time farmers. Marguerite Dupire pointed out in her monumental study of WoDaaBe herders (1962) that a form of movement--such as transhumance--does not define a specific way of life, but is rather part of the resource inventory available to all pastoral peoples. There is a pendulum-like movement, she wrote, between a fully mobile pastoral economy, elected when climatic and political conditions allow, and a mixed or even fully sedentary farming economy. No pastoral group exists without some experience in all of these types of movement. Hence, it is clearly unwise to label a people as "nomadic," or "semi-nomadic," or "transhumant," if these terms are not meant to imply specific adaptations rather than specific ways of life. Given the fluctuating climate of Niger, of which the recent great drought was a graphic example, movement is part of the survival equipment of most peoples. Specific concentrations of persons may not endure, and what appears to be open country today may have been crowded in the past and become crowded once again in the future. Of course, with the general increase in population, crowding is increasingly the condition of Nigerien life.

As can be seen on Map Four, population is concentrated in the higher rainfall areas along the Nigerian border from Zinder westward, and along the Niger River Valley. Pastoral populations also compete for the better watered grazing areas. As one moves northward and eastward from Zinder, population thins out, reflecting the prevalence of herding over farming in those parts of the country, with the exception of fairly dense concentrations in those valleys and dallol that allow for irrigated gardening and along the Komadugu River.

MAP FOUR



(Arizona 1980:67)

Despite the preponderance of population in the rural food-producing areas, the urban sector is the most rapidly growing component of Nigerien society. Just after independence, only 5.6 percent of the population, some 142,000 persons, were censused as urban. In 1977, there were 600,000 people living in towns (Lombardini 1981:3). The capital city, Niamey, was estimated that year to have a population of over 225,000 (République du Niger 1980:497), and many believe this to be a substantial under-count. In 1977, Maradi was estimated to have 46,000 inhabitants; Zinder, 58,000; Tahoua, 31,000; Agadez, 20,000; and Birni N'Konni, 15,000 (Europa Yearbook 1982:1101). The urban population in 1981 was assumed to have increased by another 100,000 people, with almost 13 percent of the population now living in towns. Lombardini (1981:4) believes that more than 20 percent will be urban by the end of this decade,

> and this figure assumes that nearly one million additional persons will be absorbed by the rural sector over the next ten years. This assumption is valid if no extended periods of drought occur during the eighties and if major progress is made in the development of employment in the agricultural sector. And it should be noted that rural migration and urban growth have consistently been underestimated in Niger. Niamey, with a yearly growth of 12 percent during the past decade, has tripled in size between 1970 and 1980 while the most pessimistic scenarios made in 1972 did not foresee its present population before the late eighties. Today experts forecast that the capital will exceed one million persons by 1993, but these projects could be overly conservative as well.
>
> Arlit, the mining town in the north of the country, did not exist ten years ago and was planned for a population of 5000. Today it approaches 25,000 people. Agadez, which was touched by the mining development but also by the process of sedentarization, has seen its population quadruple since 1960. Dosso, whose population approached 10,000 in 1977, currently has between 20,000 and 30,000 residents, depending on who does the census.

Unfortunately, with but a few notable exceptions (Adamou 1979; S. Bernus 1969; Poitou 1978), relatively little serious attention has been focused on these cities as modern events (although there is a fairly rich literature on some of their pre-modern histories). During the past few years, some studies have appeared under the auspices of the Ministry of Public Works, Transport and Urbanism (République du Niger 1981a and 1981b), which are beginning to create a data base dealing with cities. The Niger government is naturally concerned about the availability of urban amenities--potable water, sewage, street lighting, domestic electrification--but most of the efforts at urban amelioration are in Niamey. There is a recognition that secondary cities must be developed in various parts of the country to alleviate the potential distortion in population concentration as people continue to flock to the capital, but there has been little reallocation of public finances to make this happen.

> For the five year period between 1979 and 1983, 58 billion francs CFA of local public investments have been proposed for the Department of Niamey, with a population of nearly 1,300,000 but only 16 billion for the Department of Maradi, with a population of slightly over 1 million. As many new classrooms are proposed for the city of Niamey as for the entire Department of Dosso, whose population is two and a half times that of the capital. In 1978 44 of the 46 doctors in the Department of Niamey practised in the capital (Lombardini 198?:6).

With the budgetary crunch being experienced by the Government of Niger due to the decline in uranium-revenues, these imbalances are likely to worsen before they improve.

There is general agreement among scholars that the rural-urban exodus includes both a push factor, in that the farm or pastoral herd is insufficiently productive to allow for maintenance of all the members of the household, and a pull factor, in that there are genuine employment opportunities in the towns and cities, that at least allow the individual to maintain himself (this migration is primarily male) if not to generate a surplus. Unfortunately, there have been no systematic investigations of the so-called informal employment sector in Nigerien towns. Laval (1981) has published a brief and rather superficial account of the Niamey "tabliers," young men who carry on very small scale commerce--cigarettes, kola nuts, chewing gums--from trays. Gregoire (1981) has described employment, mainly unpaid apprenticeship, in small metal-working shops in Maradi. Morice (1982) provides an overview of non-salaried apprenticeship labor across Africa. It is clear that the towns generate a great deal of employment, but its dimensions and dynamics remain unanalyzed. Especially lacking in our understandings of the urban wage labor sector (including "non-formal" and apprentice labor) are its linkages with the rural areas. What are the origins of the urban laborers? Are they persons without land, or persons whose land is insufficient in quantity or in quality to insure satisfaction of basic domestic needs without recourse to other sources of income, either in Niger or abroad? Are these persons whose economic conditions in the rural areas have deteriorated due to the accumulation of capital on the part of the small affluent elite? There is a continuing discussion over the degree to which the elite--both public and private sector--is a necessary component of development, by making employment-generating investments, or is an impediment to development, by siphoning off resources from the rural sectors that could be more beneficialy invested. In the past few years the Niger government has been able to replace regressive head and cattle taxes that burden the peasantry, with revenues derived from the mining sector. The government's ambitious development program was largely predicated on these revenues, which have now seriously declined, and which, with the general weakness of the French franc vis à vis other world currencies, has left the Nigerien treasury in a near bankrupt situation. Under these conditions, the Niger government, with the strong encouragement of the donors, is seeking to introduce a more vigorous "fee for services" program in the attempt to

generate local revenues. One can anticipate strong pressure to re-establish the regressive head taxes whose elimination, perhaps more than any other event in the minds of the peasantry, distinguished the military government from its predecessor regime.

The population growth rate is often cited as an obstacle to development in Niger, and one is frequently reminded that the Niger government is insufficiently responsive to the issue, due, it is claimed, to a disinclination to "offend a society whose religious traditions and ethnic customs embrace polygamy." Thus the final causes for the high rate of population growth appear to lie in the "traditional" and pro-natalist attitudes of the Muslim peasantry. Yet this approach to an explanation implicitly assumes that Nigerien peasants are inherently irrational, by reproducing at such high rates in the face of reduced availability of land, a difficult and now declining off-farm employment sector, and deteriorating natural resources. Is it not possible that high fertility may infact give the peasants a positive pay-off?

It is interesting that the two areas in which Nigerien small producers are accused of irrational behavior both have to do with demography: cattle and people. Herders are accused of maintaining large herds of animals in excess of the carrying capacity of the range, because the animals have status and symbolic values. Similarly, Nigeriens are accused of having large numbers of children for reasons of status and prestige, that is, because of a tradition of "pro-natalism."

An alternative hypothesis is that these behaviors are not aberrations, distinct from the other adaptive processes in agriculture and herding but, on the contrary, they are integral parts of peasant strategies for survival under extremely difficult economic and environmental conditions; reproductive strategies, both for people and for cattle, are consequences of larger processes of social change in which Nigerien food producers are involved.

Under conditions where the margins for entrepreneurial actions on the part of peasantry are impressively narrow, a reluctance on their part to risk excessive expenditures and indebtedness, much less outright loss of harvest, to experiment with externally imposed methods of cultivation should hardly be a surprise, especially since it is they, and not the government and donors who are asked to absorb the potential risks. Secondly, under conditions clearly not conducive to this kind of risk-taking by peasant households, it should also not be a surprise that increased crop production levels--or even no increases, just holding the line on declining yields--continue to result not from intensification or the application of capital intensive technology, but from the application of more human labor extensively over larger cultivated areas. In Niger, there are three solutions to the problems of shortages of domestic agricultural labor: hire, borrow, or bear. The use of wage labor and even recourse to exchange labor requires expenditures or remunerations of some kind: cash, food, labor, time. So do children. But from a relatively early age, children

in rural Niger contribute more to household production than their costs in consumption. Thus, under these conditions, high fertility makes sense, and the production and biological and social reproduction of the household depend on it.

High fertility acts to insure an adequate supply of agricultural labor under conditions where extensive agriculture prevails, that is, where labor is the key to increased production, and where intensification except in a few favored areas (see the discussion of gardening in the section on irrigated agriculture of this report) is too risky. Household labor thus produced pays off in at least four ways: it produces staple crops; it produces export crops; it manufactures commodities for sale and for trade; and it performs essential maintenance and reproduction tasks.

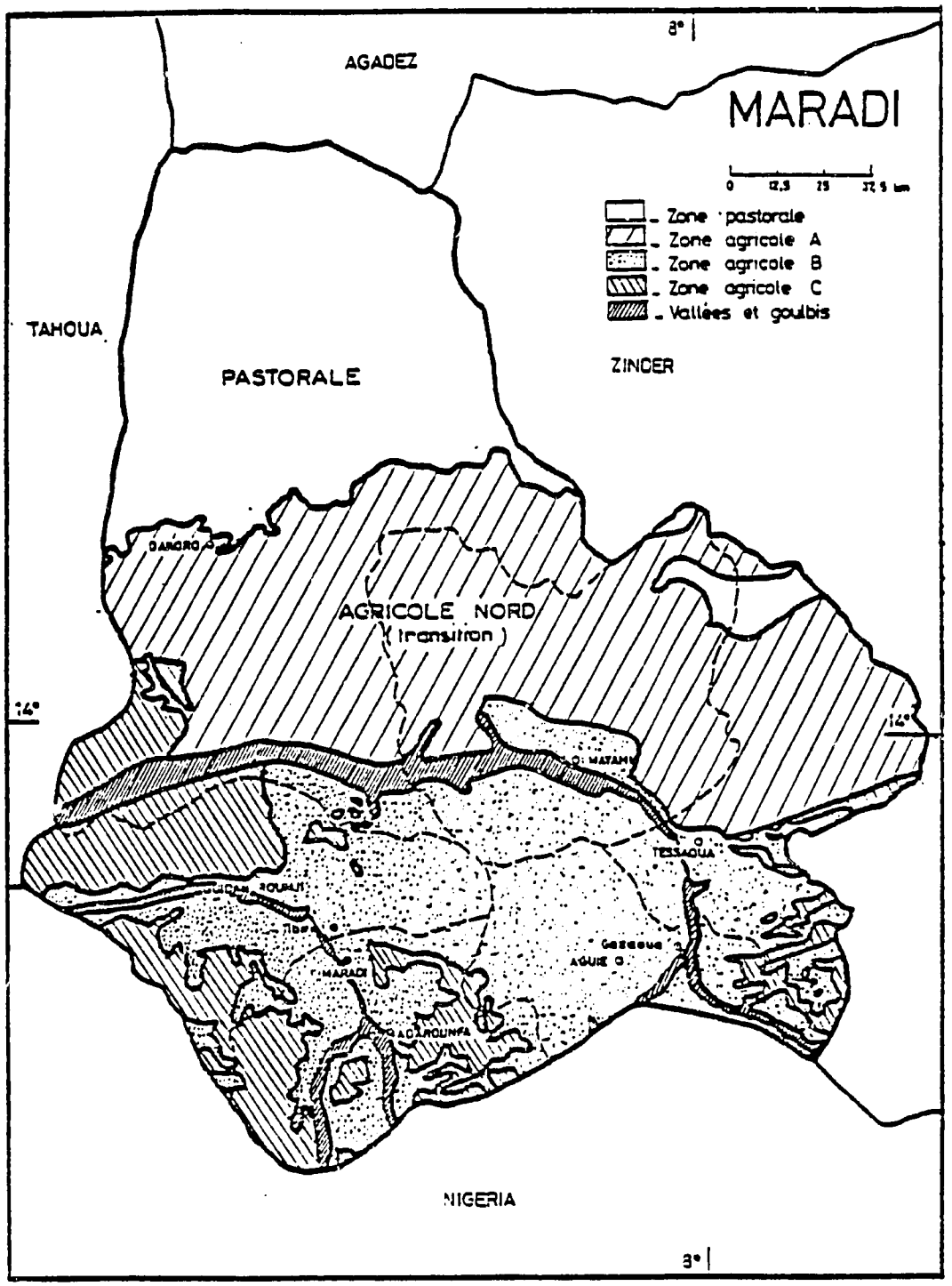
There is a final point that may help to account for continuing high fertility rates in Niger. There is growing evidence that rural households in various areas are unable to subsist solely on the real incomes provided by cash production. Subsistence, that is, domestic survival, requires increasingly that households send family members elsewhere to sell their labor directly during the seasonal labor migrations, often outside the country. Subsistence is so marginal on much of the Nigerien farmland that migration of young men over hundreds of miles yearly to take poorly-paid unskilled jobs has become essential to survival. Nigerien peasant households are thus supplying not only their own domestic labor requirements, but also those of other production centers in rural and urban areas of West Africa. Under conditions where the subsistence base has undergone uneven but constant erosion since the 1960s, both in the spheres of production and exchange (Berg 1975), and where additional income is necessary for household survival, continuing high fertility is a rational response.

ANNEX I

Ecological Zones and Land Use

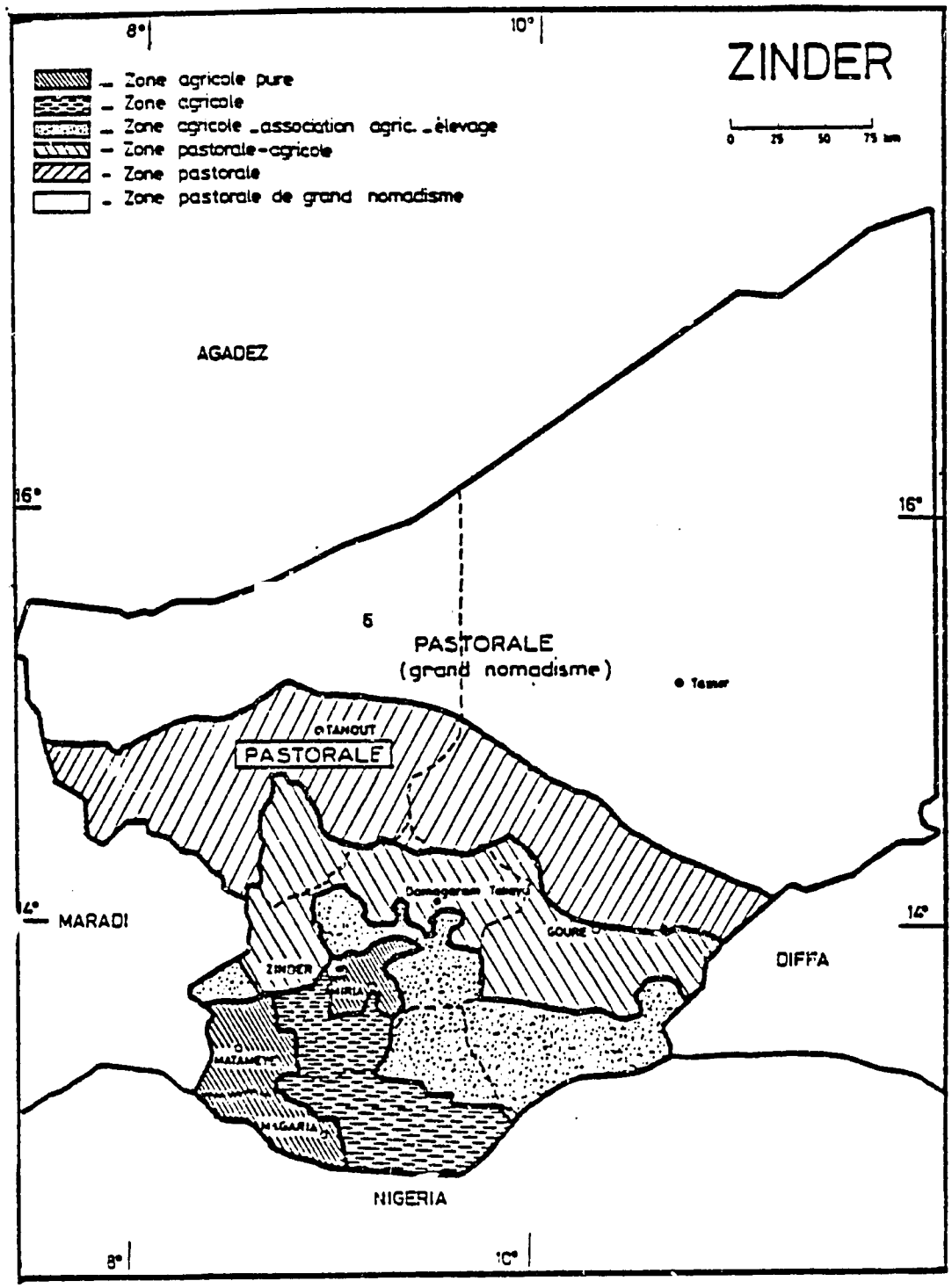
These outline maps of ecological zones and land use, following the scheme noted on page 16 of this section, were prepared for the 1979-1983 Plan (République du Niger 1980). Note that the scale varies from department to department and that the legend is missing from the maps for Niamey, Dosso, and Tahoua.

Land Use Zones in Maradi Department (1978)



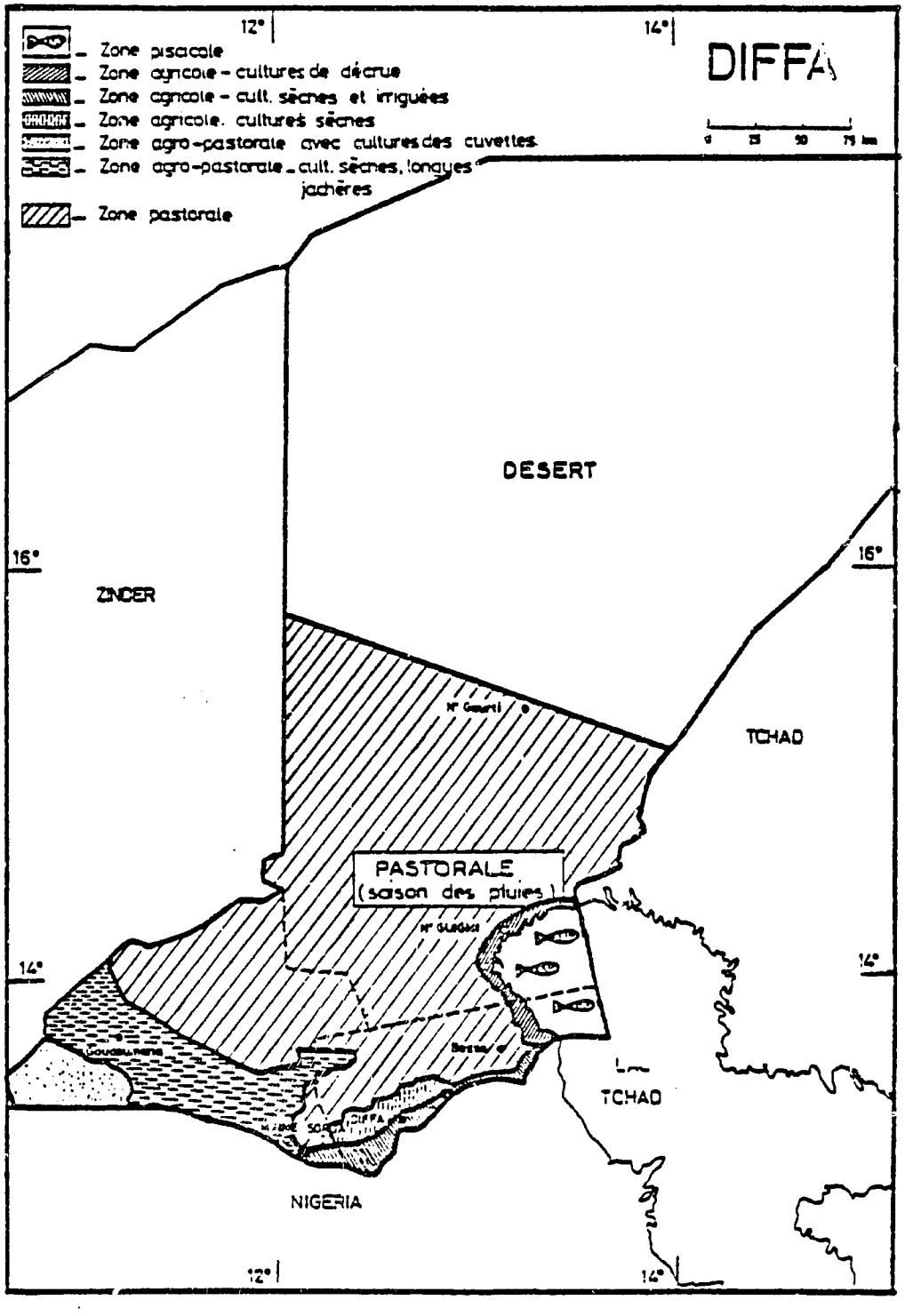
(République du Niger 1980:495)

Land Use Zones in Zinder Department (1978)



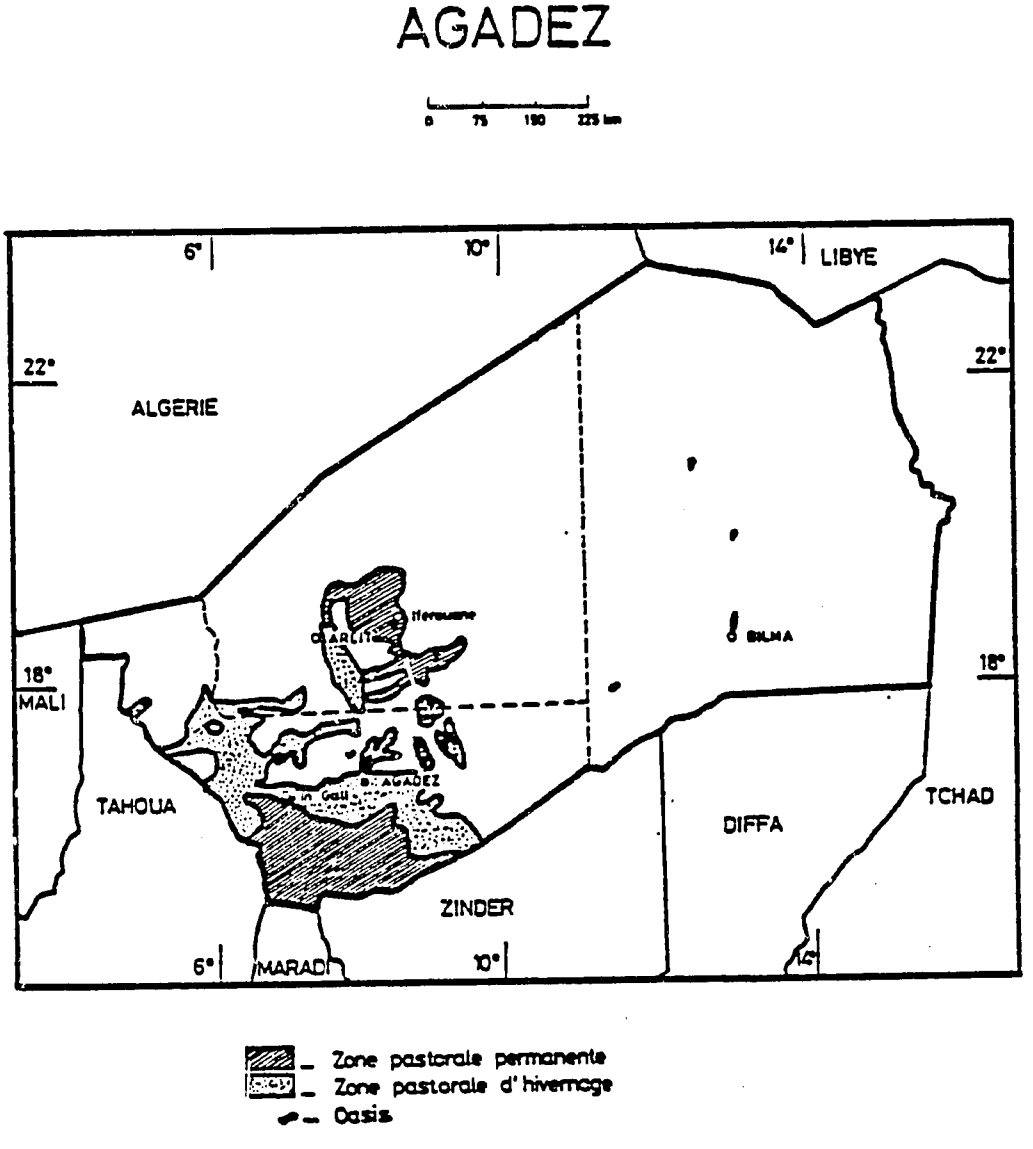
(République du Niger 1980:534)

Land Use Zones in Diffa Department (1978)



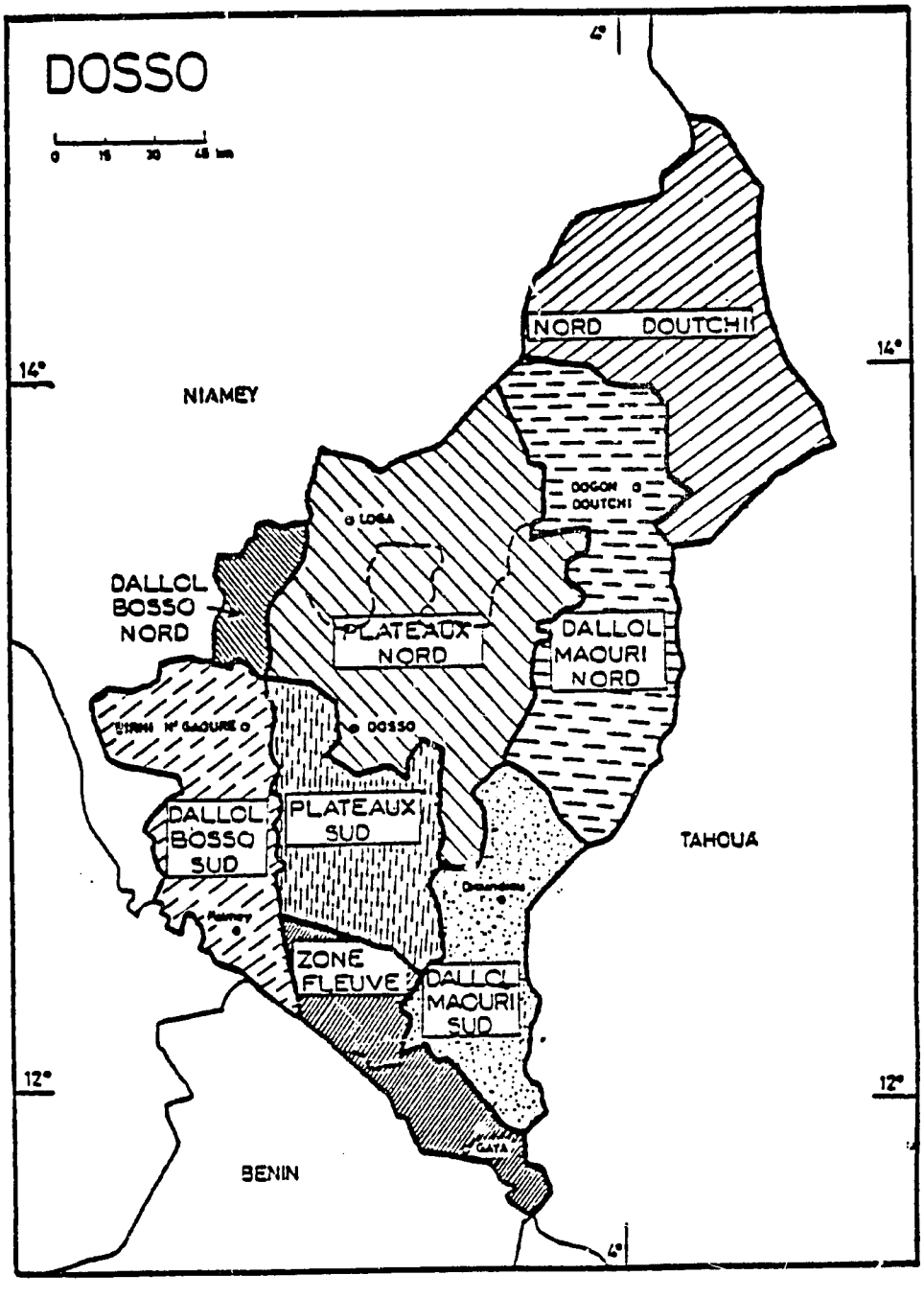
(République du Niger 1980:469)

Land Use Zones in Agadez Department (1978)



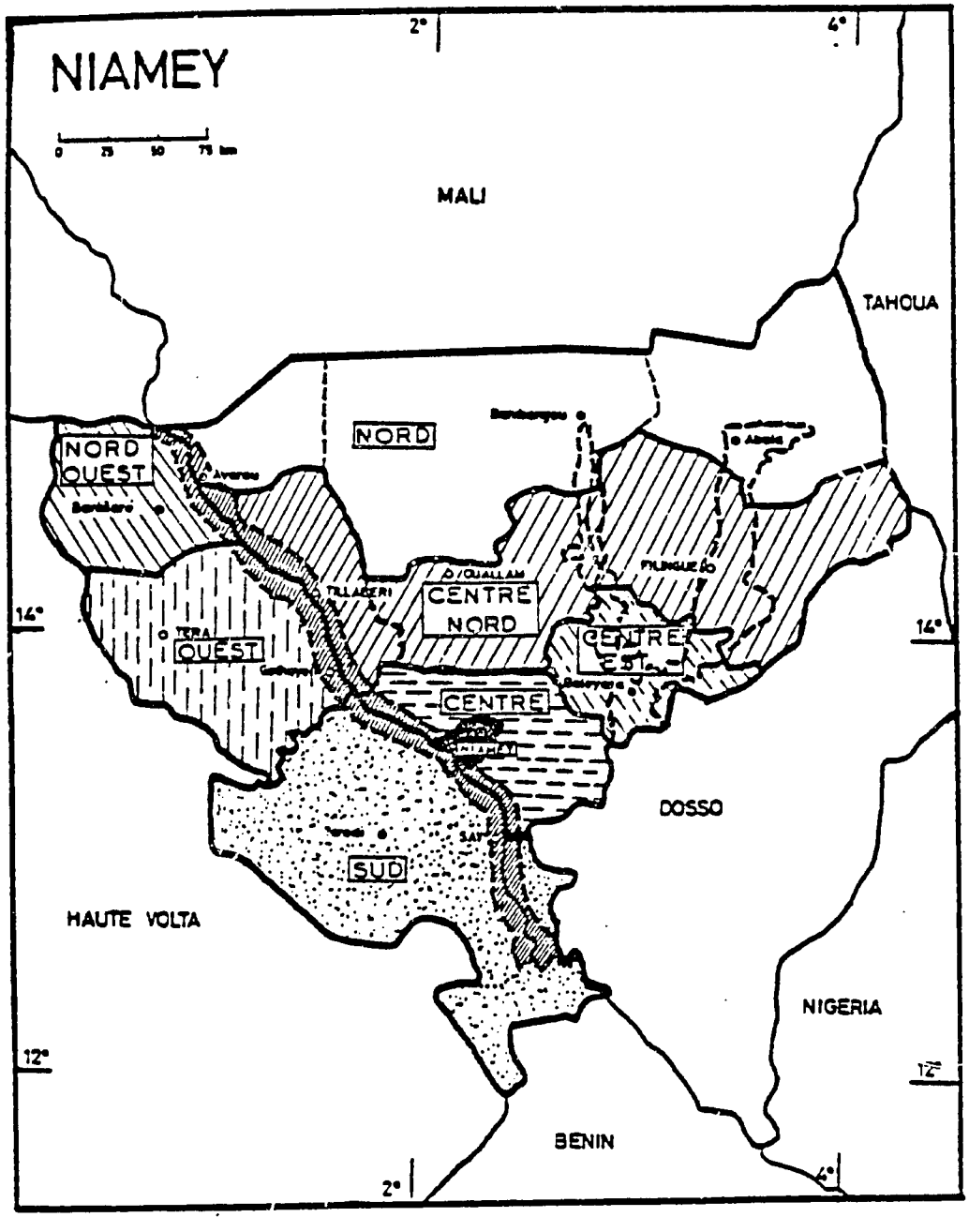
(République du Niger 1980:455)

Land Use Zones in Dosso Department (1978)



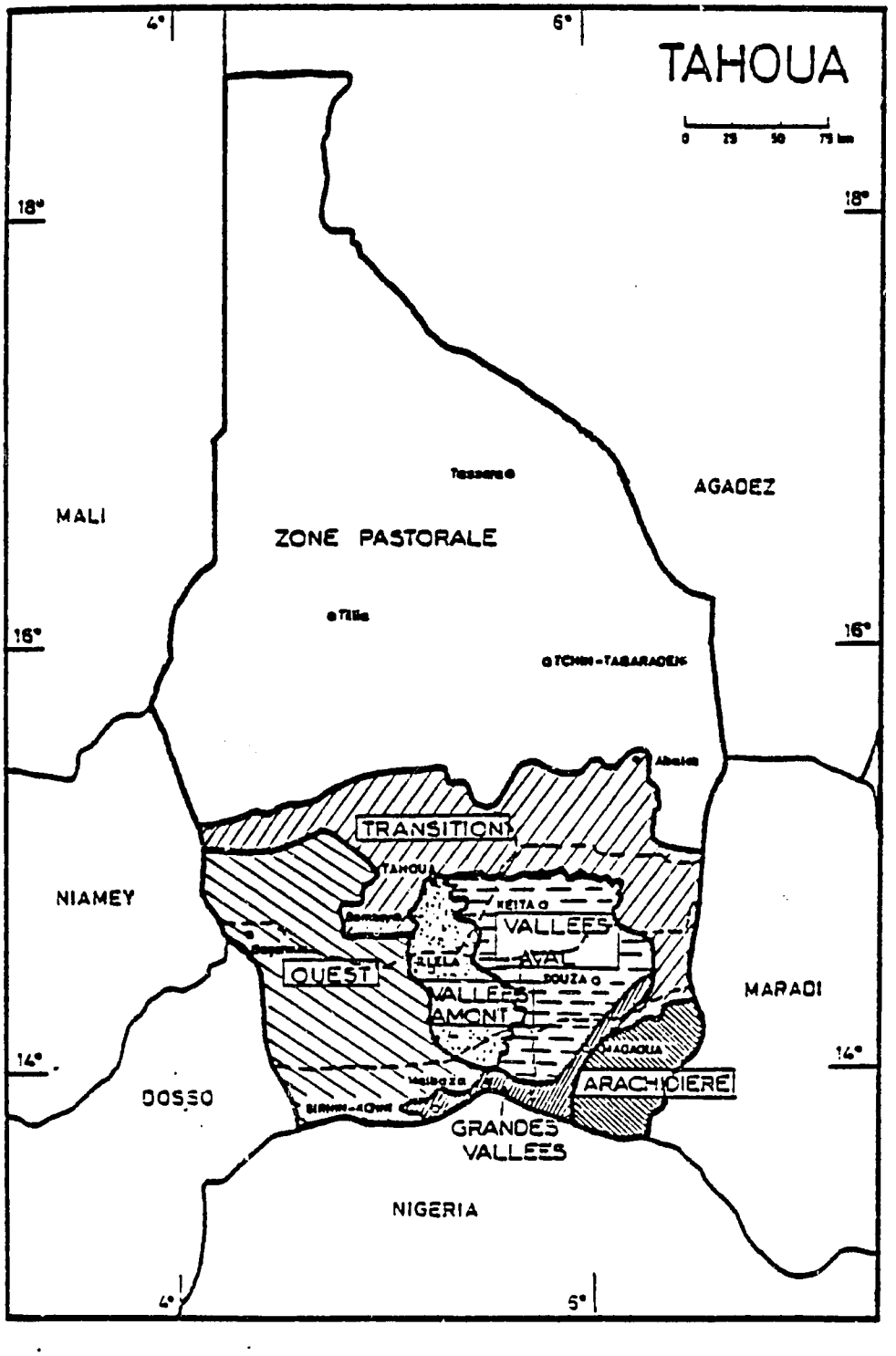
(République du Niger 1980:483)

Land Use Zones in Niamey Department (1978)



(République du Niger 1980:508)

Land Use Zones in Tahoua Department (1978)

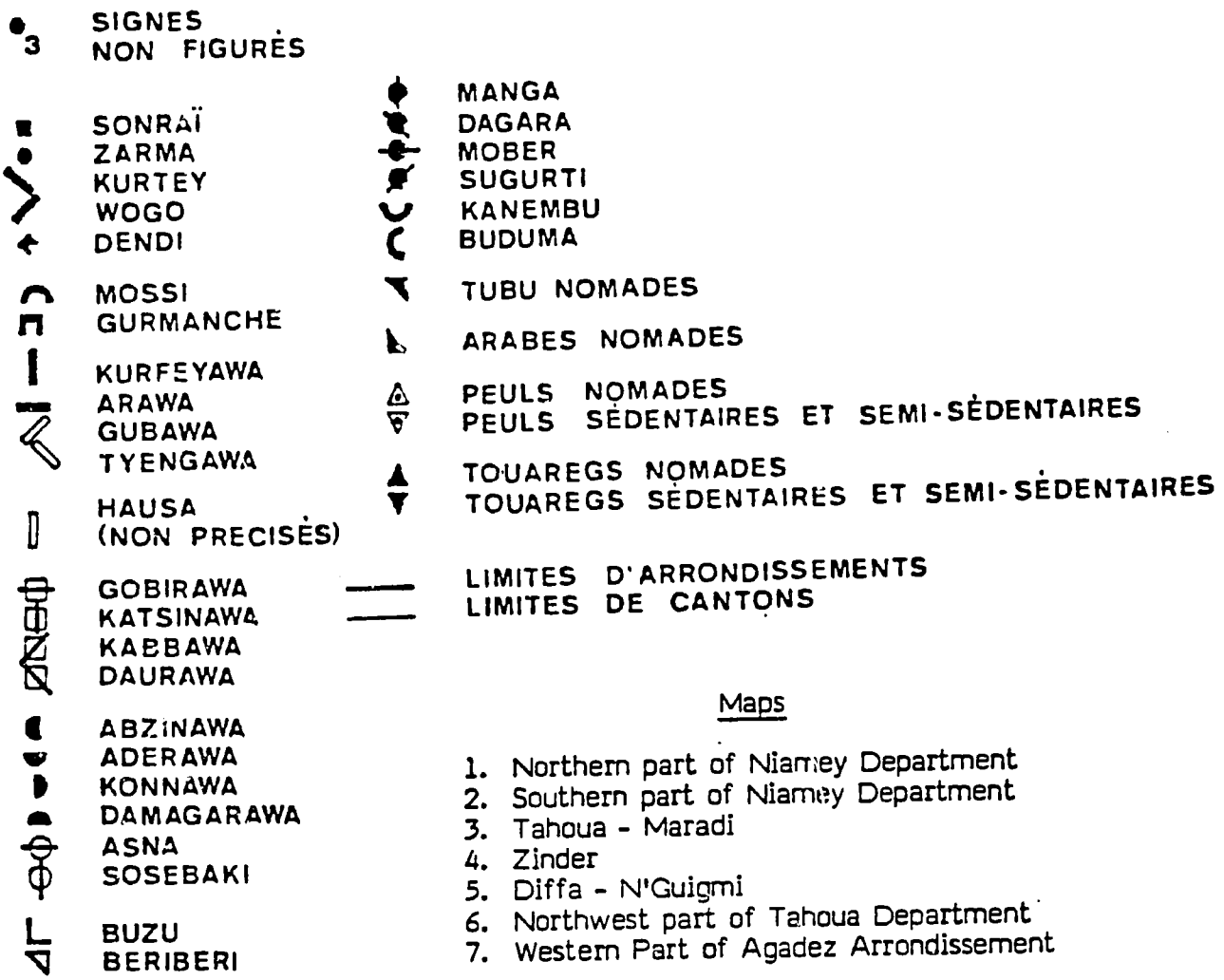


(République du Niger 1980:520)

ANNEX II

Ethno-Demographic Maps of Niger

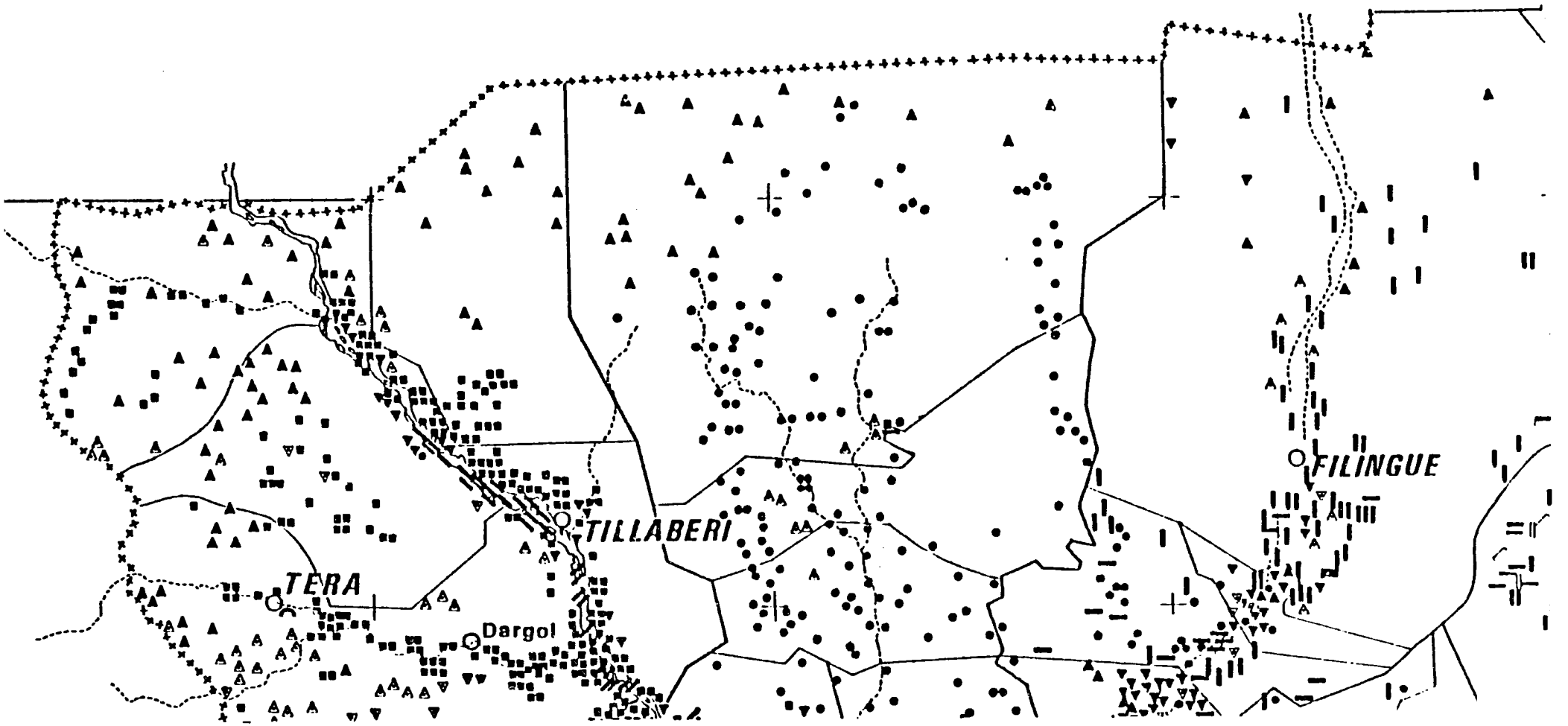
Yveline Poncet (1973) has prepared a group of maps indicating the basic spatial distribution of ethnic groups in Niger, and some of these maps are reproduced in this Annex. Each sign, whose ethnic identification is given below, indicates 500 persons. We have omitted the maps for Ngourti, which indicates widely dispersed groups of nomadic Tubu and nomadic Arabs (primarily Shuwa), and for Termit, which includes pastoral Tuareg in the western and northern reaches of the region, and nomadic Tubu in the east.



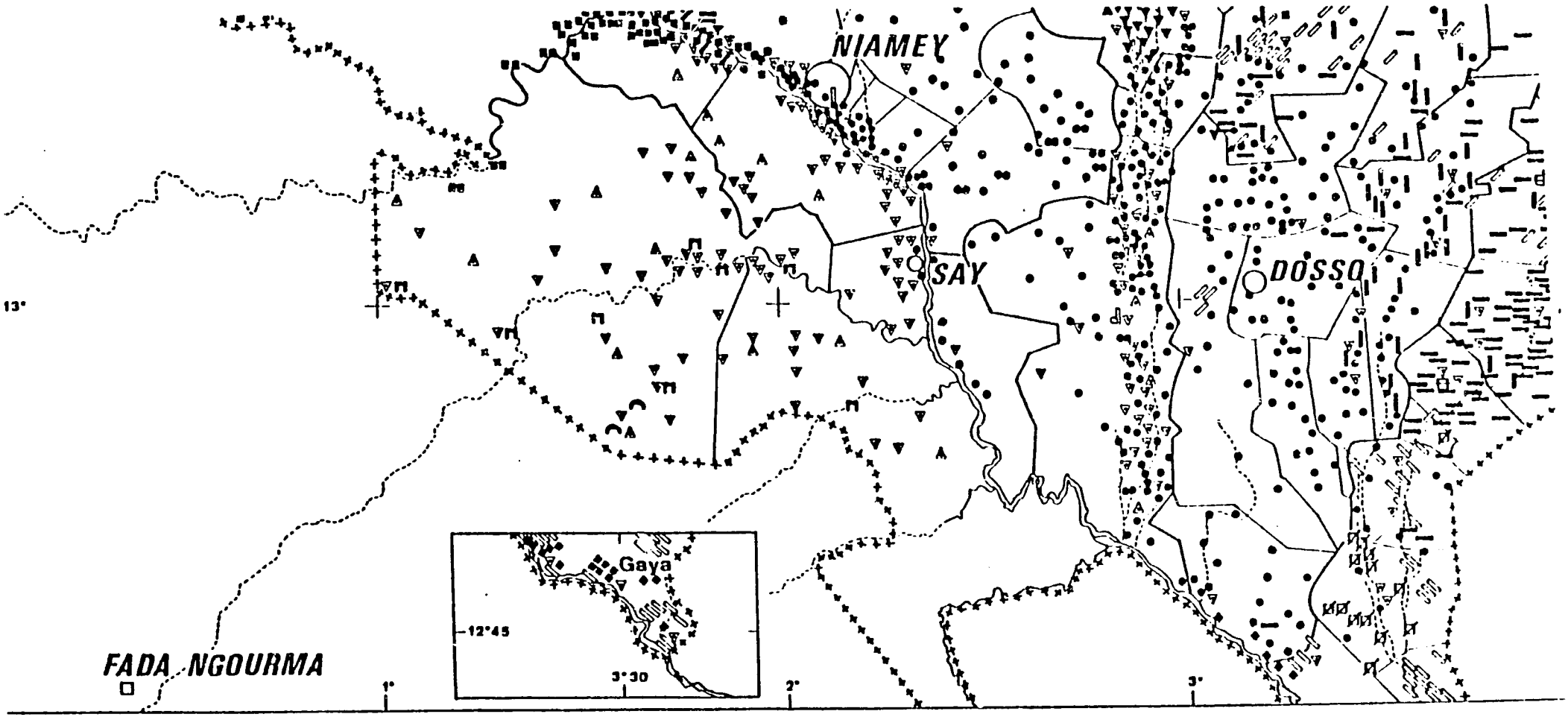
Maps

1. Northern part of Niamey Department
2. Southern part of Niamey Department
3. Tahoua - Maradi
4. Zinder
5. Diffa - N'Guigmi
6. Northwest part of Tahoua Department
7. Western Part of Agadez Arrondissement

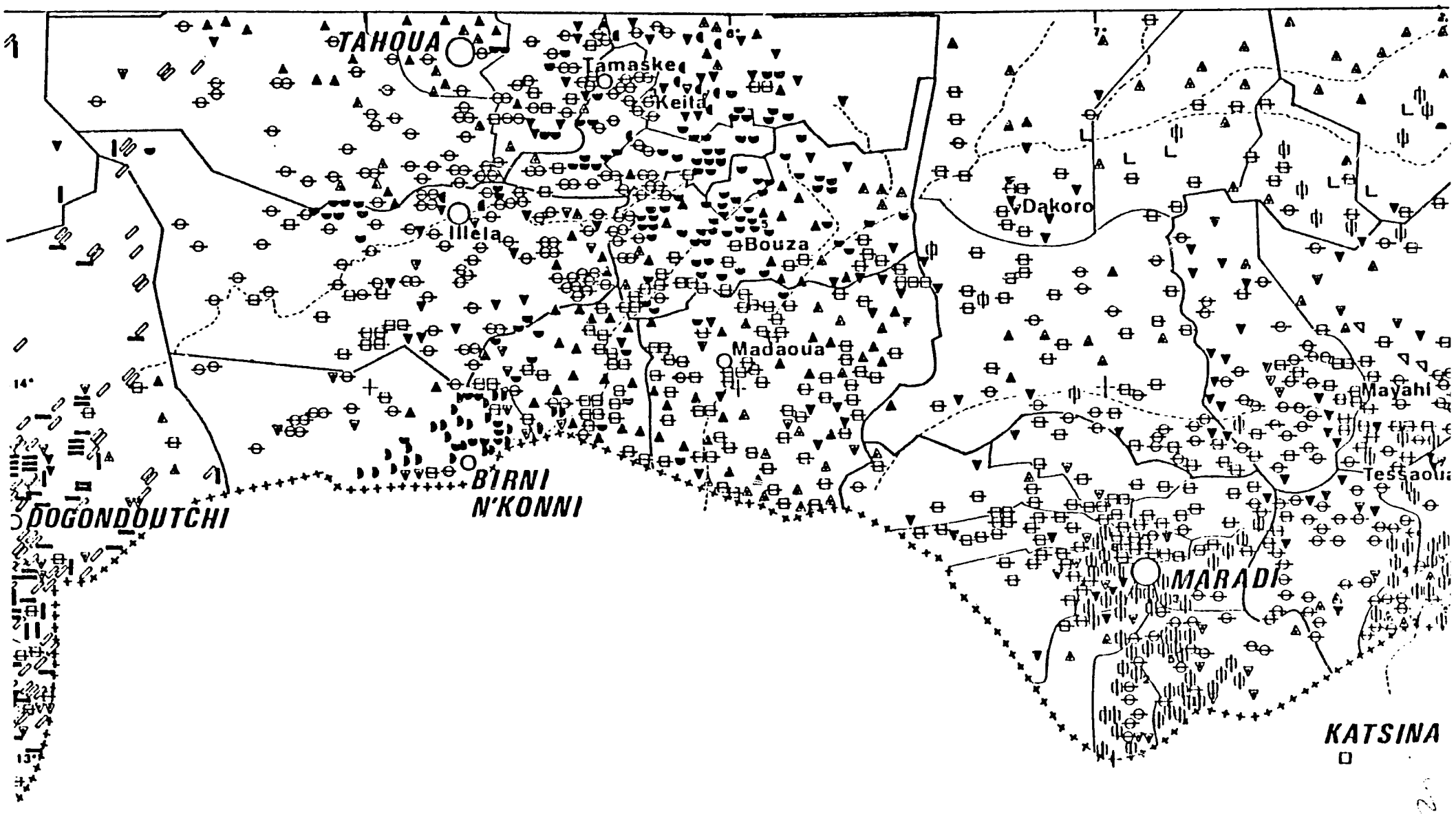
MAP 1 - NORTHERN PART OF NIAMEY DEPARTMENT (Poncet 1973)



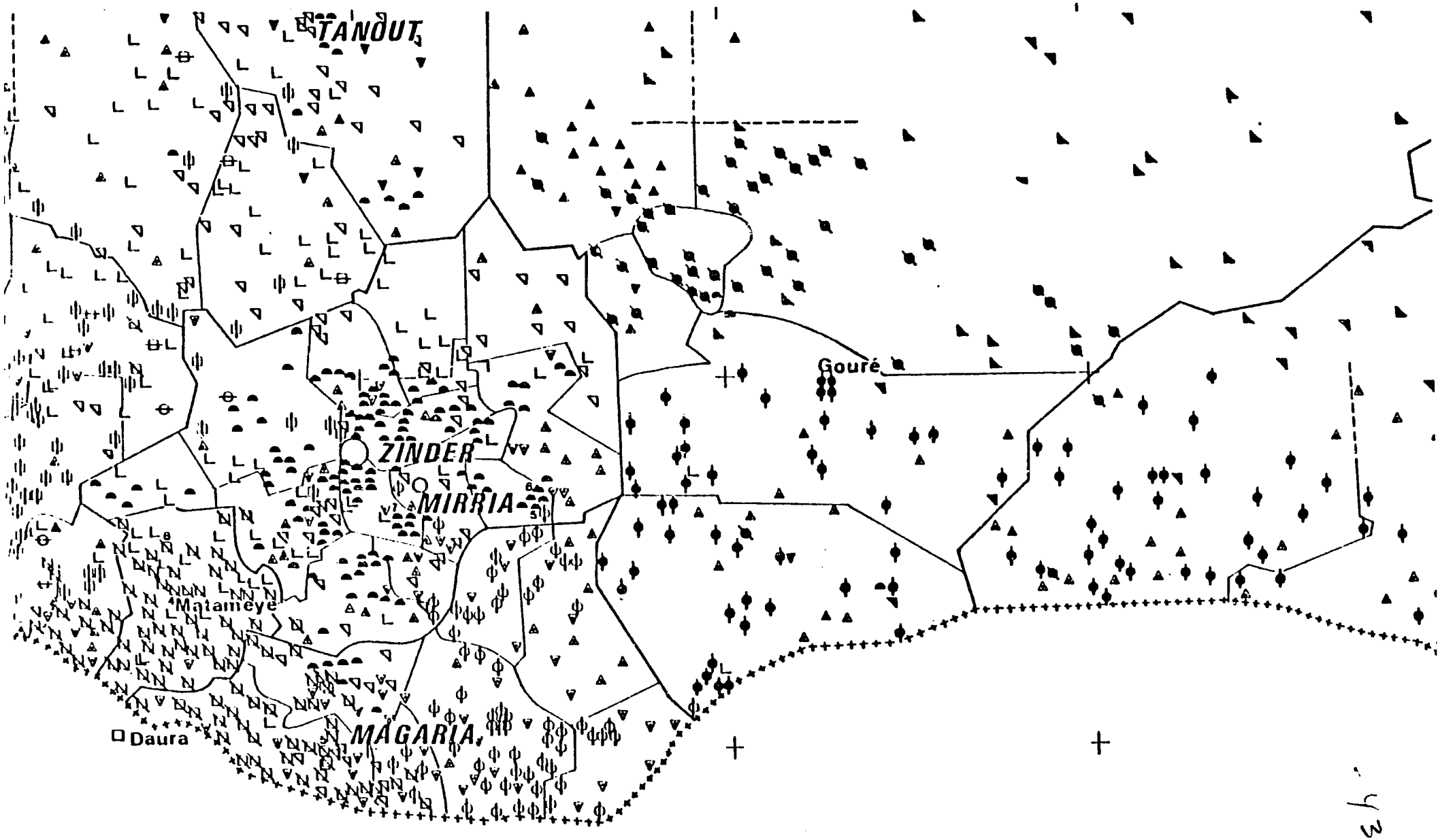
MAP 2 - SOUTHERN PART OF NIAMEY DEPARTMENT (Poncet 1973)



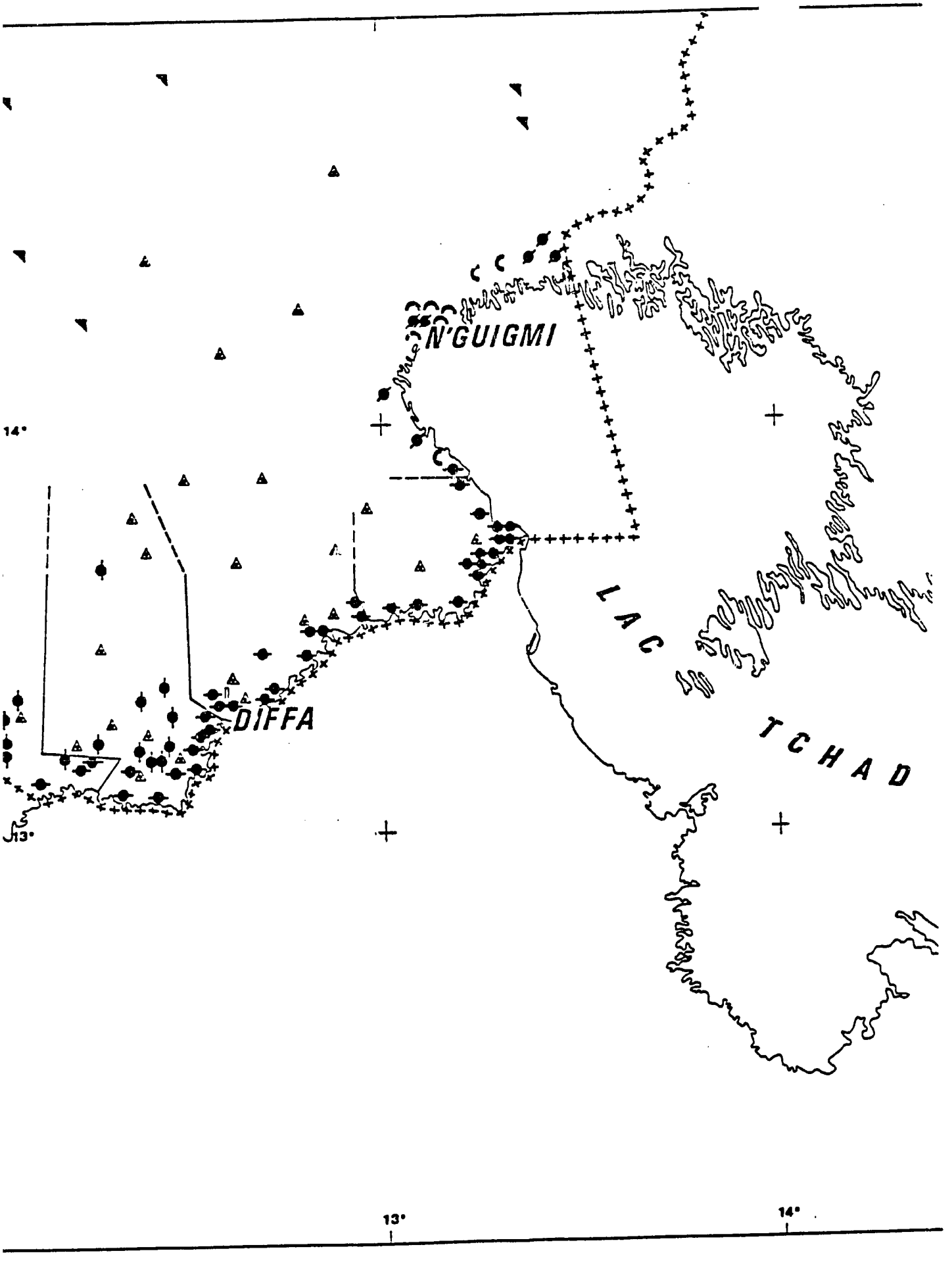
MAP 3 - TAHOUA - MARADI (Poncet 1973)



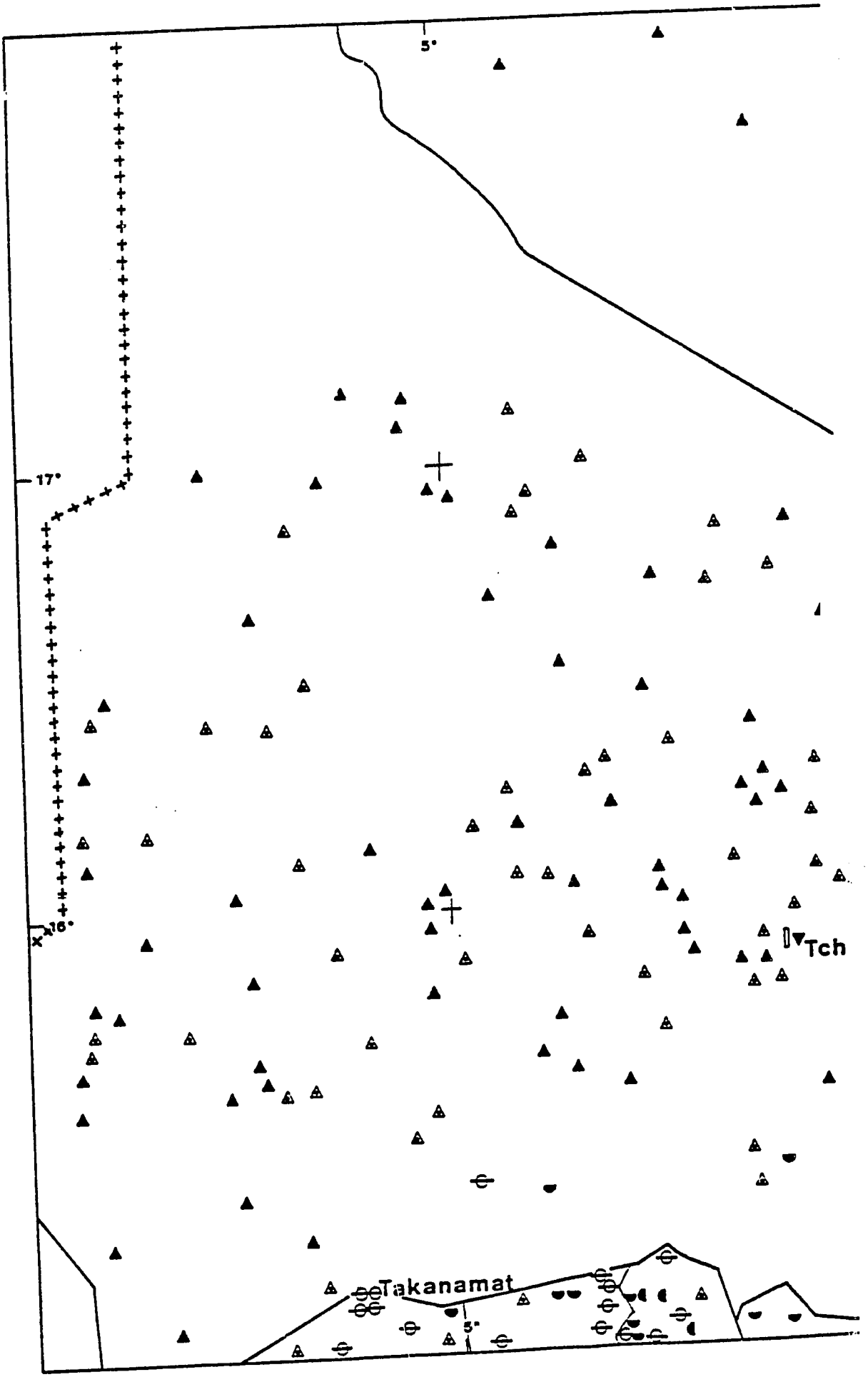
MAP 4 - ZINDER (Poncet 1973)



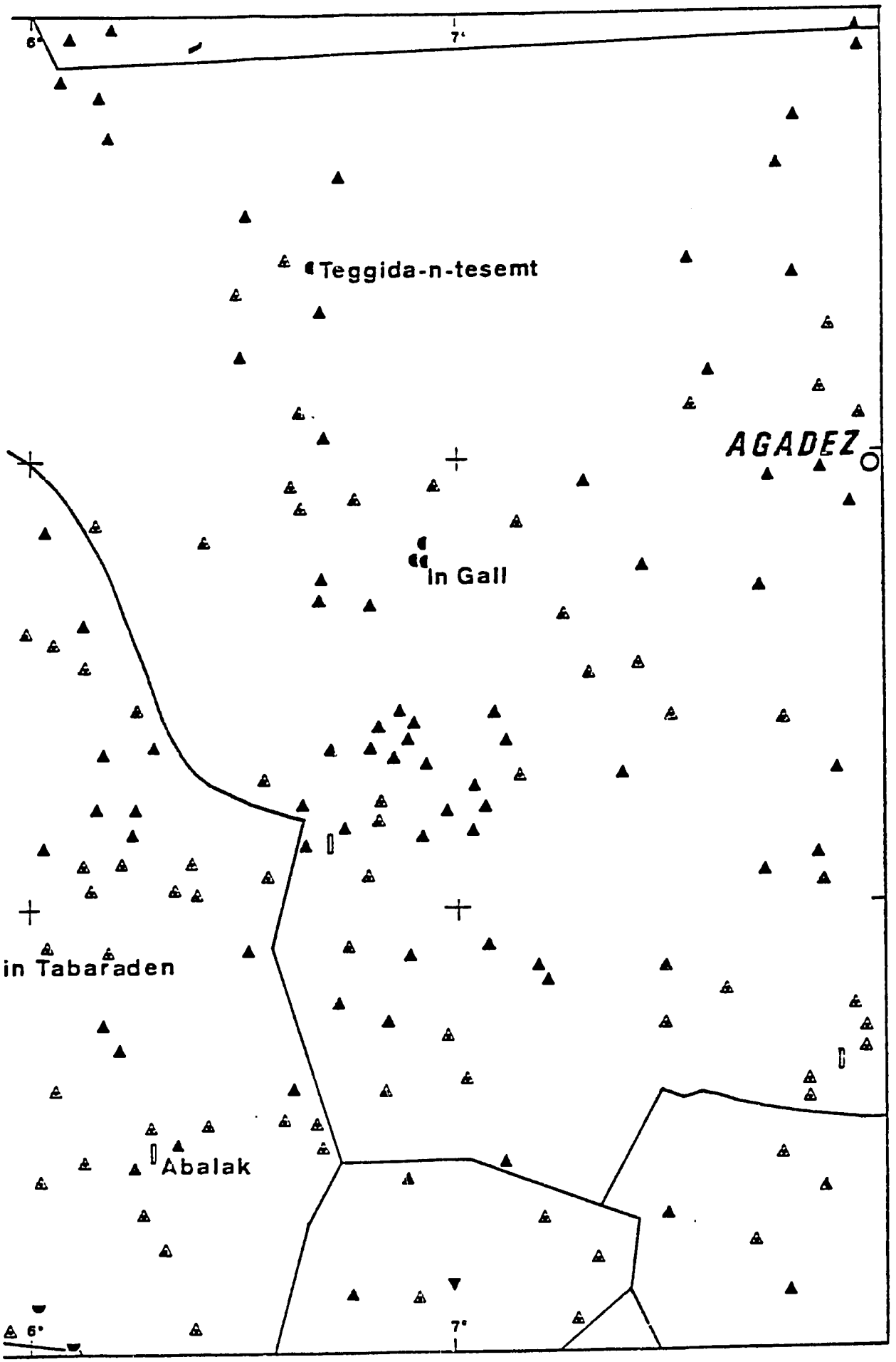
MAP 5 - DIFFA - N'GUIGMI (Poncet 1973)



MAP 6 - NORTHWEST PART OF TAHOUA DEPARTMENT (Poncet 1973)



MAP 7 - WESTERN PART OF AGADEZ ARRONDISSEMENT (Poncet 1973)



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DEMOGRAPHY

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INTRODUCTION: THE NATURE OF DEMOGRAPHIC DATA FOR THE REPUBLIC OF NIGER

Demographic data concern the following variables:

- population size, growth rate, and distribution by ethnic group, by department, and by city/country;
- fertility, measured by the crude birth rate and by the total fertility rate;
- mortality, as indicated by infant and child mortality and by the crude mortality rate;
- migration, both permanent and seasonal.

There are four primary sources for demographic data in the Republic of Niger: (1) the surveys undertaken under the aegis of the French Institut National de la Statistique et des Etudes Economiques (INSEE), first, in 1959, for the southern agricultural zone, then, in 1963, for the pastoral zone; (2) administrative censuses, organized principally for tax purposes; (3) the November/December 1977 census financed by the United Nations and administered by the Bureau Central de Recensement in the Ministère du Plan; and (4) case studies. There are fundamental limitations inherent in these primary source materials. The INSEE studies have attracted widespread attention, and, throughout the 1960s and 1970s, they constituted the sole authoritative basis for estimating various demographic parameters in Niger. Since definitive results from the 1977 census have not been published yet, the INSEE research and analysis continue to undergird the basis for demographic estimates for the country as a whole by the Ministère du Plan, the UN Population Division, the World Bank, and the US Census Bureau.

The primary INSEE study (République du Niger 1963) is an elegant model of research design, execution, and careful analysis. But its authors readily admit its flaws and caution the reader against unwarranted extrapolations. First, this survey was limited to the agricultural zone along the southern edge of the country and, even there, covered only 3.5 percent of the population. Second, as vital events of births and deaths were not recorded, estimates of age and of the rates of births and deaths are subject to wide margins of error. Nevertheless, these cautions have been widely ignored, and demographers have elevated the admittedly crude estimate of national population growth rate of 2.7 percent to the status of fact (witness the scholarly tautology resulting from AID, the UN, the World Bank, and the US Census Bureau citing one anothers' figures). Quite apart from the limitations in the original INSEE study, socio-economic conditions, particularly during and since the drought of 1969-1974, call into question the stable extrapolations made to the present time.

These cautions notwithstanding and in spite of the flaws of this and its companion study of the pastoral zone (République du Niger 1966), they remain the best available sources of demographic data for Niger.

Administrative census data, by nearly universal agreement, represent a serious underenumeration of the Nigérien population. Given their development and administration for purposes of taxation, many Nigérien citizens, particularly before 15 April 1974, actively and often successfully sought to avoid being registered on the administrative census roster.[1] Further, no attempt was made in the gathering of these administrative census data to note births, deaths, and migrations. Thus quite apart from the issues of underenumeration in these records, we cannot use them to infer the parameters of population change, growth, movement, or decline, that derive from birth and death rates.

While definitive results from the 1977 universal census have not been released, provisional results are available (République du Niger 1980:35-43; 1982:31-34). Nonetheless, they do not provide a sufficiently credible basis for inferring demographic trends. This lack of credibility is not solely a function of implementation or of analysis. It arises because it is nearly impossible to census accurately an entire population in a short period of time, and to note individuals' ages, as well as births, deaths, and migrations over the previous twelve months in a region where people do not keep track of their ages, and where memory is not culturally focused to locate the vital events of births and deaths precisely in a particular time interval. From a demographer's viewpoint, the 1977 census is a disappointment particularly in terms of design. For each community in Niger, only the most rudimentary demographic data were elicited. Essentially what we have is simply the number of households, families, males, and females per village. Such an initial design limitation to a static picture precludes even a mathematical estimation of Niger's population dynamics. Further, there is some evidence both from internal inconsistencies in the census results and from external comparisons that the results underestimate the true size of Niger's population.

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1 While the administrative censuses represent underenumerations, the extent of underenumeration is highly variable, thus frustrating attempts at calculating a margin of error and developing an extrapolation of population size based on these sources. Faulkingham and Thorbahn (1975) found the 1969 administrative census to account for less than 40 percent of the population of a village in the arrondissement of Madaoua; Raynaut (1980) and his associates found the Maradi Department's administrative census to represent about 70-80 percent of the actual population in the early 1970s. Saunders (1978), on the other hand, found that the 1974 administrative census of Mirria town (Zinder Department) did not seriously underrepresent that more urban population.

Ralph Faulkingham, an American social anthropologist, has carried out an intensive longitudinal study of the village of Guidam Makira (Magaria) in the arrondissement of Madaoua. He tracked demographic events and their economic and social correlates from 1968 to 1982, basing his study on four research tours stretching over a total of 26 months, and on his personal knowledge of the individuals he censused over this period. Table 1 compares Faulkingham's census, predicated on a far more intensive design framework, with the results of the national census for the same community.

The national census reports that 1073 individuals were resident in this village in November 1977, while Faulkingham was able to identify by name, sex, age, and descent 1787 individuals for the same unit at the same time, or 67 percent more people. Regrettably, no further case studies exist whereby we may make similar comparisons, thus we do not know how substantial or widespread the actual undercount in the national census might have been.

There are several case studies of localized populations in Niger, though only a very few where demographic variables were the major focus of research efforts.[2] According to our conversations with Michel Keita, sociologist at Institut de Recherche en Sciences Humaines, no Nigérien scholars have undertaken micro-demographic studies. While such anthropological case studies may be quite useful as tests of the adequacy of the national census, they are not by themselves satisfactory as the basis for inferring regional or national demographic trends. Their limitations include the restricted scope of the studies, the large local variability in habitats and economies in Niger that make it difficult to generalize based on data from a case study, and the lack of adequate sampling procedures.

In summary, demographic data for the Republic of Niger are not of sufficient quality to form a basis for population policy decisions. Estimates of population size and rates of change that vary by as much as a few percentage points have large implications for social and economic planning. For Niger, the margin of error in basic demographic data ranges from three to 20 percent, according to a conservative estimate (Page 1975:29-57). It is important to bear in mind that the margins of error result in a serious underestimation of the scale of present demographic measures.

DEMOGRAPHIC TRENDS IN NIGER

Size. Extrapolations from the INSEE surveys and from the recent 1977 census place the overall size of Niger's population to be 5.7 million in 1981

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2 The specifically demographic studies include Faulkingham and Thorbahn (1975), Faulkingham (1977), Pool (1970), and Harrington (1973). Other case studies for which demographic data were elicited as ancillary to other objectives include Gregoire (1980), Raynaut (1980) and Saunders (1978).

TABLE 1

Variable	National Census Data for Guidam Makira, November 1977	Faulkingham's Census Data for Guidam Makira, November 1977
Number of households[a]	142	85
Number of families[b]	274	325
Present male residents	546	820
Present female residents	517	892
Absent male residents	9	73
Absent female residents	1	2
Total males	555	893
Total females	518	894
Male visitors	6	0
Female visitors	6	0

a "Household," as used here, is equivalent to "concession" in the INSEE studies and in the national census of 1977, i.e., a spatially delimited residential unit, generally surrounded by a banco wall or millet stalk fence. This is equivalent also to the Hausa term, "gida."

b "Family," as used here, is equivalent to "unité de production" in the INSEE studies and in the national census of 1977. This is the unit, often based on a nuclear farmily that works in common the same agricultural fields. "Households" are composed of "families." Note that these definitions have been standardized in French ethnographic work throughout Niger. See, for example, Raynaut (1980).

(République du Niger 1982:31). The United Nations (1982) estimates Niger's total population to be 5,634,000 on that date, based on a mathematical extrapolation of the 1959 INSEE study.

Distribution. By department and by economy, Niger's population may be divided as set forth in Table 2 (République du Niger 1977).

Further, Niger's total population may be viewed in its distribution by language and department as displayed in Table 3 (Ibid.).

Fertility. Demographers use two primary measures of fertility: the Crude Birth Rate (CBR) or the number of live births per thousand of population per year and the Total Fertility Rate (TFR) or the probability that a woman of childbearing age will have given birth during any given year. Theoretically, the TFR is a better measure because it is sensitive to the size of the female childbearing population, while the CBR ignores sex distinctions. The TFR is indispensible for projecting future growth, whereas the CBR cannot be used reliably for population projections. Nonetheless, the lack of good, national, age-specific fertility data for Niger renders the TFR somewhat questionable, particularly as it is estimated mathematically using questionable assumptions of population stability. The cruder measure, the Crude Birth Rate, turns out oddly enough to be more reliable, taking into account the general problems in the primary data base outlined above. Overall, Niger has one of the highest national fertility rates in the world, and there is significant variability by region (see Table 4; Faulkingham 1980).

There is considerable debate among social scientists as to what these figures mean (cf. Faulkingham 1980). If we assume that they adequately reflect current conditions, several questions come to mind. First, what is the overall trend in the fertility rate over time? The response in comparing periodic fertility estimates by the UN Statistical Office over the last 15 years, is that fertility appears to be rising very slowly. According to the U.S. Bureau of the Census, by the end of this century we might see the CBR reach 55. Second, what accounts for this increase in fertility? It appears likely—though it has not been conclusively demonstrated by any means—that the risks of infant mortality and increases in labor demand are important factors (Faulkingham 1980:32-60). Third, how can we account for the variability in fertility by habitat and economy? A number of studies in the Sahel suggest that the significant difference in fertility levels between the pastoral zone and the agricultural zone may be accounted for by the chronic shortage of available labor the farmers experience in comparison with the herders. Urban areas show a mixed pattern, but one that correlates well with the costs of raising children in comparison to the labor benefits they provide to the domestic unit (Ibid.:49-60, for a discussion of these studies).

Mortality. While mortality in Niger seems to be high by world standards—22.4 deaths per thousand of population per year for the 1975-80 period (United Nations 1982)—it presumably has declined from higher levels earlier in this

TABLE 2 - DISTRIBUTION OF NIGER'S POPULATION IN 1977

(In thousands)

Department	Total	%	Urban	%	Rural	%
Agadez	125	2	35	28	90	72
Diffa	167	3	16	10	151	90
Dosso	693	14	35	5	658	95
Maradi	944	19	90	10	854	90
Niamey	1172	23	259	22	913	78
Tahoua	994	19	75	8	919	92
Zinder	1004	20	92	9	912	91
	5099	100	602	12	4497	88

(République du Niger 1977).

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TABLE 3 - DISTRIBUTION OF POPULATION BY DEPARTMENT AND LANGUAGE, 1977

Language	Agadez	Diffa	Dosso	Maradi	Niamey	Tahoua	Zinder	Niger
Zarma	2334	1227	334501	5757	768718	6485	5349	1124371
Hausa	15864	6337	301428	841365	142682	784220	746014	2837950
Fulfulde	10576	39514	53650	78480	126180	23191	101511	433102
Tamasheq	81363	866	1939	17575	105216	172232	26520	405711
Kanuri	8180	99361	108	303	1724	330	109534	219540
Tubu	---	6714	---	---	---	---	10809	17523
Arabic	5536	10997	108	---	205	7583	223	24652
Gourmantche	---	---	---	---	6698	---	---	6698
Others and no information	804	1685	1077	808	20278	440	3788	28880
Total	124657	166741	692811	944288	1171701	994481	1003748	5098427

(République du Niger 1977).

TABLE 4 - FERTILITY, 1977

Region	Crude Birth Rate	Total Fertility Rate
Pastoral zone	45	.0541
Agricultural zone	54	.0832
Urban areas	47	.0567
Niger total	52	.0701

(Faulkingham 1980).

century. This presumption is based on the increasing control over epidemic and endemic diseases and the greater availability of maternal and infant care facilities in the country, though there is no reliable empirical evidence that this, in fact, is the case. The fact that the Nigérien population is becoming younger at a rate that is not accountable solely in terms of increases in fertility or in mortality for those above the median age suggests a reduction in the infant and/or child mortality rates. Regrettably, no recent studies on variability in mortality rates in Niger have been published. The INSEE study estimated the mortality rates in 1959 to be about 25-30 per 1,000 with an infant mortality rate (i.e., deaths of children under one year of age) of 200 per 1,000 per year for the 1959 study period. Faulkingham's research in the Madaoua area shows an overall mortality rate of 19 per 1,000 per year for 1981-82, and an infant mortality rate of 164 per 1,000 per year for the same period. The Ministère du Plan estimates the overall mortality rate to be 25 per 1,000 per year, with infant mortality at 200 per 1,000 per year and child mortality (i.e., deaths of children between one and five years of age) at 300 per 1,000 per year (République du Niger 1980:36). These estimates are not based on the recent census, as questions about deaths were not posed in that study, but on the 1959 INSEE study, conducted nearly 20 years earlier. Little credibility attaches to these figures, as we simply do not have even a rudimentary knowledge of mortality in Niger for the recent period.

Migration. There are three kinds of migration that concern us in this section: permanent migration with respect to crossing the national frontier, seasonal migration, and the rural to urban migration. For Niger, there is only negligible permanent migration either into or out of Niger (United Nations 1982). The larger number of coastal West Africans, primarily Togolese and Beninois, who came to Niger just after independence, has stopped. The largest amount of international migration is represented in the European expatriate community whose ranks swelled appreciably after the drought (République du Niger 1979:183), principally in Niamey.

Although the drought of 1969-74 caused the ranks of labor migrants to Nigeria and the Ivory Coast to swell rapidly, seasonal migration in search of employment has a long history in Niger. In the mid-1950s, migration rates out of a number of cantons to the Ivory Coast and Gold Coast approached ten percent (of the total population) (Rouch 1957:5-6). If we allow that the number of adult males potentially able to migrate probably constituted about 25 or 30 percent of the total population, we can see that the rate of migration was, without doubt, substantial.

Pressures for seasonal migration began to mount in 1900, when the French imposed a tax on peasants that had to be paid in cash rather than in kind. Since the peasant economies were not based upon cash as a medium of exchange, large numbers of individuals had to earn the money by working for colonial infrastructural projects, such as the construction and maintenance of telegraph lines, roads, schools, and administrative buildings, or they had

to seek employment in the coastal areas. From 1910 through the 1970s, the number of taxes to which peasants were subject proliferated, increasing their need to find sources of cash income. The desire to acquire cash in order to purchase the growing variety of commodities that were necessary for subsistence provided an additional motivation for migration during this period (Painter 1983).

Other factors created stronger pressures for seasonal migration in some areas of Niger than others. For example, because of geographic isolation and exploitative purchasing practices by private trading houses, the Dosso and Niamey regions were relatively unresponsive to efforts to establish cash crop production in comparison to the central portions of the country. Thus, Niamey and Dosso provided fewer means for earning cash locally than other areas of Niger (Painter 1983).

In addition, western Niger has been subjected to particularly severe pressures on its natural resources. These have been caused in part by a series of droughts and famines, the most noteworthy of which occurred in 1917, 1931, and during 1969-74. Combined with intense population pressure on the land in some areas of the Dosso Department, this has caused a marked decline in agricultural productivity. Households that have attempted to increase production in response to this have been constrained by the lack of land and the inadequacy of their own labor resources. Labor scarcity, of course, is partially a result of the established pattern of seasonal migration, which causes household members to be absent during the pre-cultivation and cultivation seasons. Once this practice is established, however, it also becomes a stimulus for still higher seasonal migration rates as the lack of labor limits agricultural expansion as an alternative cash earning activity (Painter 1983).

Although available data do not permit a comprehensive picture, there are indications that much of Niger has come to resemble the Dosso region in the wake of the 1969-74 drought. Certainly, this event strained local production systems throughout the country and provided a powerful impetus to seasonal migratory movements. Data from Maradi Department (Raynaut 1980) and Madaoua region (Faulkingham 1977), as well as from the Niger Range and Livestock Project support the view outlined by Painter that immediate prospects for improvement are not good.

These studies indicate that the scale of seasonal migration is substantial in both agricultural and pastoral sectors. It is evident that the migrants leave in order to earn cash. But we do not have a clear idea whether their earnings are used to purchase consumer goods ancillary to the food producing regions or if they are being directed at purchases of food staples. It is, however, certain that the prolonged absence of such a large portion of the labor force is not conducive to increasing productivity in livestock and cereals. While most of the migrants from the agricultural zone return for the farming season, they nonetheless are away when the activities of erosion

TABLE 5 - NUMBER OF MALES (AGED 15-44 YEARS) FROM GUIDAM MAKIRA (GM) PARTICIPATING IN SEASONAL MIGRATORY EMPLOYMENT 1969-82

Location	Linear Distance (in Km) from GM	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1981-82
Lagos	910	13	17	26	56	76	98	118
Kano	360	15	24	28	36	31	39	42
Kaduna	425	5	6	7	10	7	3	19
Kaura	175	6	10	8	8	8	6	4
Niamey	400	2	2	2	5	8	2	27
Bangi	75	6	5	7	6	2	0	0
Gidan Rum	125	9	8	10	12	14	2	12
Other Locations (N-39)		20	17	21	22	48	29	24
Totals		98	112	131	178	222	195[a]	250[b]
% of all males of this age group		37.3	40.8	46.7	62.2	75.0	62.5	71.0
Mean lengths of absence (in months)		3.47	3.31	3.27	3.33	2.30	3.71	2.81

[a] This figure does not include 27 men who, while they had migrated for seasonal labor in the past, remained in GM to grow and sell onions for cash in 1974-75.

[b] Plus 52 men who remained in GM in 1974-75 to grown and sell onions.

protection, bush clearing, and manuring of agricultural fields ought to be taking place. Some investigators (e.g., Painter 1983) suggest that the staggering scale of such seasonal migrations indicates serious national problems of increasing production risks and declining credit availability for the poor farmer and herder, and of declining yields. Millet and sorghum produced in Nigeria in 1982 was available throughout Niger well into 1983, at prices below those paid by OPVN in October 1982,[3] suggesting that it may be more economical for Nigérien peasants to migrate in order to earn cash to buy Nigerian grain than it is to produce livestock or to grow grain themselves. Nonetheless, as the January 1983 expulsion of foreign workers from Nigeria suggests, this strategy leaves many Nigériens in a vulnerable position.

By far, the most important dimension of migration has been the permanent (permanent is defined here as one year or more of continuous residence) migration from rural hinterlands to the towns and cities, especially Niamey. According to an important World Bank study led by Michael A. Cohen (1979), the urban areas of Niger show a six percent growth rate for 1975, with nearly half of that increase resulting from migrations from the rural areas. For Niamey alone, 73 percent of its eight percent growth in 1975 can be attributed to this rural emigration. Cohen estimates that this trend will accelerate over the next two decades so that by the end of this century, nearly one-fifth of Niger's population will be urban (p. 28). In part, Cohen argues that the increasing disparities between rural and urban incomes throughout the Sahel account for most of the urban in-migration. He outlines his findings as follows (p. 38):

(1) Maintenance or accentuation of disparities in food consumption between capitals, rich zones, and poor zones produces from 25 to 230 percent larger population in the capitals.

(2) Increased per capita food production tends to decrease projected rural outmigration, both to urban areas and to areas outside the Sahel.

(3) Accentuation of disparities tends to slow down growth of poor zones, yet does not increase rich zones to the same extent as more leveling policies.

(4) Accentuation therefore creates conditions which force out-migration from both rural areas and the Sahel, by limiting total food consumption.

Michael Horowitz (1974) has described a facet of migration—rural-to-rural movements within the country— that has been relatively neglected in the literature. Kanuric-speaking Dagara from the region of Kelle migrate eastward

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[3] The movement of grain from Niger to Nigeria at prices below those of the domestic market reverses the historical direction. Niger's economic difficulties engendered by the slump in uranium revenues are paralleled in Nigeria by the slump in the world oil markets. The movement of grain northward may reflect the need to increase hard currency holdings in Nigeria—in this case the CFA, fully convertible to French francs and therefore to all other currencies.

into the Manga region where they perform work locally considered shameful, such as transporting and hawking water through the villages. During the late 1960s, there were at least 40 Dagara water carriers in Maine-Soroa, all young men living without families. The use of ethnic strangers to carry out demeaning work and thereby allowing local people to maintain their own favorable self-assessments is an important element in Nigerien life, and one that merits further examination.

Growth. The population of Niger is growing at an estimated three percent per year. The basis of this growth rate lies in the difference between high and possibly increasing fertility rates and declining mortality rates, particularly among children who have not yet entered their reproductive years. These trends point to an increase in an already very high rate of intrinsic growth. An important point to bear in mind is the immense inertia of this growth rate; it is not susceptible to short term changes, short of a major disaster. Even the most recent drought had a negligible impact on the nation's overall size or on its capacity for intrinsic-population growth. Fully half of Niger's peoples are under 15 years of age, and this is the segment of the population that has not yet begun to bear children.

ANALYSIS OF DEMOGRAPHIC TRENDS

The paucity of adequate, basic demographic data and the lack of a vital registration system for births and deaths have provided a field day for various theories of population change. Undisciplined by high quality data, competing theoretical perspectives are nonetheless vigorously advocated. On the one hand, the neo-Malthusians argue that population growth alone is the major brake on economic development in the LDC's. These theorists assume that the variables of technological innovation, resource conversion, capital investment, and human ingenuity are static (cf. Kleinman 1980), while population growth alone is dynamic. On the other hand, there are those who argue that distribution of wealth is the only problem; once that is settled, population growth will take care of itself—although how is not made clear (cf. Mamdani 1973). Neither extreme offers a persuasive framework for analyzing demographic trends nor for providing a basis for policy development. It is evident that Niger's rate of population growth appears to be high and may be increasing slightly. Apart from the high, fertility-based population growth rate, rural-to-urban migrations nearly double this rate of growth and shows every sign of increasing. High fertility, particularly in the rural agricultural areas, seems to be based on the heavy demands of agricultural labor, high infant and child mortality, and a relatively low cost/benefit ratio for child labor. The high child mortality rate that accompanied the recent drought only highlights this issue as a current phenomenon as well. Adults expect to lose some of their children; through a series of cultural institutions, the peoples of Niger have responded by generating a fertility rate that overcompensates for periodic infant and child mortality (see Scrimshaw 1978).

In the urban areas, the data show a somewhat lower fertility rate, but the urban populations are not economically homogeneous. Where government policy actively operates, as it does in Niger, to subsidize heavily the costs of having and raising children, we ought to expect civil servants and other urban salaried couples to show a high rate of fertility, while their poorer neighbors for whom the cost/benefit ratio of children is higher ought to manifest lower fertility. While the extant data from Niger suggest but do not prove that this is indeed the case, Handwerker (1977) found these features to operate among similarly situated sub-populations in Monrovia.

While Faulkingham viewed the rising tide of population growth in his study sample with alarm in 1974 (Faulkingham and Thorbahn 1975), his viewpoint is somewhat more optimistic eight years later. In 1982, the same peasants were showing every sign of having shifted successfully from a subsistence-based horticultural economy to a more-diversified economy based on seasonal migratory labor, cash cropping in cotton and onions, and in local wage labor. Increasingly, women elect to bear their children at the Madaoua maternité rather than at home, and, in general, they show a much greater readiness to seek medical assistance now than they did ten years ago. These signs suggest that while the demographic transition still may not be complete, some of the variables critical for its achievement are already in place.

POLICY ISSUES

The Niger government has not yet articulated a national population policy. Officially, a French law promulgated in 1920 is still in effect, making pro-natalism formal government policy. Nonetheless, there are a number of factors suggesting that official thinking diverges from legislation. Contraceptive devices are available in government pharmacies throughout the country, although they are supposed to be dispensed only to women who have their husband's permission. Further, family planning issues are a fundamental part of the training of health workers. In the fall of 1982, Niger's television service broadcast a Hausa language program directed to women on oral contraceptives and IUD's, although the program underscored the requirement of husband's permission and stressed the benefits of child spacing, not reduced fertility. It is clear that many officials regard their country as underpopulated in terms of the national capacity to develop natural resources. Further, they are deeply concerned about high rates of infant and child mortality. Both concerns are clearly pro-natalist. Yet we suggest that many of these same officials or their spouses contracept as a matter of personal choice. Beyond issues of fertility, there is a rather generalized governmental commitment to record and analyze demographic data as one basis for making planning more rational.

For a generation, American participation in the population issues of developing countries has been oriented heavily toward population growth rate reduction through family planning programs and projects. Such an orientation, whether implicit or explicit, is not likely to garner much support in government

circles. Nonetheless, there are some clear policy and program orientations that donor efforts might foster and support:

(1) Upgrade the quality of demographic data. Currently, no basis exists for extrapolating growth and movement trends, and rational planning is thereby undercut. The impact of government programs or of foreign assistance cannot be measured adequately given the present low quality of basic demographic data. While it is not feasible to support an extensive recensusing of Niger's population to overcome the design and implementation defects of the 1977 census, three modest strategies could be deployed. The first involves assisting the Ministère du Plan in teasing out through mathematical and standard demographic analytical procedures the results of the 1977 census, together with estimates on demographic trends, and reasonable margins of error for the critical variables. Second, demographic surveys could be deployed at only modest expense in representative areas in the country. With an adequate design, such surveys could yield results that would be far more valid and reliable than the 1977 census. Such surveys could be built in part upon already extant demographic studies or within AID-supported projects. A third effort involves the development and analysis of the seasonal labor migration data. The impact of such migrations and abrupt changes in their patterns may have profound repurcussions throughout the Nigérien economy.

(2) Support efforts to upgrade maternal health. Improvements are readily noticeable in increasing the time between pregnancies. While the genuine purpose ought to be to improve women's health, an important effect is that, as birth spacing increases, fertility falls.

(3) Support efforts to reduce infant and child mortality. While it may be argued that such a strategy only increases population growth by lowering mortality, such a position is not credible on humanitarian or on practical grounds. Preston (1978) has assembled an impressive array of reports on this linkage to demonstrate that declines in infant and child mortality are followed by declines in fertility (see also Gwatkin and Brandel 1982; Nag 1981).

(4) As a general framework for program development, Cohen's (1979) warning that accentuating the gap between urban and rural incomes is likely to fuel higher rates of growth and of rural to urban migration would argue for continued programming in the rural areas. The Government of Niger for political purposes will likely continue to be more sensitive to the needs and demands of the vocal, educated, and organized urban dwellers than to those in the rural areas.

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ISLAM AND CUSTOMARY LAW

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ISLAM

Niger is an essentially Muslim nation. Unlike its neighbors Chad and Nigeria, there are no substantial segments of the indigenous population that identify as non-Muslims, either as Christians or as adepts of other African religions. The small group of African Christians[1] come mainly from Togo and Benin, which were centers of evangelical activity during the colonial period and provided French-literate Africans for colonial service in the interior of French West Africa. There are also a few métis and a miniscule number of local converts. While the literature is replete with references to "animistic" or "pagan" practices, usually "syncretized" to Islam (v. Greenberg 1946; Tremearne 1914), all of the major ethnic categories—Songhai, Zarma, FulBe, Tuareg, Hausa, and Kanuric—refer to themselves as Muslim. This common identification is of tremendous importance in unifying the country, or rather, in minimizing the sectarian competition that has so often played a segmenting role in other African countries. It would be a mistake, nonetheless, to infer from the common commitment to Islam that there is a uniform or homogeneous religion across the country. On the contrary, Nigerien Islam contains within itself a broad range of localized class, occupational, and ethnic differences in belief, practice, and organization. Guy Nicolas refers to this phenomenon as Islam's enracinement ethnique, its "cultural rootedness."

> La question musulmane réfère principalement à quatre grands domaines qui sont, outre l'appartenance ethnique, l'inscription dans des blocs socio-culturels régionaux distincts, le champ confrérique et celui de l'Etat moderne (1978:347).

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1 Christians constitute less than one percent of the population, comprised mainly of Europeans and Africans from other countries. Roman Catholics are the largest Christian denomination, mainly European, with a Diocese in Niamey headed by a bishop, and parishes in Zinder and Maradi. The first Catholic mission was inaugurated in Niamey in 1931, and by 1963 there were some 2,600 pupils in Catholic primary schools. College Mariama opened in Zinder in 1963 (Thompson 1966:182 et seq.). 1980 figures indicate 13,000 Catholics in Niger served by 25 priests (Europa Yearbook 1982:1109).

Several fundamentalist Protestant missionary groups based in North America operate in Niger. The Sudan Interior Mission functions mainly in the Hausa- and Kanuric-speaking center and east of the country, and the Evangelical Baptists are in the Zarma-speaking west. SIM runs a hospital in Galmi and a leprosarium in Maradi. Unlike the Catholics who work primarily among their co-religionists, the Protestant missionaries seek to proselytize the African populations. While we have no firm statistics on their success, we suspect that they have achieved very few converts. This is not to denigrate their work, for the medical services offered at some of the mission stations were eagerly received, and many of the missionaries exhibit a remarkable competence in the local languages.

The history of Islam in Niger and throughout West Africa exposes a recurren. dialectic between forces favoring localization and differentiation and those favoring uniformity. The former tends to be associated with a more secular orientation of the political leaders while the latter with those who would merge the sacred and political arenas. The dialectic has been especially apparent in the post-colonial period. The Diori regime presented a clearly secular front, leaving Islam in the hands of local clerics[2] and prominent traders, and attempted to unify the country around symbols drawn mainly from the mundane realms: French language and literacy; roads; economic development. The Kountche administration has added to these a more formal association with Islam. While not transforming the state into an Islamic Republic (like Mauritania or Libya)--the criminal and higher civil courts and the public schools remain secular--government actions since the 1974 coup d'etat show an increasingly pro-Muslim policy, as evidenced in the 1982 hosting of the Islamic Conference in Niamey, in the construction of an Islamic University in Say, in the expanded Arabic component of public education,[3] and in the large signs marking the road in front of the presidential palace and elsewhere proclaiming: "Notre Dieu, Allah; notre livre, le Coran; notre prophet, Mahomet." Nicolas (1979:105) comments that the military government accords great importance to the Islamic character of the state, and has elevated the new national Islamic Association to "one of the pillars of the regime." There is an obvious temptation to dismiss the heightened identification with Islam as "mere" pro-Arab politics, a continuation along the path on which Diori embarked when diplomatic relations with Israel were severed in 1973. On the one hand, a Muslim posture broadcasts a community of interest with the wealthy oil surplus states of the Persian Gulf, and Niger has indeed received economic assistance from them. On the other hand, it serves also to delegitimize potential Libyan claims on Niger's territorial integrity and on the loyalty of her Tamasheq- and Arabic-speaking

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2 As used herein, the term "cleric" refers to persons who are accepted by the community as religious specialists, such as mallams and imams, and not to individuals who have priestly or sacerdotal functions which require that they intercede between man and the supernatural.

3 Most boys spend at least a few months of their lives in Quranic study with a mallam, a religious teacher, who has them memorize various surah and learn to write a few basic prayers. During these times, children who are not housed with their family or relatives, go around the village during the evening meal and beg for food. Such Quranic learning is outside the formal school system. In recent years, the military government has fostered a rapid expansion of formal schooling with "Franco-Arabic" curricula. In 1966, there were two such schools at the primary level; by 1977-1978, there were 21 schools with 4,023 pupils, and by 1981-1982, the numbers were 55 schools with 7,793 students. In Niamey and Zinder there are also Colleges providing the first cycle of secondary education in the Franco-Arabic program, offering instruction in Arabic and Islamic studies, as well as in the conventional secular curriculum (République du Niger 1980:354; 1982:2).

pastoral groups in the north. Yet this explanation, which is not unpersuasive, is probably also too simplistic. In the effort to establish a sense of nationhood, the Kountche regime is reaching for the one element that can potentially unite peoples fragmented by a geographic remoteness that is exacerbated by poor roads, by language, and for an African government aware of domestic ethnic competition and the centrifugal pull of related ethnic communities in neighboring countries, the spector of "tribalism." Thus we anticipate a continued state-investment in Islam and the attempt to raise the faith to a central place in the Nigerien concept of nationhood. We anticipate also, however, that the segmenting effects of diverse ethnicity, language, locale, and ecological specialization, compounded by sectarian divisions within Islam (as provided by the various sufi fraternities or tariqa) will for many years frustrate the achievement of a full identity with the nation as an individual's primary sense of membership.

We do not mean to imply that ethnic cleavages are in any sense absolute, or even that ethnicity itself is a fixed identity ascribed at birth. On the contrary, there is a good deal of movement across ethnic boundaries, and even small villages often contain persons who claim multiple ethnic memberships. But there are nonetheless distinct diacritica separating ethnic groups, most prominent of which is language. Each of the principal ethnic groups has its own language and, except for the small Arabic-sepaking pastoralists in the northwest and some traders of Maghrebian origins in towns like Bilma and Nguigmi, only very learned clerics understand Arabic. According to Nicolas,

> N'ayant connaissance de la lettre du Coran que par ces intermédiaires, souvent peu compétents, les musulmans locaux peuvent de bonne foi s'adonner à des pratiques réprouvées par les théologiens (1978:348).

Most Quranic study in Niger, especially in the rural areas, is limited to a rote memorization of the basic prayers. Even in Arabic-speaking communities in the Muslim world, the mass of believers do not participate in the interpretation of the text, which is the prerogative of the 'ulema (Arabic, sing. 'alim, from 'ilm, 'knowledge'), the learned men who are guardians of the sacred word.

> Inasmuch as the Quran is the major symbolic source and resource of a society that regards itself as Muslim, the 'ulema in effect reproduced it as a text of which they were the keepers. As such it is written down, commented upon, and held to be sacred, unchanging, and unchanged. As commentary piles on commentary (each commentary, of course, being itself a text and part of a growing body of knowledge), so it becomes less and less likely that anyone will understand, or be permitted to think that he possibly could understand, "the meaning," unless he has specialized training. This process necessitates further commentaries! So commentaries and interpretations, while apparently elucidating meaning, in effect restrict it to the body of specialists and to some extent serve to withdraw the "original" from daily life and to mediate its relation with the rest of the community. The text is made esoteric and becomes the special preserve of scholars, who are self-defined as the only ones who can really understand it (Gilsenan 1983:31).

In thousands of rural Nigerien communities, the presence of an 'alim is extraordinarily rare, and Islam is transmitted among persons whose knowledge of the sacred language and its book and holy practice, the Quran, the sunna (the practice of the Prophet), the hadith (the traditions of the Prophet and his Companions), and the risala (the legal codes according to one of the four schools of Sunni Muslim law and administration[4]), is substantially flawed. The absence of such persons of learning and authority contributes greatly to the richness of Islam as a localized faith in rural Niger, drawing on a variety of traditions and sources and reinterpreting them in a new synthesis. This process engenders considerably creativity.

Thus, while historians and religious scholars may search out so-called "pre-Islamic" or pagan elements, to the believer in a rural Nigerien village or pastoral band all the elements are integrated into a coherent system. In this report, we therefore follow that point of view, and will not attempt to distinguish what may be inherent or integral to Islam and what is alien or extraneous. That judgment is best made by the sheikh, not the anthropologist.

Although the jihad or "holy war" has been a recurrent feature of Western Sudanic history, Islam came mainly through trade rather than by the sword. Literate Muslim clerics and traders were welcomed in the courts of prominent chiefs, to assist the rulers in managing the trans-Saharan trade. Islam became associated with administrative-urban-market centers, and for hundreds of years since its appearance in the Ninth or Tenth Centuries probably had relatively little impact on rural areas. Sunni 'Ali, the great Songhai ruler at Gao in the 15th century, is reported to have "tried to prevent his court and his household from adopting Islamic practices" in order to "keep this Islamic element as part of the royal prerogative" (Hunwick 1966:302). Hunwick suggests that peasant farmers and fishermen were untouched by Islam, and that "by the end of the 16th century there appears to have been a hardening of the lines between Islam and the Songhay indigenous religious system" (Ibid.:313). Some scholars imply that Islam remains just a veneer among the people of the Niger Valley, and that the Songhai and Zarma are far less Islamicized than are the populations of the rest of the country: "En fait, l'Islam n'est qu'une teinture plus ou moins profonde" (Rouch 1954:59; see also Rouch 1960).

Information from Hausaland and from Bornu indicate a pattern similar to that for the Songhai, in which Muslim traders and clerics moved into the royal courts, and concentrated on converting the rulers to Islam while largely ignoring the peasantry. By the end of the 15th century, Islamic scholars had

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[4] Nigerien Islam, as is the case of Islam throughout West Africa, subscribes to the Maliki school of law. The other great traditions are the Hanbali, Hanafi, and Shafe'i.

made contact with rulers of all the settled peoples, and were installed in Kano, Katsina (Smith 1964:345-346; Hunwick 1966:304; Palmer 1908:76-77), Agades (Hunwick 1966:305), and Kukawa:

> Islam has been a part of Kanuri culture from sometime in the eleventh century and a strong force since at least the fifteenth century. As with other kingdoms in the Sudanic region, Islam came to Bornu with the trans-Saharan trade (Spain 1978:194; also Brenner 1973).

During the 19th and 20th centuries Islam moved out from the cities and into the rural areas. This movement was carried less by clerics and traders per se than by the rapid expansion of sufism, which provided an arena within which even the uneducated—that is, the vast majority of the population—might directly experience the divine. After more than 400 years, Islam was established among the peasantries as a mystic event in which their lack of Arabic or of years of intense training did not prevent them from participating.

Sufism invokes the personal experience of God not as a consequence of study but "through the mediation of a holy man or the free gift of blessing by God (baraka), flow forces and powers that are witness to the interrelations of God and man and nature" (Gilsenan 1983:79). Participation in a sufi brotherhood involves intimacy with secrets that are not shared with outsiders, even to other Muslims (as the Tijaniyya claim to know the hidden hundredth name of God, and their rosaries have one more bead than the conventional ninety-nine of unenlightened Muslims), and their distinctiveness is manifest in special prayers and even special postures. For example, in 1964 the Council of Malams

> decreed that imams in northern Nigeria should not follow the Tijani practice of crossing arms at prayer (kaolu) since this was contrary to Maliki law. This was an attempt to eradicate one, and perhaps the most important, of several clashing rituals which symbolized the differences between the brotherhoods. The attempt was not very successful since some Tijanis responded by refusing to pray behind an imam who stood with arms uncrossed (sadlu) and to some extent the position of arms at prayer became an even clearer sign of brotherhood allegiance and orthopraxy (Clarke 1982:4).

While Islam came to the urban aristocracy via peaceful traders and clerics —indeed, trade in the Sudanic empires required a state of peace to allow the movement of goods-loaded caravans from the Maghreb across the desert to exchange cloth, metal products, and paper for the spices, ivory, gold, and slaves of the Guinean and Sudanian zones (Horowitz 1967)—the entry of the sufis was sometimes accompanied by the cry of jihad, or holy war. The Qadiriyya was established in Hausaland, whence it spread westward to the Zarma and eastward to the Manga and others, as a consequence of Usuman dan Fodio's conquest of the Hausa bokwoi or seven city-states, and the establishment of the empire at Sokoto. The Tijaniyya, founded by Ahmed al-Tijani in the Maghreb, entered the area soon after, where it found receptive territory

and is today the most widespread of the tariqa in Niger (Trimingham 1959:88-101; 1962:156-160). At the time of the French conquest of Zinder, both brotherhoods were well in place (Gaden 1903:772-773), and there was some transfer of allegiance from the Qadiriyya to Tijaniyya in the years that followed (Marty 1930: 403-404). The Sanusi order was founded in the mid-19th century, and developed mainly in the desert realms between the expanding European colonies of Morocco and Algeria to the west and the Egyptian state of Muhammed 'Ali to the east. It is perhaps for that reason that its impacts were to the south, where Tuareg Sanusi rallied resistance to the French and participated in the Tuareg rebellion of 1916-1917 (Bourgeot 1978). In Libya, the Sanusi led the opposition to Italian colonization, and were instrumental in the creation of the independent Libyan kingdom. Even the Sudanese Mahdiyya was felt in Niger with the military exploits of Rabeh, who conquered Bornu at the end of the 19th century in the name of Mahdi, and was killed by the French at Kusri (Horowitz 1970; Biobaku and al-Hajj 1966).

Although the brotherhoods are frequently portrayed as mutually antagonistic, and therefore as disruptive of the Muslim unity sought by political rulers at the state level, it is interesting to note that high-ranking persons of the Qadiriyya made common cause with the Mahdiyya:

> In the Sokoto Empire the Mahdi found support in the person of Hayatu b. Sa'id, a grandson of Sultan Bello. From him the Mahdi received a letter of glowing devotion: "I am my father and all that belong to me swore allegiance to you before your manifestation was perceived... Shaikh Usuman dan Fodio, recommended us to emigrate to you, to assist you and to help you when you were made manifest" (Biobaku and al-Hajj 1966:434).

Hayatu b. Sa'id confirmed the association by marrying Rabeh's daughter Hawwa. The relationship came unstuck, however, as Hayatu fled when the French forces engaged Rabeh, and he was caught and killed by his brother-in-law, Fadlallah.

All Nigerien Muslims subscribe to the Maliki school of Sunni Islam, and all adults, both men and women, are expected to recognize the Five Pillars of Islam, the basic religious duties:

(1) ash-shahāda - the profession of faith;

(2) aṣ-ṣalāt - the five daily prayers;

(3) aṣ-ṣaum - the fast of Ramadan;

(4) az-zakāt - alms-giving;

(5) al-ḥajj - the pilgrimage to Mecca (if one can afford it).[5]

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[5] Pilgrimage has become so identified with affluent traders in Niger that the title, "Hadji," is sometimes used interchangeably with that of "commerçant," "entrepreneur," or "transporteur."

Performance of these duties tends to be sexually segregated; prayer, is more likely for men to be consumated in public, in part, no doubt, because men's general activities are normally carried out public view, whereas women more often remain within the compound, and within the women's section of the compound (v. Saunders 1978:115 for the Hausa; Diarra 1971:195, for Zarma; Horowitz 1974:375-377, for Manga). Older women do attend the outdoor community-wide prayers, such as those attendant upon the completion of the Fast (Id el-Fitr in Arabic, salla azumi in Hausa), grouping together in the rear of the assembly.

Pilgrimage reflects both piety and, especially today, wealth, since almost all travel to Mecca now is by air. Before the modern era of air travel, the hajj was accomplished overland, by vehicle, by donkey, and even by foot, and journeys of three years and more were typical. Many pilgrims travelling the hajj route from Niger, across Chad and the Sudan, never reached Arabia and of those who did, many never returned to Niger. Communities of West Africans dot the towns and large irrigation schemes of the Sudan, where the strangers are generically called "Fellata," regardless of their ethnic identity (v. Works 1976, on Hausa communities in Chad). There were times during the colonial period when, fearful of Islam as a rallying point for anti-colonial sentiment, French administrators attempted to restrain the pilgrimage (Kaba 1974), and in 1958 it was reported that "of the thousands of pilgrims who passed through customs at Fort Lamy [Ndjamena] and Abeche, only 46 came from Niger" (Works 1976:138). Today the pilgrimage is organized by the Government of Niger, which arranges for charter flights from Niamey to Saudi Arabia. Nigeriens from the central and eastern regions of the country tend to fly from Kano. The ease with which the travel can be accomplished today, and the relatively brief time involved, have probably contributed as much to the increasing numbers of Hadjis and Hadjiyyas in the country as has any increase in piety. All that is required is the price of the ticket.

As noted earlier, village-level religious beliefs and practices include elements that would not pass a vigilant 'alim, and which historians and some anthropologists label "pre-Islamic." To the believers, however, they form part of one system, a system which contains both the Five Pillars and spirits. The spirit cult is widespread in Niger, mainly among the Hausa and the Songhai-Zarma, but also clearly noted among Kanuri, FulBe and even WoDaaBe (among whom the cult is perhaps very recent). Belief in spirits has two components, that of the iskoki and that of the bori (using the terms common among the Hausa). Iskoki (sing. iska, "breeze" or "wind", i.e., "spirit") are associated with natural phenomena, with trees, rocks, and other habitats. They are individually named and have definite and identifiable characters. Iskoki are feared, for they are believed to cause illness (Greenberg 1946; Onwuejeogwu 1969; Monfouga-Nicolas 1972; Faulkingham 1975).

Greenberg described the spirit cult among Maguzawa Hausa of rural Zaria in the 1940s. Domestic rites, associated with agricultural production, took place before the first rains and at harvest time, when animals were sacrificed

to the set of iskoki honored by the household. Some of the iskoki were known to all Maguzawa, others were associated with particular patrilineages, and others with specific occupations. A household head passed all his iskoki on to his descendants, who added additional ones over time (Greenberg 1946: 43-45).

The bori are possessing spirits, which seize hold of their devotees who are usually women. Some suggest that bori are a pre-Islamic element, because they are found among marginally Islamicized Hausa such as the Maguzawa (Ibid.) and the Arna of the Madaoua region (Faulkingham 1975). Others see in the bori an opportunity for women to express themselves outside the constraints of formal Islam (Onwuejeogwu 1969; Monfouga-Nicolas 1967, 1972; Echard 1978). Similar suggestions have been made about the zar cult, which is practiced by Nubian Muslim women in the eastern Sudan Republic (Salim-Murdock 1983). Possession cults among the Zarma have been well described by Jean Rouch (1960) and Fatoumata Agnes Diarra (1971), and evidence similarities to those among the Hausa, including the central play of women in the cult. According to Faulkingham (1975), men remain active in spirit possession cults to the degree that their society remains relatively independent of Islam. Nicolas (1967) suggests that male initiates in Muslim communities are believed to be homosexual, and that bori adepts are therefore social deviants or persons of ambiguous status in their own communities.

While spirit cults may be "pre-Islamic" elements surviving and influencing the practice of Islam primarily among rural uneducated persons, Islam also has had an influence on the spirits. In Arabian Islam, there are spirits or jinn, who are without distinct names or personalities. Yet some of the iska--like Mallam al-Hadji, the "pilgrim teacher"--appear to involve a syncretic reworking of the bori pantheon (Greenberg 1946). Saunders (1980:83) notes that observant Muslims in Mirria acknowledge the iskoki, whom they equate with the jinn. Mental illness may be attributed to the action of spirits. These devout Muslims routinely utter formulaic phrases before sitting to protect them from the spirits that may be present. Dangerous spirits are believed to inhabit loci of political power, such as chiefly palaces. In Mirria, even the Sarki's wives do not give birth in the palace, for fear of exposing newborn to the dangers of these spirits.

Some observers feel that these "folk beliefs" will decline over time as orthodox Islam more firmly establishes itself in the rural areas. Nicolas (1979), for example, suggests that pre-Islamic religious beliefs and practices were intimately tied to the subsistence production system, and are weakened under the pressure of monetarization and the shift into commercial cultivation, especially of groundnuts. Some of this weakening is ideological, in that modern commodity capitalism cannot be accounted for in the traditional system. Some of it is associated with the decline of hunting and its particular rituals. Nicolas further argues that the 1968-1974 drought reduced the prestige of traditional deities, who were unable to protect the people from disaster. Faulkingham also sees a shift from traditional practice to Islam among the Arna (or "pagan" Hausa) in Madaoua in 1968-1969:

> several dozen A'rna men appear to be part of a process of conversion to practicing Islam: they sacrifice to their spirits when they must and also meet the Islamic requirements of praying five times daily. I suspect that their sons may choose the second "inheritance" in the years to come (1970:109).

This shift may well come about. We suspect, however, that the belief in spirits will be tenaciously maintained by many who would refuse the ascription "non-Muslim," because they constitute elements to which even the poor and uneducated can readily relate.

Thus the dialectic or tension between Islam as the universal faith of the 'ulema and Islam as localized assemblages of beliefs and practices drawn from a variety of traditions is likely to continue and to concern those seeking to build a coherent unified Nigerien nation. Should the 'ulema prevail, we might expect to see Islamic legal codes replacing the secular criminal and civil legislation inherited from the colonial past. Niger has not yet done this, and perhaps will not in the foreseeable future. What are basically Islamic courts do operate in a number of civil domains, however; we shall examine that operation in the next section of this chapter.

CUSTOMARY LAW

The establishment of colonial rule in Niger at the beginning of the 20th century resulted as it did in other parts of colonial Africa, in a progressive separation between criminal and civil law. Prior to European control, administration of justice was assumed by the traditional paramount rulers, as Sarkin Damagaram in Zinder and the Bornu Shehu in Kukawa, whose courts interpreted local practice in terms of Islamic (specifically, Maliki) jurisprudence. Most litigation proceeded at a much lower level than that of the paramount ruler himself, following a hierarchy of courts that paralled the local administrative structure. In Mangari, the province of Bornu north of the Komadougou Yobe in what is today the Department of Diffa, local chiefs (called maruma or bulama), aided by male heads of households (fadoma or rashidi), held informal courts or moots, which aimed at the reconciliation of disputes. Where reconciliation failed, the dispute might be presented to district chiefs (lawan) and section chiefs (kaigama), and ultimate appeal was to representatives of the Shehu. Beyond the village level, courts had genuine punitive sanctions, including fines, beatings, expulsion from the village, and incarceration. The Shehu's court monopolized capital punishment.

Islam was not a necessary component in the emergence of Sudanic kingdoms, which developed due to their strategic location on the trade routes between the forested areas of the Guinean and Sudanian zones to the south and the Mediterranean and beyond to the north. But Islam provided these ethnically and ecologically complex states with two tremendous organizational advantages: literacy, facilitating communication and record keeping; and

law, with the risāla, a common juridic framework for adjudication of disputes involving persons of different cultural traditions.

When the French colonized West Africa, they imposed their own judicial system, leaving only domestic and local civil disputes in which small sums of money were involved to the jurisdiction of the traditional courts (tribunaux coutumiers).

> A l'origine cette organisation se caractérisait par l'absence de tribunaux composés exclusivement de juges coutumiers. De tels tribunaux ne furent institués que par un décret du 26 juillet 1944, leur création effective et leurs pouvoirs étant laissés à la discrétion du gouverneur général. Leur rôle fut toujours mineur. L'action officieuse des chefs et des notables coutumiers, tant en matiére de conciliation que de jugement, ne doit pas être sous-estimée, mais il demeure que, sur le plan officiel, les tribunaux purement coutumiers furent rares et de compétence très limitée dans les territoires français. Leur rôle fut au contraire toujours considérable dans les protectorats anglais (Pageard 1963:463-464).

In 1946, the traditional courts in Niger were denied penal sanctions, rendering them essentially courts of conciliation (Sere de Rivières 1952:49). This division of jurisdiction between the customary and formal civil and criminal courts was reaffirmed by the independent Niger Government, which, in 1962, restricted customary law to personal, domestic, and land concerns, including:

> capacity to contract or sue; status of persons; the family; marriage; divorce; succession; gifts; wills; or property, except for registered lands or lands transferred according to a means recognized by written law (Salacuse 1969:195, from Law 62-11, recorded in the Journal Officiel de la République du Niger, 1 April 1962).

Although the tribunaux coutumiers generally adjudicate according to the Maliki risāla, Islamic law is referred to indirectly as la coutume, "custom," which also includes "all forms of unwritten indigenous law" (ibid.), and the official legal codes do not accord it any special significance. Nonetheless, these customary courts are taken quite seriously by the authorities. They may be presided over by a chef de canton, the highest rank of indigenous chieftanship recognized by the government, or by a sous-préfet, the provincial administrator of an arrondissement appointed by the central government.

There have been no full studies of the operation of the customary law courts in Niger, a serious omission in the research literature, since these courts provide important information about land tenure, ethnic conflicts, domestic structures and tensions, and the nature of relationships among pastoral and farming peoples. Claude Raynaut (1976) provides some information on inheritance from his ethnographic studies in the Maradi area and Margaret Saunders (1979) has explored divorce among the Hausa of Mirria. The following information about customary law courts is from Michael Horowitz' field research in Maine-Soroa in 1967-1969. The general operation of the court is described below. Specific cases are outlined in Annex II to this chapter.

In Maine-Soroa, the customary law court is attached to the Sous-préfecture, and has several full-time agents in addition to the sous-préfet who sits in judgment. The importance of the court is attested to by the considerable amount of time given it by the sous-préfet, who may devote hours and even days to the determination of a case involving, for example, a dispute over credit amounting to only several thousand F CFA or less. Although, as noted above, risāla is not officially accorded preeminence, the court did have a qādi or Islamic jurist in residence for many years, who advised the sous-préfet on difficult or obscure points of law. In addition, there were several learned clerics not regularly associated with the court whose advice was solicited from time to time. In principle, each ethnic group resident in the arrondissement was entitled to an assesseur, a representative of the group's paramount chief who assisted the court in reconciling differences that might obtain between Islamic law and indigenous practice. In Maine-Soroa, the official assessor for the Manga resided in Lagos and had not been replaced during the period of the study. However, the chief of the village, who was the chef de canton's father's sister's son and an employee of the sous-préfecture, regularly served as Manga representative. Each of the other chefs du canton, both Manga and FulBe, had representatives available to the court, as did the Djetko, a Kanuric-speaking people practicing both farming and cattle husbandry who did not have a paramount chief. Finally, there were two full-time employees of the court, both FulBe: Elhadji Mallam Djibir, who served as official interpreter[6] and representative of the FulBe, and Elhadji Mallam GiDaDo, the scribe, who recorded divorce cases in Arabic and corresponded with al-Kalin courts in Nigeria.[7]

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6 An official interpreter was necessary because the sous-préfet under-----
neither Fulfulde nor Kanuric, the major local languages. Like so many provincial administrators under the Diori regime, the sous-préfet was from the Zarma. Proceedings were translated into Hausa, in which all court officials were completely fluent.

7 Some of the Arabic correspondence between Niger and Nigeria is preserved in the Maine-Soroa archives. In 1934, the French Commandant de Cercle received the following appeal from the Islamic court in Maiduguri, transmitted by the Bornu District Officer (translated from the Arabic):

> Praise be to God and peace be to the Prophet of God
>
> From the servant of God the most High Al-Kali Bornu Liman Mashidima ibn Liman Mohammadu, the deceased, to the distinguished Katiela Liman of Maine.
>
> Greetings.
>
> To inform you a certain man Muhammadu Haji of our country complains against Abdul Kadir of Lumium on account of his seeing his stolen mare with him. He brought two witnesses before the Administrator of Maine, but in spite of this you denied him his horse.
>
> Now if you see my letter, please let him get his horse in the way which Muslim law decides.
>
> May God help us and you also to do justice.
>
> With peace.

(continued...)

Persons wishing to address the court or who have been summoned by it gather in the morning on the long veranda in front of the Sous-préfecture. It is easy to know when court is in session by the piles of sandals left outside, signs of respect for both civil and religious authorities. Court is most active on the weekly market day, when people come in from the bush. The interpreter and scribe sit at a table at one end of the veranda, and litigants, witnesses, and those who come just to listen sit on the floor along the walls. Seats are reserved for the sous-préfet and for distinguished visitors. Women sit toward the rear, wrapped in their shawls as befits their modesty, and usually avoid the often animated conversations among the men. While the interpreter and scribe and any representatives of the paramount chiefs may solicit preliminary information from the litigants, court does not officially begin until the sous-préfet arrives, at which point all rise. Similar deference is also accorded a traditional paramount chief. However, the sous-préfet embodies the secular authority of the State and, by virtue of being an ethnic stranger, is not manipulable through ties of kinship or clientage. This creates an extremely formal atmosphere in the room while he is present, and litigants are at pains to express their respect. If the sous-préfet is unavailable the session is adjourned.

The court of a traditional paramount chief in a village which is not also the seat of civil authority, such as the FulBe chieftanship at Fulatari or the Manga chieftanship at Chetimari, is more simply organized, less formal, and decisions may be appealed to a sous-préfet's court. The kinds of cases heard, however, are the same: domestic disputes, including divorce, accusations of adultery, and inheritance claims; animal incursions in cultivated fields; boundary disputes; and arguments over credit and the like. If a case is introduced that has criminal implications, it is transferred to the gendarmerie for disposition by the official secular courts. Before a case is brought before any tribunal, an attempt normally will be made at informal reconciliation within the village, whose chief attempts to mediate without the intervention of others. A chief whose village generates a large number of legal disputes is considered ineffective. The maruma of a village some 20 kilometers north of Maine-Soroa is proud to state how rarely his villagers have recourse to the courts. Ventilating disputes, particularly among kinsmen and neighbors, is considered shameful, especially as there is the risk of releasing information that neither party wishes to publicize. On the other hand, even good friends may seek the impartial judgment of the court where they are genuinely uncertain as to the proper solution of a dispute. In one such case, two friends, a tanner and a shepherd, solicited a resolution to the following problem. The shepherd had three skins, two sheepskins and a

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7 (continued)

Katiela Liman was Paramount Chief of the Manga of Maine-Soroa following the execution of his half-brother, Katiela Abdou, by the British in 1905. He reigned until his death in 1940, and was succeeded by Katiela Abdou's son Gasso. As this letter indicates, the direction of the customary law court had not yet been transferred to the civil authorities, remianing under the jurisdiction of the traditional paramount chief.

We do not know how the case was resolved.

bull hide. The tanner was to treat the skins, receiving 10 shillings and one of the sheepskins in payment. Three shillings were paid in advance.[8] In tanning, both sheep skins were ruined, although an excellent job was done on the huge bull hide. The shepherd recognized that tanning can be tricky, and simply wanted advice as to how to compensate his friend's labor. The court decided that the shepherd should receive the remaining hide and the tanner should retain the three shillings already paid. The men left the court, arm in arm, apparently satisfied with the judgment.

Often after a case has been decided, the female participants, if any, leave the court, but the men remain to listen to other cases. Whenever the sous-préfet leaves the room, the spectators freely comment on the cases, argue with each other and with the court officials and offer advice and encouragement to the remaining litigants.

Especially where convened by a traditional chief, the customary law courts provide rural people with opportunities for formal resolution of dispute in reasonably familiar settings, without the risk attendant on courts presided over by powerful strangers, strangers who have access to the dangerous and remote authority of the state. In Annex II, we review a variety of cases heard before the sous-préfet's court in Maine-Soroa, some of which clearly reaffirmed the wisdom of prudent avoidance of such courts wherever feasible in favor of mediation and reconciliation at the level of the village or band.

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8 Nigerian currency circulated freely in eastern Niger during the 1960s, and even remote rural markets were somehow keyed into small changes in exchange rates between CFA and pounds (Hausa fam), shillings (Hausa sule), and pence (Hausa kwabo). Today, exchanges are generally made in francs.

ANNEX I

MUSLIM HOLY DAYS

Niger officially observes the major Islamic holy days and festivals (as well as Christian holy days inherited from the French). The Muslim year is based on a lunar calendar of 354 days, with a consequent annual progression of about 10 days in regards to the solar calendar. Specific holy days are therefore independent of the seasons, and may occur at any time. The month of Ramadan, when Muslims fast from sunset to sunset, is more easily tolerated when it occurs in the cool season of December-February than in the intense heat of April and May or during the rainy season of June-September when the rural population is out in the fields.

There are five major religious events in Niger, which the observant share with co-religionists around the world:

(1) The Prophet's Birthday (maulid, Arabic; salla gani in Hausa) - observed on the twelfth day of the third month.

(2) The fast of Ramadan.

(3) The end of the fast or Lesser Festival, ('id al-fitr, Arabic, salla azumi in Hausa), celebrated on the first day of the tenth month.

(4) The Great Festival ('id al-kabir, Arabic, salla layya, in Hausa, or "Tabaski"), celebrating the covenant between God and Ibrahim.

(5) New Years Day (dukhoul as-sanna al-hijriyya, Arabic).

Saunders (1978:112) has prepared the Islamic calendar as observed in Mirria:

Arabic Name & No. of Days		Events as observed in Mirria
Muharram	30	10th day - Salla Wutsiya (tail of ram slaughtered at Salla Layya is cooked and eaten).
Safar	29	
Rabia I	30	12th day - Salla Gani or Maloud (celebration of Mohammed's Birthday, not his naming day as in some areas. Religious poetry, the Ishiriniya, is read on first twelve nights of this month).

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Arabic Name & No. of Day		Events as observed in Mirria
Rabia II	29	
Jumada I	30	
Jumada II	29	
Rajab	30	
Shaban	29	
Ramadan	30	30 days - Wata Azumi or La Carème (month of the 30-day fast of Ramadan. Adults should not eat nor drink from first light till sunset; children begin to fast a few days as they are able.)
Shawwal	29	1st day - Salla Azumi, the Id el Fitr or Lesser Festival. (Major festival marking the end of the fast with community-wide prayers at the festival prayer ground east of Mirria and horseback procession by the Sarki.)
Zu'lkadah	30	
Zu'lhijjah (Month of the Pilgrimage to Mecca.)	29*	10th day - Salla Layya or Tabaski, the Id el Kabir or Great Festival (Commemorates God's provision of a ram for Abraham to sacrifice. Community prayers, slaughter of sheep, and horseback procession of Sarki.)

* 30 days in leap years, 11 of every 30 years.

ANNEX II

CASES FROM THE MAINE-SOROA TRIBUNAL COUTUMIER, 1968-1969*

Domestic Disputes: Marriage and Divorce

1. A young man complained about his wife. Both Manga, they had lived together only one day after the marriage, when the man left town for his home in a remote village. The girl was supposed to follow shortly thereafter. After several months without her, the young man returned to the town and surprised his wife in bed with another man. The husband claimed that this man alienated his wife's affections, and told her not to join him in his remote village. The sous-préfet inquired why he had then come to court, since he could simply repudiate his wife by pronouncing the divorce (talaq, Arabic; dintu, Manga; saki, Hausa). The man replied he did not know what to do, but he wanted justice.

   The wife was accompanied by a girl friend who asked to testify, but she was not permitted to speak as she had no interest in the affair. The wife admitted adultery, but said that she had been counseled by her relatives not to live with her husband, since his former wife was also a relative of hers, and her kinsmen claimed that Islam prohibits such a marriage. The Quran does prohibit sororal polygyny (Q IV:27), but the sous-préfet ruled that the relationship between the women was too remote for the prohibition to apply, and that divorce was the only solution.

   The wife, smiling and bouyant, seemed delighted with the decision, even after the sous-préfet went on to rule that she could not marry her lover. "According to risāla," he said, a man may not profit from having caused a divorce. He then asked if there were any claims. The husband's father's wife asked for return of the bride price which she had paid, £9/10. The wife agreed to repay once she had remarried, but the sous-préfet insisted that she reimburse the bride price that very afternoon or risk imprisonment. All the fault in the case was hers, he insisted.

   She returned that afternoon without the money, and wearing none of the silver jewelry with which she had been adorned in the morning, fearing perhaps that she would be required to sell them. Very sad, very respectful, with none of the jaunty cheerfulness she exhibited in the morning, she begged and was granted additional time.

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* The case material on customary law was collected in the field by Michael M Horowitz and has not been published previously.

It is interesting to note the very good relationship between the man and his father's wife, since much of the literature points to considerable friction between co-wives and, by extension, between a woman and her co-wife's children, and among the children of co-wives as competitors for their father's interest. Here the father's wife not only accompanied her step-son to the court, but had also provided his marriage payments.

2. While men may divorce their wives by a simple act of verbal repudiation (talāq), women are obliged to seek divorce before a court. If the divorce is granted, and during the period of the field research it was official State policy in Niger to be receptive to a woman's desire to terminate her marriage, the action is recorded by the scribe. Even where the husband initiates the divorce, the wife may seek to have it officially recorded, to prevent her husband either from later claiming that he never really divorced her or from interfering with any subsequent remarriage. Several cases of divorce initiated by women involved abandonment.

   A beautifully adorned Djetko woman, wearing large silver leg bracelets, appeared before the court accompanied by her younger brother from Djetkori. As they approached the bench, the young man respectfully removed his cap, and was told by the FulBe assesseur that he might keep it on. Speaking Manga, the man explained that his sister had been abandoned by her husband after two and a half years of marriage, and had been apart from him for 13 months. The husband had moved to Geidam, a Kanuri village in Nigeria. They had sought him there, and he refused, they said, either to divorce his wife or to provide for her maintenance. She was therefore soliciting a judicial divorce on the grounds of abandonment. The court fully supported the wife's position; according to risāla, a man must take care of his wife regardless of his material condition, whether rich or poor (Milliot 1953:330), and abandonment is clear grounds for divorce (Ibid.:344).

   The court will attempt to ascertain the husband's intentions, either by convoking his presence, if he resides within its jurisdiction, or by requesting an examination by the customary tribunal in proximity to his best known address. He is granted a certain time period in which to respond, and if he declines to answer the divorce is granted without further proceeding.

   The court makes a genuine attempt to verify the charge of abandonment. A Manga woman sought a divorce from her husband who also resided in Geidam. Seven months previously she left her home to visit relatives in Maine-Soroa. While she had his permission to make the trip, she was angry that he had not come to get her during that period, and therefore decided to seek the divorce. The petition was denied, the court saying that there had been no prior trouble between husband and wife, as evidenced by his kindly agreeing to allow her to visit her relatives. The sous-préfet suspected that she had intended to seek the divorce in Maine-Soroa and therefore left Nigeria, since the Northern Nigerian al-Kali courts are generally disinclined to hear a woman's complaint. The woman in a Nigerian tribunal is always assumed to be in the wrong, and risks a fine where a divorce is granted. In Niger, he added, there is no fine, just a simple reimbursement of the bride price, and sometimes not even that.

3. A woman demanded a divorce because her husband was mad: "la femme peut être rendue (à la famille) en raison des vices rédhibitoires suivants: folie, éléphantiasis, lèpre, maladie des organes génitaux" (Zayd al-Qayrawani 1945:137). The young husband, in poor torn clothes fingering his prayer beads, admitted the accusation, but claimed now to be cured. The wife fears her husband will hurt her if she returns. The husband insists loudly he will not let her go. The wife's father said he would tell his daughter to return if he could be assured that she would not be hurt, but she insisted her husband would kill her. Even when he was mad, the husband countered, he never hit her; during his illness, his brothers bound him in the bush.

   The woman allowed that if her husband's brothers, who were also present, swore on the Quran that they would assume the responsibility if she were hurt, she would agree to return to her husband, but the man objected to his brothers being asked to swear over a woman.

   The sous-préfet tended to oppose the divorce. If one of a couple becomes ill, he said, there must be a long period, even up to ten years, in which they pray for a cure before a divorce may be granted. He asked the wife how she would feel if the positions were reversed (neglecting to add that the husband could simply divorce his wife by verbal repudiation). The husband and the girl's father then began to argue loudly with each other, the father saying he was afraid to send his daughter back for fear she would be beaten, and the husband claiming only Allah knows the future. He accused the father of ridiculing him. "Allah will punish you for having mocked me." Sensing tempers running high, the sous-préfet continued proceedings to the following morning, when he announced his decision not to grant the divorce. He argued that the psychological blow to the husband would be greater than he could tolerate, and he might then return to madness.

   The father then presented a claim for reimbursement of expenses of food and lodging during the three years his daughter stayed away from her husband. The brothers challenged the amount, 6 pence/day or £ 27 for the three years, but they agreed to pay and furthermore to protect the wife from any possible harm. The oldest brother, chief of a Manga village, said his brother would have to kill him first before he could harm his wife. The father also claimed reimbursement for his daughter's clothing that had been burned by her husband. Here the claim was disallowed on the grounds that the husband was not responsible for his actions; it was the illness that did it. Finally, the father said he was still uneasy about his daughter's return, fearful for her well-being, and this time he was sternly lectured by Elhadji Mallam Djibir, the interpreter, who told him he must stop insisting that his daughter was not safe. Only Allah knows.

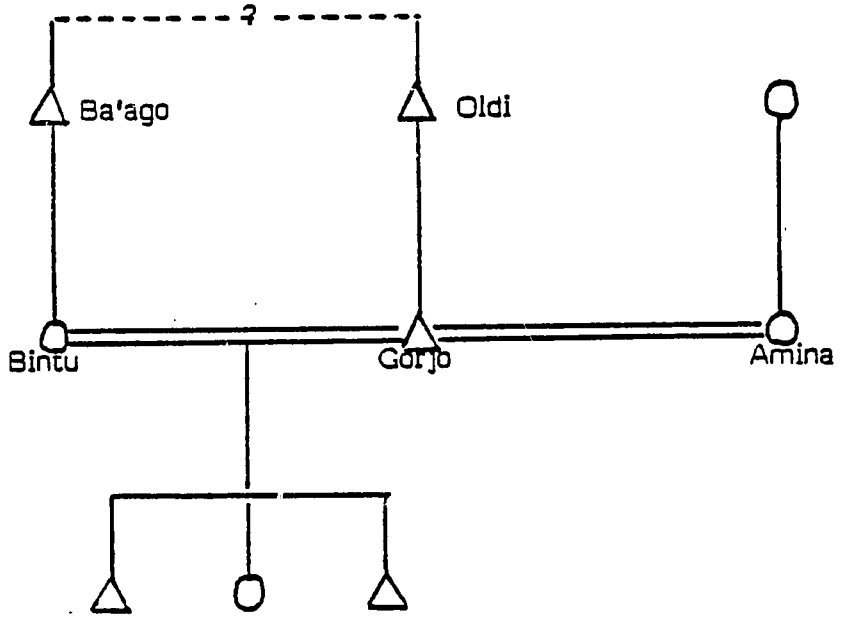
4. Divorce may be sought on the grounds of inadequate sexual performance. The right to divorce an impotent husband is formally accorded in the Quran and Risala: "A l'impuissant, on laisse un délai d'un an (pour consommer le mariage). Si, durant ce délai, il arrive à coïter, c'est fort bien. Sinon, la séparation (judiciaire) interviendra, si la femme le désire" (Ibid.). A FulBe woman sought such a divorce to the amusement of the officials present, claiming that in the last six of the ten years of her marriage her husband was impotent. If the allegation is true, the court ruled, the divorce will be granted. But the husband must be given an opportunity to cure himself and to disprove the allegation. In principle, the sous-préfet continued, the evidence should be presented in the court itself, but in this instance they will be satisfied with the testimony of witnesses. As an aside, the sous-préfet said, the husband who was not present in the court, would be more likely to divorce his wife than to face the public shame of being unable to perform his conjugal duties. But in recording such a divorce, the likelihood of his sexual inadequacy would be noted.

   On the other hand, a FulBe woman demanded a divorce from her Ibo husband because he made love to her too often. This elicited loud laughter from the sous-préfet and the interpreter, and even the religious ascetic scribe was unable to repress a smile, then blushed, and quickly left the Tribunal to pass the rest of the proceedings in prayer outside. The husband claimed that the real reason his wife was angry with him was because he hit her. He explained that she had been possessed by bori for several days, during which time he stayed by her side to keep her from hurting herself. Yet when he became ill, his previous display of conjugal devotion availed him not at all, and she refused to take care of him. So when he recovered he hit her. The sous-préfet finally ordered him to take his wife by the hand, and the two of them walked out together, hand-in-hand. It is doubtful that the court would have ever directed a Muslim to hold his wife's hand in public. Although the wife was Muslim, the man, an Ibo, was Christian.

5. Much marital discord derives from competition and jealousy among co-wives. Islamic Law requires that each wife be treated equally, and that no one receive any preference in affection: "Le mari, s'il a plusiers femmes, doit proceder entre elles à un partage égal de ses nuits" (Milliot 1953:328). The following dispute, brought by pastoral FulBe, evidences the rapidity with which an act of preference can escalate into discord. Bintu and Gorjo were married for ten years and had three children. Gorjo also had a second wife, Amina. Following the birth of her last child, Bintu remained continent for forty days, then washed and prepared her husband's meal. Gorjo ate, but instead of spending the night with Bintu, as implied by acceptance of her food, he returned to Amina. In a fury, Bintu entered Amina's hut and beat her. Gorjo stormed in, beat Bintu, and divorced her on the spot. To compound the injury, Amina's mother had Bintu brought before the gendarmes who fined her £ 15 for assaulting her co-wife. Bintu went to live with her father, Ba'ago.

Three months later, Gorjo wants Bintu to return. He offered to reimburse the fine, the cost of her nourishment during the three months' separation, plus a dress, shoes, a bolt of cloth, and a kerchief. Bintu does not want a reconciliation and has initiated the court proceeding to have the divorce recorded.

In court were Bintu, her father, her husband and her husband's father, Oldi. The two old men are kin, members of the same patrilineage. Ba'ago says he does not care if there is a reconciliation or not; Oldi thinks his daughter-in-law should return to her husband. Since the sous-préfet had not yet appeared, the FulBe interpreter told the fathers to take their children outside and see if they couldn't arrange an amicable reconciliation. He warned them, however, that they were not to force Bintu against her will. Within two minutes of leaving they returned. Bintu adamantly refused to return to Gorjo.



The sous-préfet, to test her seriousness, threatened Bintu with prison if she didn't return to her husband. Bintu proudly announced that she preferred prison to marriage with Gorjo. Guards were summoned who led her away, while her father sat silently, making no protest. Another case was heard, and then Bintu was summoned back to court and the divorce granted.

At this point Oldi claimed that he was entitled to compensation for having cared for Bintu's animals for seven years. Didn't they give milk, he was asked. Yes, but the milk was for her children. The sous-préfet ruled that it was improper to raise the claim subsequent to the divorce. Oldi then said that he wanted the animals removed from his tax obligations. This opened a mare's nest, for it was soon discovered that none of them had paid taxes for three years, and this time the two fathers were harshly hauled off by the guards. They'll be sorry they ever came to court, said the sous-préfet, for not only will the unpaid taxes be collected by the herds inspected to determine if the number listed in the tax register was correct. Several days later the recount was made: Oldi, who claimed to own 40 head, was found to have 80; Ba'ago, who claimed 20 head, had 110!

The sous-préfet said that while he appeared severe with Bintu, to test her sincerity, all his sympathies were with her. Gorjo had absolutely no right to sleep with Amina having eaten Bintu's food. "According to risāla," he added, a child conceived that night, between the legally married Gorjo and Amina, would have been illegitimate.

6. A recurrent source of tension, as we have seen in the case of Amina, Bintu, and Gorjo, are relations between co-wives in a polygynous household. A Manga woman came to court seeking a divorce because, she said, her marabout husband, also a Manga, preferred his other wife. The other wife received presents which she didn't get, despite the Islamic prescription to treat wives equally. She assumed an awkward kneeling position in telling her story to the court, and Elhadji Mallam Djibir gently suggested that she sit more comfortably. Mallam Djibir, in the sous-préfet's absence, said that because you have a baby we shall try for a six month reconciliation. If that doesn't work satisfactorily, she could return for the divorce. At first she agreed, but then said she didn't love her husband, and wanted a divorce immediately. Mallam Djibir nonetheless insisted on the attempt to save the marriage. The wife nodded and left. Then Mallam Djibir spoke severely to the marabout husband: If you do wrong, he said, God will know. And we will separate you. Now give your wife money to buy the things she needs.

   The marriage had been a sadaka, arranged without bride wealth, a form of charity between the girl's parents and the cleric.

7. While co-wives compete for their husband's affection and protest any slight, they may combine against an outside woman. Fati, a Manga zauwer, complained that the two Manga wives of Abdu, a Hausa, were threatening to beat her. Abdu, in court, asked her where she heard that, and she pointed to her friend Aisha, also present in court. Aisha denied having made any such statement, although apparently she had accompanied Fati and agreed to testify.

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Abdu said that he had earlier gone to visit another woman, Aisha, to commiserate with her over a recent still-birth, and he gave her 100 CFA. As he was doing this, his senior wife came in, and accused him of having given Aisha the money to give to Fati. She insulted him as being the kind of man who visits divorced women.

Both wives came to call on Aisha and told her that they were going to beat the zauwer who was seeing their husband. Fati complained to her village quarter chief who referred her to the sous-préfet.

Neither wife was present in the court and no resolution could therefore be made. According to the laws of Islam and of the Niger state, Abdu had done nothing wrong. Since he is legally permitted to increase the number of simultaneous marriages to four, he could visit any woman not potentially forbidden him as a wife. There was some sentiment, however, that given the character of his current wives, Abdu should have been more discrete. There was little point in angering his other wives through public visiting of zauwer; if he wants to marry again, he need just present them with a fait accompli. In Manga, there is no terminological difference between a woman who is divorced and lives quietly in her father's hut, and one who solicits on the street. Both are zauwer, "divorced women," which is commonly glossed in French as garses. This does not mean that people do not conceptually distinguish prostitutes from divorced women; only that the same term is normally used for both.

8. A woman, seeking divorce, is almost always accompanied by a male kinsman, usually a father or a brother. While it is not improper for a woman to plead her own case, most women have little experience talking with men, and married women especially try to overcommunicate their shame and modesty before men, particularly important men like chiefs, clerics, and government officials. Divorced women (zauwer, Manga), on the other hand, have far greater latitude. There is a fascinating counterpoint in behavioral performance between married and divorced women, especially intriguing because almost every woman in Mangari (except the Wodaabe) marries, divorces, and remarries with considerable frequency. Between marriages women freely associate with men and convey little of the modesty they assumed during marriage and will assume in future marriages.

Mustafa, a Manga working in Maine-Soroa as house boy to a fonctionnaire, came to court with his younger sister from the village of Garawa. She wants a divorce from her Shuwa Arab husband of seven years, on the grounds of lack of support. They had been living near Geidam, Nigeria, and were separated for two months and ten days. The husband, who was present, wanted his wife back, and agreed to the sous-préfet's suggestions that he make her a gift of ₤ 6, although he requested a delay of 20 days to collect the money. She insists she does not want to resume the marriage. The sous-préfet sent them away, instrucing them to try reconciliation. He felt the period of their separation was too brief for him to grant the divorce, although he allowed that if the reconciliation failed he would terminate the marriage. Mustafa believed

that his sister was enjoying her freedom far too much ever to return to her husband, who insisted on a greater degree of wifely seclusion than she was willing to accept. In her home village of Garawa, almost no young women, married or not, are really in purdah.

9. While the discovery of theft, fraud or assault often results in the transfer of a case from the customary court to the gendarmerie, occasionally one goes the other way. The interpreter, El Hadji Mallam Djibir, was summoned to the gendarmerie to testify. Musa, a Hausa custom's guard, and Bintu, a Hausa-speaking Fulani, had lived together in concubinage. They had planned to marry, when Bintu announced she was pregnant, and that the child was not Musa's. According to Maliki law, a pregnant woman may not marry until after the baby was born. It was rumored that Musa suggested they marry anyway, and no one would be the wiser. Bintu declined to do that, and gave Musa 4,000 CFA to buy a bed. He went to a merchant, a Buzu, who sold him a metal four-poster for 11,000 CFA, with 4,000 francs down payment, and the rest to be paid later.

People began to criticize Musa for his willingness to marry a woman carrying a bastard, as Bintu's pregnancy became obvious in time, and finally Musa succombed to the criticims and the couple separated. The baby was born, and was 16 months old when Musa and Bintu were convoked to the gendarmerie by the merchant who claimed the balance due on the bed. Musa first agreed to pay if Bintu gave him the child. She refused. Then he said he would pay if she swore on the Quran that the child was not his. The chief of the gendarmes ruled that those issues are not germane to the case, and Musa simply had to pay. For resolution of the other issues jurisdiction shifted to the customary tribunal.

The sous-préfet took charge and reiterated Musa's obligation to meet his debt to the merchant, giving him a six-week period in which to raise the money. Mallam Djibir noted that, "according to the law," if a woman is discovered pregnant during the 'Idda, the three months and ten days following her divorce, the child belongs to the former husband regardless of the biological paternity. But in this situation there was no prior marriage, neither customary nor Islamic. Bintu insisted that Musa was not the father, that she doesn't know who the father is, but if Musa wants the child he can have her. Because the child had been born in the maternity clinic in Maine-Soroa, an attempt was made to locate it in the birth registry, in order that Musa's name be recorded as the father.

Several other cases were heard while they searched, unsuccessfully, for the register. When the court again focused on the case, Bintu changed her story, and said that Musa is the father, and has a right to the child. At which point Musa said he would then be happy to take the child and its mother also. Bintu agreed to return to him, but she said, with the sous-préfet's support, that Musa should pay the costs of the naming ceremony. Later that afternoon the three of them, Musa, Bintu and the baby, were seen happily walking together in the village.

The next morning they returned to the tribunal to determine the costs of the naming ceremony, and the cost of maintaining the child during the 16 months of their separation. The sous-préfet said that child support is one shilling per day, times 485 days. Musa objected, saying that the year should be based on 360 days, not on 365 as the sous-préfet calculated, totalling 480 days or ⊾ 24. The expenses of the naming ceremony were calculated as follows:

sheep	40s.
barber	10s.
Mallam	10s.
cloth	17s.

Musa noted that he originally paid for the kola. Thus, there was a total to be paid of ⊾ 27/17. Musa held his head in bewilderment over the sudden increase in both his debts and family situation.

Then the sous-préfet announced that because Musa was a public servant, as a married man with a child he is entitled to allocation familiale of 2,500 CFA-month retroactive to the birth of his daughter. Thus the end result was entirely in his favor:

He will receive	40,000 CFA
He must pay Bintu	16,700 CFA (i.e. ⊾ 17/17s.)
	23,300 CFA balance in his favor, from

which he now has the money to pay the merchant. Everyone in court was delighted with the resolution of the case: all debts were paid, the couple was reconciled, and the child now had a father.

10. Cases are rare in which the court seeks to reconcile a marriage over the husband's objections. One such case was heard not in Maine-Soroa, but at the traditional chieftanship of Chetimari. The chief himself was not present as the village notables sat in the shade of a large tree just in front of the chief's compound. The proceedings involved a divorce action between Mobeurs, a Kanuric-speaking people along the Komadougou Yabe. The husband was from Chetimari, the wife from Nigeria. They had been married for three years, and now the wife wanted a divorce. The husband agreed to the divorce, but insisted that she first repay his gifts. Three months earlier they had separated, and she offered him 200 shillings to agree to the divorce, which he refused, and then 300 shillings, which he also refused. She went to live with her uncle. At the hearing, the husband sat among the men on the ground, and the wife at some distance from them, partially hidden by the tree.

The husband complained that his in-laws showed little respect for him. He does not want his wife, and does want his money. The wife's uncle was present, pressing for a reconciliation. He said that while he couldn't hit his niece and force her to return to her husband, were she to do wrong, the husband had just to tell him, and he would convey the information to the girl's parents who would take the necessary action. The uncle was trying to show that the affines did indeed respect the husband.

The uncle added, though, that he is entitled to reimbursement for the costs of her food and water during the three months she lived with him. The husband agreed to pay this on condition that his wife swore on the Quran that during those months she had seen no other man.

Government policy, the village notables stated, is that the wife cannot be forced to remain with her husband, but that he may ask for return of the bride price. On the other hand, they strongly urged him to take his wife back. Under this pressure, the husband said he would accept his wife's return, since he was being publicly asked by such important people. The notables then asked him how much he would pay his wife's uncle. He offered £ 1 which they felt was insufficient, and he refused to increase it. Negotiations ceased at that point, and the notables reluctantly conceded that the case was now out of their hands and it would have to be heared before the customary tribunal at the Diffa sous-préfecture.

The use of the Quran in legal proceedings is very delicate. In the European tradition, each disputant swears to the veracity of his or her position; in the customary tribunals of Niger, it is forbidden for opposed positions both to be sworn as true. Therefore, the Quran is not invoked until the end of the proceedings rather than at their commencement, and usually not at all. Even where an individual offers to swear to his story, he might not be given the chance. Some cases are felt to be too unimportant to merit such a weighty act; in others, the court officials might doubt the person's commitment to Islam, as a non-believer should not touch the Book. The court once refused to allow a herder to swear that his animals had not trespassed in a cultivated field, because he was an Abore FulBe, and they are not "true believers." The Quran is invoked where an adulterous woman agrees to stop seeing her lover and her husband agrees not to divorce her. If both are Muslim, the wife and her lover may swear to discontinue the relationship. But a non-Muslim, such as a Christian Ibo, many of whom appeared in southeastern Niger fleeing the anti-Ibo massacres that followed the assassination of the Sardauna of Sokoto in 1966, will not be permitted to take an oath on the Quran.

One aged chief said that in the early colonial days there was a great deal of corruption in the customary tribunal which he supervised, with the decision favoring whoever paid the largest bribe. Thus, he continued, a poor man, even if right was wrong. But would you award the judgment to a rich man if his poor opponent swore on the Quran? The chief, he said, would not allow a poor man the opportunity to swear, even if he knew that man was right and that his rich opponent, who had paid the bribe, was wrong.

Some people are reluctant to swear on the Quran for fear that some small, perhaps insignificant, piece of their testimony might not be entirely true, even though its central thrust is correct. There is tremendous fear of retribution from a false or even flawed oath. It is reported that among pastoral WoDaaBe, a man may swear his case on the calf rope (dangol, Fulfulde), to which calves are tied at night to prevent them from sucking. A false oath on the dangol is said to risk sickness and death among the animals.

11. Disputes over inheritance frequently come before the customary tribunal, as the death of the linking person may rupture the tenuous bonds the previously held people together. Two such cases were brought on the same day. The first was initiated by a FulBe woman, widowed after twenty-five years of marriage, when her deceased husband's older brother chased her from the house, denying her any part of her expected inheritance. Prior to the death, her husband received a cow from a Manga. The cow had four calves. The woman claimed the Manga gave one of the calves to her, whereas the husband's older brother claimed the cow—and therefore the calves—were for the husband alone.

The court saw three points at issue, to be judged separately: (1) the widow's portion of the inheritance (gado), which she had not received; (2) the bride price or dowry (sacaki), which she also had not received; and (3) the cow and her calves.

For the third item, nothing could be done without the Manga's testimony, and he was summoned to appear.

The widow said that her husband had also given her a steer in exchange for two sheep, and she wanted that separated from the herd. For that, the court said, she must swear. She readily agreed, and said she would also swear that the bride price she had not received, the sadaki, was nine cows.

At this point the hearings were suspended, and nomadic guards (gommiers) accompanied the disputants to their homes to count the herd to determine the widow's portion and to verify the tax records.

The second inheritance dispute was among Manga. Elhadji Mustafa of Garawa, recently a widower, was convoked by his deceased wife's mother's mother and mother's sister, who were accompanied by her mother's father's sister. They claim that among the dead woman's effects are goods which really belong to them. Elhadji Mustafa initially denied the claim, which included a cow, rugs, blankets, six silver bracelets, and some silver rings, all of which, except the cow, were displayed in the court.

There was much haggling, particularly over a blanket which the court directed be given to the wife's mother's mother. Then, after claiming it, she disdainfully refused it, and tossed it back to her grand-daughter's husband, who tossed it back to her. The court was not amused by this mutual rejection of what both had claimed, and sent them all away from the court to have the distribution of the goods supervised by an important cleric: half of the objects were to go to the widower, and half to his deceased wife's mother's mother.

12. Rarely is the judgment of the sous-préfet disputed and there were no claims of impropriety in his court, although he himself thought that in disputes between herders and farmers, each believe that he has been bribed by the other. A young FulBe girl, about 15 years old, refused to live with her marabout husband, and came for a divorce. The dispute was over the return of the bride price. The sous-préfet ruled that the dowry, a cow, should be returned to the husband, and that all other gifts (two silver coins, two pieces of cloth, kerchiefs, two pairs of shoes, and two pounds), with a total value of £ 13/19, should also be returned if the marriage had not been consummated. The sous-préfet inquired of the young wife, who blushed and hid her head in her shawl. The marabout husband admitted sexual relations with his bride, but disputed the interpretation of the law. Perhaps because of his clerical status, the sous-préfet seemed unsure of his own ruling, and asked that the most learned marabout in the region be sent for to assist the court: the FulBe Elhadji Ibrhim, leader of the Tijaniyya. A vehicle was dispatched to transport him. As soon as he arrived all persons joined him in prayer (fatiha), after which he shook hands with the sous-préfet. Hearing the argument, he seemed to favor the court's interpretation, but the husband still objected. "Elhadji Ibrhim is my own teacher," he said, and therefore his respect for him was boundless, but he wanted to see where it was written that having consummated the marriage he could not recover his gifts. He further accused the sous-préfet of imposing his civil authority in what was essentially a matter outside his ken, and therefore of not judging properly, which provoked some anger on the sous-préfet's part. To cool the tension, the other officials suggested that the hearings be suspended until the Quran and risala were consulted.

The following day the husband returned and triumphantly claimed he found a passage that supported his interpretation. Since the sous-préfet neither reads nor understands Arabic, Elhadji Mallam GiDaDo, the scribe, translated the portion into Hausa. The sous-préfet held that it was inapplicable. If seemed clear that the sous-préfet did not like this man, and he commented that there had been some fraud in the marital arrangements, for the marabout had falsely told the girl's parents that she loved him. What seemed most to disturb the sous-préfet was the gross difference in age between the girl, for whom this was a first marriage, and the sixty-plus year old marabout.

13. Many cases are simply not resolved by the tribunal, because there is an unwillingness publicly to ventilate all the factors involved. In one such case, the chief of the griots, or musician-praise singers of Maine-Soroa, Chetima Gangama, the famous Manga algaitist, complained that his wife, also a Manga, left him without any

reason. She asked him for money to attend a naming ceremony. He claimed he had none, but would get some and, taking his food with him, went to eat at his older brother's house, who was also a griot. When he returned, he still didn't give her any money, and announced he was leaving on a trip. She threatened that if he went away and left her with no money she would leave the house. If she leaves, Gangama said, she was not to stay in Maine-Soroa, but she was to live with her family in the bush.

When Chetima Gangama returned from travelling he thought he would find her in her bush village, but instead learned she was at her older brother's house in Maine-Soroa. The older brother testified that his family had never approved of the marriage of his sister to Chetima, and didn't even attend the wedding. Although he refused to amplify that statement, people understood it to mean that his family, who were connected to the Manga nobility, felt it was beneath them to have a marriage with a musician. The wife added that when Chetima Gangama left he told her that he no longer loved her. He denied this in court. The sous-préfet said that he couldn't possibly unravel all that was going on, and told them they would have to settle this among themselves. As the representative of the national government, the sous-préfet could not publicly support the idea that a girl of high birth should not marry a musician. But as a conservative and high-born person himself he clearly shared the sentiment. The Préfet of Diffa once said that while he had to agree in principle that any Nigérien, regardless of his birth, was the equal of any other, he could not even contemplate a marriage between his family and the son, or daughter, of a butcher.

Non-Domestic Disputes

Non-domestic and non-familial cases heard by the customary law court may be grouped in two large categories. One has to do with disputes between herders and farmers, with complaints brought either by farmers claiming to have suffered crop loss due to animal incursions, or by herders that the farmers are improperly extending their fields into lands traditionally reserved for pasture. The other category contains allegations of contract violations: disputes over credit, animals consigned and subsequently reported missing, stolen, or deceased, and arguments over land ownership. We shall first examine several instance of contract violation.

14. Two FulBe men appeared in court. The plaintiff, a middle-aged man, gave two large baskets of kola nuts to the other for sale, expecting L 8 for each basket after the nuts were all gone. Kola nuts are the only stimulant widely used in Mangari; only the Tuareg and Arabs are regular tea drinkers. Those nuts are harvested far to the south in Nigeria, and are transported hundreds of kilometers by truck and camel to reach Niger. There is an enormous investment in the nuts, and considerable risk, since they dry out rapidly in the extreme arid conditions of the country and become unsaleable. Before being offered to the consumer, they are divided and redivided into smaller and smaller units. Every large village—certainly

every village with a market—has a kola wholesaler (goroma, Manga) who passes the nuts on to the retailer. The trade network appears to be exclusively male up to the point of final sale, when women retailers buy several shillings worth for final resale in units of one or two nuts, at about 10 CFA per nut. While these kola do not have all the ritual significance they have in southern Nigeria, they figure prominently in Manga hospitality.

The first basket was sold and the plaintiff received his £ 8. The other had been partially sold, when the second man fell ill and was hospitalized. Without awaiting his return from the hospital, the plaintiff went to the sick man's house, and reclaimed the remaining nuts. He then had him convoked to the tribunal, claiming he was owed £ 6/10s. Determining how many nuts had been sold, the price received, and the condition of the remaining nuts, the sous-préfet reduced the claim to £ 3. The defendant accepted the decision, and was accorded a delay to enable him to sell a horse and make the payment.

15. This case was followed by a dispute also between two elderly, bearded, soft-voiced FulBe men. One had a mare, whose sale he confided to a broker (dilali, Hausa). The plaintiff bought the mare, in exchange for a horse and 50 shillings. The broker took the horse and money and disappeared. The original owner, receiving nothing, went to the plaintiff's house and, finding him gone, repossessed his mare. Thus the man who bought the mare in good faith was out everything. The sous-préfet felt this to be an important case, but he would have to direct it to the gendarmes since it involves probable dishonesty on the part of the broker. Nothing could be done until the dilali was located and brought to court, and an order was issued for his arrest. The court suspected, however, that he had fled to Nigeria and would not be located.

16. Another case, again among FulBe, concerned the death of a horse. A young man, French-speaking, came to court representing his mother's sister who, with his mother, had inherited a mare. The animal was rather wild, accustomed to taking ground water during the rainy season though during the dry season it had to be watered from a well. The mother's sister's husband, who normally cared for the horse, had to travel and asked a boy, Issa, to see that she was watered. Issa agreed and said he would do it as a gift, without recompense, "since we are (all) FulBe". Several days later, Issa also had to travel, and asked his younger brother, Dimbo, to water the horse. When Issa returned he discovered that Dimbo had not watered her for five days. He told him to give her water immediately. Apparently Gimbo gave her too much, for she drank and shortly thereafter died. The mare's owner demanded compensation. Dimbo holds himself blameless. "God killed the horse," he said.

All of this was reported by the young man, and the court felt that no decision could be taken until the other side could be heard, and Issa and Dimbo were convoked. Nonetheless, after consultation with Elhadji Mallam Djibir, the sous-préfet said that on the basis of the facts already presented, his tendency is to disallow compensation. Three facts, admitted by the plaintiffs, persuaded him:

(1) Most important was that no payment was expected for the work involved, Issa volunteered his help. Therefore, there is no real contract to have been violated.

(2) The character of the horse, already identified as wild, may have made it difficult for Dimbo to approach her.

(3) The death was clearly due to the inexperience of a young boy, and not to malice.

17. A commercial dispute. Elhadji Issa, tiny, well in his 80s, is reputed to be the wealthiest Manga merchant in Maine-Saroa. Although his shop in the village is tiny, with far less stock than Elhadji Munzo or Elhadji Ibrahim, the other large merchants, he is a major supplier to the cloth, kola, salt and spice sellers who travel the circuit of weekly markets. He brought plaint in court against Abdu, also an elderly Manga, though not nearly as old. It is not easy to question Elhadji Issa, for he affects deafness when the question proves embarrassing.

Elhadji Issa made three separate allegations:

(1) He gave Abdu £ 1 to buy a donkey. He never received the animal, and wants his money back. Abdu agreed to that charge, and in fact settled before the formal proceedings began that morning.

(2) Issa claims to have sold Abdu 50 shillings' worth of salt on credit. Abdu sold only 4 shillings' worth, and attempted to return the rest of the salt unsold. Issa refused it. Abdu claims he did not buy the salt or agree to buy it, but he had taken it on consignment, with the understanding he might be credited for the unsold remainder. Abdu is prepared to swear his version on the Quran, and the sous-préfet agrees that would resolve the issue. But Issa argued that everyone knows he never does business like that. He has no agents, deals only in final sales, sometimes on credit, allowing the buyer to pay him after the item has been resold. This argument convinced the court, and apparently Abdu, who did not insist on his position, and immediately paid the rest of the money, £ 2/6s.

(3) Issa claims Abdu owes him 25 shillings for groundnuts. Here Abdu triumphed, for he was able to produce a witness who testified that the money was paid at the moment of purchase, when Abdu also bought perfume and cloth. Issa acceded to the witness' memory, allowing that his own might be faulty.

It is important to note that this recourse to the tribunal did not disrupt the relationships between the two men. Their trading arrangements had continued over many years, and there was no indication that they would be in the least modified. Neither claimed that the other was intentionally lying, but the differences between them were based on honest mistakes.

While each may have thought the other to be devious and unfairly attempting to expand his advantage, nothing at all of that manner was said publicly, and the continuing relationship was thereby not jeopardized. Abdu depends on Issa to have goods at all times and to extend him credit until after sales are completed. Issa needs Abdu and men like him to have access for his goods to the rural markets beyond Maine-Saroa. He is far too old and feeble to make the trips himself, and depends on buyers coming to the village to redistribute items outward. Although the amounts involved were modest, the number of different items mentioned and the evident duration of the relationship indicate that Abdu was an important customer, and should not be pushed so far as to seek an alternative supplier.

18. A dispute over the ownership of a garden and trees. In Mangari, cultivable land is generally not in short supply. Although there are varying interpretations over land ownership, in actuality anyone moving into almost any village can receive enough farm land on which to grow millet, sorghum, and other crops dependent upon the summer rains. In principle, such land belongs to the traditional paramount chiefs, now the chefs de canton. In practice, lands are allocated by the maruma of the villages. But irrigable garden land is an entirely different matter. These plots, highly productive in manioc, spices, and fruit trees, are rare, and since they can be farmed for long periods without fallow, are sold rather than returned to the common stock when the farmer dies or moves on. (For a discussion of gardens, see the chapter on irrigated agriculture in this volume.)

A Manga from Adebour claimed to have owned a garden with his father. In 1962 he left for a year's service with the French army. On his return he found his father had died, and some men claimed that they had purchased the garden.

The plaintiff was not convinced that his father ever sold the land, since he had said nothing about it to him, and he was sure that if it had been sold his father would have retained rights to the date palms which grew on it. By tradition the sale of land accords only the surface rights to the buyer; trees, water, and mineral rights (salt and natron) are usually retained by the original owner. The purchasers claim, however, that there were no date trees prior to the sale, and they had planted them to exploit the favorable water resources of the plot.

The sous-préfet said that he would inspect the plot on the weekend, and try to ascertain the age of the trees. After inspection, the claim was decided against the plaintiff, on the basis of the sale having been concluded some seven years earlier, during which time the plaintiff initiated no action to repossess. The court felt that the claim was made only when the palms had matured and the fruit was being harvested or ready to be harvested. The court further felt that in this case it was unlikely that a field would be sold with rights retained in the trees, since the garden produce would be damaged in the act of harvesting the fruit, although typically proprietary rights are separate in relationship to surface, subsurface, and supersurface products.

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19. The lost camel. Pullo (sing. of FulBe) loaned his camel to a Manga, who intended to go to market at Kabi. As was their usual arrangement, the Manga was to pay ten shillings on his return. This time, without asking the owner's permission, the borrower instead loaned the animal to another Manga who was also going to market. The second borrower agreed to send ten shillings to the Pullo owner.

The second Manga claimed the camel was stolen at the Kabi market, though he admitted that none of the other ten camels he had packed for the trip were missing. He said he spent nine days unsuccessfully tracking the animal, and reported the theft to the original borrower, who informed the owner's father and older brother. The owner wants his camel back. He is angry that the first man loaned it without his permission. Had that person himself lost it, the owner said, he would not seek compensation, but he should not have sub-loaned it to someone else. It is interesting to note that the Manga borrower spoke Fulfulde, for it is usually the FulBe who, as more recent migrants to Mangari, learn Kanuric, or, alternatively, the two would communicate in Hausa, the lingua franca.

The case was sufficiently complex to require a consultation of malams knowledgeable in risala, and was postponed for two weeks. When it resumed, the sous-préfet announced that there are three conditions which, "according to the Law," entitle an owner to compensation:

(1) The owner instructs the borrower as to the maximum load the animal may carry. The borrower overloads it, and the animals dies.

(2) The owner specifies a particular route to be followed, and the borrower takes a different route, during which the animal drowns, is stolen, runs off, etc.

(3) The borrower lends it to a third person without permission and it is lost.

The third condition clearly applied. The original borrower was required to compensate the owner, and he gave him another camel. This is equivalent to a sale, and if the missing camel is subsequently recovered it would belong to the borrower.

20. Another dispute also involved missing camels. The merchant, Elhadji Munzo, came to court, elegant in white cap, pants, riga and shoes, which he did not remove during the proceedings, as men customarily do, although he was seated on the floor. Elhadji Munzo's economic rise had been spectacular. He arrived in Maine from his native Hausa country just a few years previously, and set up a stall in the market. Rapidly he was able to expand his business until he now owned the largest shop in town, and had validated his new status of "grand commerçant" by making the pilgrimage by plane. Still relatively young, Munzo is fat, has many gold teeth, and carries a large gold watch.

His complaint was directed against a Tubu shepherd, who cared for his camels. Munzo paid the herder 1000 CFA/month plus gifts, such as loaves of sugar, in return for his caring for the animals. The reason the payment is so large, compared to the compensation required in cattle, goat, and sheep herding contracts, is that camels range great distances in search of food. Even though hobbled with a rope between their front legs, they are capable of travelling many kilometers daily, and caring for even one camel can be almost a full-time career. Three of the camels were reported lost, and Munzo complained because the Tubu herds for many people yet only his, Munzo's, camels were missing.

The court said that "according to the Law":

(1) If you confide money or clothes to someone, and they are lost, the person must pay because these are small items, easily concealed.

(2) An animal is large, and cannot be hidden. Therefore its loss is generally not reimbursable, as long as the persons responsible made reasonable effort, to guard it and made reasonable search after discovering its loss.

(3) However, since only Elhadji Munzo's camels were missing, the situation is suspicious.

No one in the court understood the Tubu's language, and a nomadic guard was called in to translate his story into Hausa. The herder was prepared to swear to his innocence, but the court suggested that he bring in witnesses who would testify in support of his account. The proceedings were suspended until the witnesses could be provided and we never learned the trial determination of the case.

21. Animal trespass is the principal complaint of farmers about nomads, and usually the farmer has the herder summoned to the court. In the Western part of Niger, there is a clear demarcation between the zone nomade and zone sédentaire, which separates the animals from the fields during the cultivating season. Since the fields are farmed during the summer rains, there is usually sufficient ground water and pasture north of the cultivated zone to permit the animals to graze until the harvest is over, when the barriers are officially lowered, and the animals return south, to pasture in the cropped fields. But in Mangari, on the other hand, there is no clear demarcation between the zones and the animals and fields are in much closer proximity throughout the year. Neighboring valleys intersperse pastoral camps with sedentary communities, and the potential for incursion is ever present. In one case a herder who had settled out of court with a landowner, subsequently discovered the trespassing animals were not his. The agreed facts were that animals had entered Mai Bukar's fields. He, a Manga, tracked them to the home of a Pullo, and demanded £ 10 or he would bring the herder to court (with all the risks of having his animals

censused). The man paid. Later discovering the animals probably belonged to another man, the Pullo complained in court to get his money back. He brought with him four witnesses to testify that the animals identified by Mai Bukar were not his, and Mai Bukar had to reimburse the payment.

22. In another case a Manga discovered that animals had broken into his sorghum fields during several successive nights. He made an enclosure of thorny branches and put the cut grain inside, but still the animals invaded, and also ate some of his stored groundnuts. He finally traced the animals to their owner, a Pullo, and demanded compensation.

The Pullo said he didn't know if his animals were involved, but in any case he couldn't see the damage alleged to have been caused. The sous-préfet ordered him either to swear on the Quran that his animals were not responsible, or to pay the farmer 4,800 CFA. The man responded that he couldn't swear to that since he really didn't know, but that the Manga should swear they were his animals.

Then the sous-préfet said that although there were no witnesses to the incursions in the sorghum there were witnesses who would testify that the Pullo's animals ate the groundnuts. Thus he should at least pay for damage to the nuts. The owner cannot claim compensation for the sorghum, the sous-préfet continued, because he didn't immediately present his claim directly to the herd owner whom he suspected. The owner agreed to this solution, and the Pullo was ordered to pay him ₤ 4/3s (ca. 2,490 CFA). The herder paid. His father, who was present, then asked if he now owned the remaining groundnuts, sarcastically suggesting that the price was high enough to purchase the entire crop not just those which had been lost. The sous-préfet ignored the question.

23. A FulBe Ardo (local band chief) came to court complaining that some Manga men were preparing a field for next year's planting in a region reserved for pasturage. The farmers had been summoned to the tribunal, but two of them were ill and were unable to come. If the FulBe's claim is true, said the sous-préfet, that the land is traditional pasturage in an area where there is already a good deal of cultivation, the farmers will not be permitted to continue. In a cultivated region, there must be sufficiently broad and wide corridors to allow for the passage of animals. If such corridors are not left, the farmers have no legitimate recourse when animals enter their fields.

Elhadji Mallam Djibir, himself owner of a vast herd that had enabled him to make three flights to Mecca during a ten year period, said that the problem comes from Manga cultivators intentionally planting in close proximity to pastures or near sources of water, inevitably tempting the animals into the fields. Then the animals are seized or the herder is forced to pay exorbitant compensation.

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These kinds of complaints were forcefully exposed in the next case. A group of Manga came in the evening, saying they were planning to cultivate some new fields close to their village, but the local FulBe disagree, claiming the fields to be within their pasture lands. The sous-préfet felt that this would require an on-site visitation, and the next morning they drove about 20 kilometers west of Maine-Soroa along the Diffa road. Arriving outside the Manga village of Mallam Bulamari, they were greeted by about 65 men. Their maruma climbed into my Land Rover, and we drove along the perimeter of the disputed area, followed by the sous-préfet in his vehicle. About four square kilometers of pasture were involved, which the Manga claimed they had cultivated about 25 years ago. Since no FulBe were present to argue their side of the dispute, the sous-préfet announced that all were to assemble at the court the next morning, or rather that each side was to send four representatives. The conflict was obviously considered of great importance, because in addition to the sous-préfet and the usual court personnel, the Manga chef de canton, Katielu, the chief of the police, the village chief of Maine-Soroa, Katiela Abdu, the head of veterinary services, and a young man, Mahamane, who was doing an administrative internship at the Cercle in Maine, all were present.

While in the fields the sous-préfet adjudicated a case of animal incursions. A FulBe herder's animals had damaged some grain, and he had been summoned to the village and asked to pay £ 10. He had argued the amount down to £ 5 which he agreed to pay, gave four shillings down, and asked for a two week delay to pay the remainder. He had not paid the balance due and now attempted to renege on his agreement, claiming that he shouldn't pay because his own chief, an Ardo, did not see the reputed damage. The sous-préfet insisted that he pay, however, since he had originally agreed to the settlement.

The next morning the customary tribunal was jammed with Manga and FulBe, far in excess of the four requested from each side. Before the hearing began, the Manga maruma of Maine-Soroa said that the FulBe are just looking for an argument. They have plenty of pasture. Would the Manga agree, he was asked, to exchange their old fields for pasturage? The maruma replied that the old fields are too worn out, they wouldn't even be productive of pasture. All that need be done, he added, was for the Manga to leave a path through which the FulBe might go to water their herds. The FulBe groups involved were Tuntumanko'en and Bornanko'en, followers of Lamidos Elhadji Kanta and Elhadji 'Ali respectively.

At 10:20, about an hour after the others assembled, the sous-préfet assumed the chair. Some 60 men were present. The sous-préfet spoke Hausa, Ardo Hasan, representing the FulBe spoke Fulfulde, and the maruma of Mallam Bulamari spoke Manga. The maruma spoke first. The disputed land, he said, had been cultivated by his parents and grandparents. At one time, the FulBe Ardo Bukar, requested and received permission to pasture on the land, during a long fallow period. Ardo Bukar had a well dug. Another Pullo,

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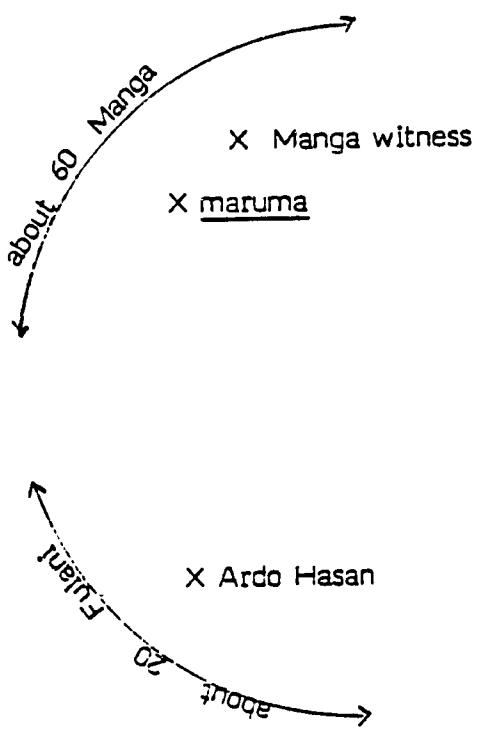
Maine Issa, also asked permission to herd there. Some years ago, according to the maruma, the FulBe left, and the land reverted to its Manga owners.

Ardo Hasan, a young man, disagreed with this account. He said he doesn't object directly to the idea of cultivation, but fears the problems that will arise when the FulBe try to water their flocks and herds, since animals are bound to get into the fields. Therefore he must object to the proposed cultivation. He also does not accept the maruma's story of the ownership. He said his parents herded on that land, and at one time a white man came and assured his parents that all the land south of the path belonged to the FulBe. He claims to have a witness to that allocation. The land referred to by the Manga chief, he continued, is not the same as the fields that the Manga are planning to cultivate.

The sous-préfet announced there would have to be a week's postponement, and all were to return to the tribunal on the next market day. He said that another trip to the terrain might be necessary to clarify exactly among the several claims which piece of land was in question. There had been a similar case the year previous, in which the two Manga paramount chiefs, Maine-Soroa and Chetimari, found an old hunter who was able to trace the limits of a piece of land under dispute. The hunter had been rewarded with a robe by Chetima Amsagana, Chef de Canton of Chetimari.

The next week they again visited the area near Mallam Bulamari. In addition to the notables who attended last time, was Lamido Jati, a FulBe chief. The notables were neatly balanced between those whose identification might predispose them to one side or the other.



X Katiela Abdu, Manga, maruma Maine, on ground

X Lawan Dumbulama, Manga maruma, Maine, on ground

X Katielu, Chef de Canton, Manga on chair

X Sous-préfet on chair

X Malam Djibir, Fulani, assessor-interpreter, on ground

X Lamido Jati, Fulani chief, on chair.

X Maina Issa, Fulani, on ground.

X MMH, anthropologist, on chair.

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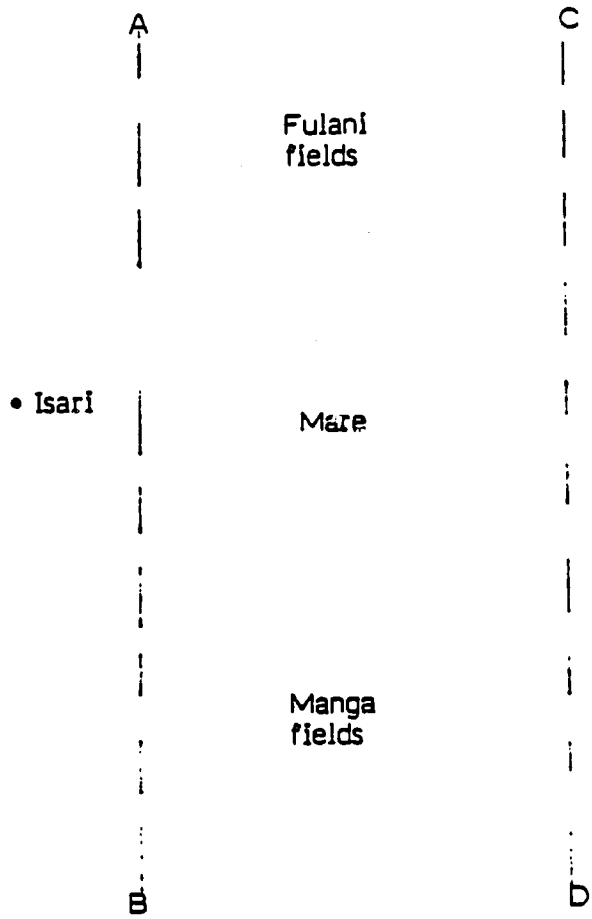
Before leaving the circle, the sous-préfet said that it is essentially a simple case, complicated by the confrontation of deux ethnies, each suspecting the other of having bribed him to receive a favorable judgment. In the field the maruma of Malam Bulamari spoke in Manga, which was translated by Katiela Abdu into Hausa for the benefit of the sous-préfet. Ardo Hasan spoke Fulfulde translated into Hausa by Elhadji Mallam Djibir. Thus the Manga were not forced to have the words translated by someone they might have suspected as biased toward the FulBe, although ordinarily Mallam Djibir did all the translations -- both Manga and Fulfulde -- for the sous-préfet.

Again they visited the terrain, trying to determine where the line had been drawn by the European, whom Katiela Abdu said was Lt. La Forêt, the Commandant of Maine in 1924. The line was supposed to separate Manga from FulBe lands. No agreement could be reached between the two, both groups accusing the other of lying, of not having been present at the original delineation. As shown on the chart, the FulBe claim line AB, and the Manga claim line CD. The sous-préfet doubts the accuracy of AB because it is too close to a sedentary village, Isari, and would overly limit the inhabitant's access to farm land, but he admitted to having no hard evidence that it was not drawn there. Both groups have been cultivating between the lines, the Manga claiming to own the land, and the FulBe saying that the Manga asked and had received their permission to farm, and that permission could be withdrawn.



The major issue is over the marsh where the animals go for water. The Manga have agreed to leave a path through their fields, but the FulBe fear their animals will stray from the path, enter the fields and they'll be forced to pay damages. Since they claim ownership of the land, they don't want the Manga to cultivate there at all.

At first the sous-préfet felt that the FulBe really had no case. Later he admitted he could not make a decision. We shall have to compromise, he said. But tempers were rising. there were loud voices, and insults, and he feared that blows might be exchanged. He decided to leave a cooling off period without making a decision. By the time we left the field several months later it was still unresolved, although it may have been settled informally between the two groups.

24. The major impediment to investing in cattle, according to the Manga, is that their care must be confined to FulBe herding specialists, and the animals simply do not receive proper attention. They accuse the FulBe of over-milking the Manga cows, so there is insufficient milk for the calves. The FulBe are also suspected of disposing of consigned cows and then claiming that they died or were stolen. One Manga made such a complaint in court. His father confided several animals to a Pullo. Both men are dead, and the herder's sons continued to care for the cattle. The sons claim that a cow sickened, and before it died they slaughtered it — required under Muslim food codes — and sold the meal for £ 1, which they sent to the Manga owner. He accepted the money and their explanation of what happened. Subsequently he heard that the animal which was slaughtered was not his, and that his had been sold at the Nigerian market Nsari, evidently for far more money than he received. The sous-préfet said that each side would have to bring witnesses to the conflicting accounts, and one would have to swear on the Quran.

25. Ordinarily, accusations of theft are made at the gendarmerie. In the following case, however, the plaintiff was insufficiently sure of his grounds to appear before the gendarmes, and was willing to accept the determination of the customary law court. There were times when the sous-préfet appeared ready to have it transferred to the jurisdiction of the criminal authorities, but utlimately made the decision himself. The case lasted several weeks, and a number of people testified. The <u>personae</u> were:

a Manga merchant from the village of Chari

Musa, his young employee, accused by him of theft

Abdulai, school boy, Musa's friend

Mariama, a woman at whose concession Musa lived in Chari

Umaru, Musa's friend

Haruna, Musa's friend

Musa's mother

Musa's mother's father's brother's son (Musa's "uncle")

The merchant gave his story. He has a shop in Chari, west of Maine-Soroa, on the truck road to Zinder (no longer in use since construction of the blacktopped Route à l'Unité). Musa worked for him. The merchant thought money had been disappearing from the shop, and began to suspect his

employee, but he had no evidence. One day, a school boy, Abdulai, came to the shop asking the merchant to change a five pound note into shillings. Bills of that size are rare, the equivalent of 3,000 CFA, and the merchant questioned the boy to learn where he obtained it. Under interrogation, Abdulai admitted that Musa had asked him to change the bill, but not to say for whom he was doing it. Abdulai further admitted that he had previously changed £ 5 with another shopkeeper.

Musa admitted the money came from him, but said that his mother had sent it to him to enable him to marry. He said he was to keep £ 7/10 and return £ 2/10 to his mother. Therefore he needed the change. Musa's mother had been questioned by the merchant, and she supported her son's story. The sous-préfet noted in an aside that any mother would support her own son, whether or not he was telling the truth. When asked why he didn't try to change the money himself, Musa said if the merchant discovered he had £ 10 he feared he wouldn't pay him his wages.

Mariama was called to testify. She said she discovered a key by the bed where Musa slept, and it turned out to be a key to the merchant's shop. Musa countered, however, that the key had been found some months before the alleged theft occurred.

Umuru, Musa's friend, testified that although he lived with Musa, and they were therefore close, Musa never said anything to him about receiving money from his mother.

Haruna, another friend, said he saw Musa with three keys which Musa admitted to him were not his.

This seemed to convince the sous-préfet that Musa was lying, and he was ready to send the affair to the gendarmerie. He was certain the boy was a thief — il est trop malin — yet he realized all the evidence was circumstantial, and inadequate to hold him in prison. He decided to adjourn the hearing for one week.

No new evidence was revealed, and the court decided to allow the boy to swear his case. Elhadji Mallam Djibir brought in the large Quran, enveloped in a fur jacket. Musa stepped forward with his mother, who was carrying an infant on her back, and his mother's father's brother's son. Mallam Djibir, fingering his prayer beads, warmly greeted the mother. The merchant sat expressionless on the floor, next to the seated Katielu, Chef de Canton in whose compound he was staying. The mother said she had given her son £ 10, and told him he might keep £ 3 and return the rest. (No one noticed the discrepancy in the amount of money to be returned to the mother, or at least no one commented on it, nor did anyone ask why she gave him two £ 5 notes, if all she wanted him to have was £ 3.) She said that his father is dead, and therefore she couldn't give him any more money, since she needs the rest to help her daughter to marry.

The mallams wanted Musa to swear on the Quran that he never took anything from the merchant. Musa's "uncle" quickly objected, saying the boy should not be asked to make such a sweeping oath, for it is natural for him to have taken something for food. But Musa agreed to swear. He left the court to wash, returned, stood facing east with the Book in his hand, and took the oath. Officials of the Cercle came from their offices to watch. The merchant accepted that this act concluded the case. The Chef de Canton left. All of this was done in the absence of the sous-préfet.

Musa refused to leave. He insisted that the merchant owed him back wages, for in addition to the store work, he farmed for him, and helped transport goods from Kano. He wanted to say this to the sous-préfet. The "uncle" vigorously tried to dissuade him: "You worked three years, but you ate during three years. What more is there to talk about?" As Musa had been exhonerated from the charge of theft, his uncle did not want him to pursue it any further. Finally, the "uncle" prevailed: "if you fear me (i.e., 'respect me'), leave this affair!" Musa left.

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THE MACROECONOMIC DIMENSIONS OF NIGERIEN DEVELOPMENT

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INTRODUCTION[1]

The macroeconomic characteristics of Niger have changed considerably in the past two years. The most important transformation has been the rapid decline in revenue obtained from uranium exports. While prices for uranium increased sixfold between 1973-1980 (AID 1981), real prices declined in the 1980s. The resultant revenue shortfall has led to a rethinking of Niger's development policies, particularly regarding public expenditures in agriculture and the heavy dependence on a single source of foreign exchange (uranium accounts for approximately seventy-five percent of Niger's export earnings). Other macroeconomic policies are likely to loom important in the near future. These include: the development of the irrigated agriculture sector; the enforcement of the pastoral/agricultural zones policy; the informal agricultural trade with Nigeria; the role of government parastatals in grain marketing; and the practicality and economic efficiency of Niger's food self-sufficiency policy. It is important that the appropriate role of the public sector vis à vis private market incentives be delineated in each policy arena.

The macroeconomic setting in Niger has undergone careful assessment in the past few years (IBRD 1981; Horenstein 1979; Hough and Elliott 1982; Toh and Elliott 1981; Wright 1982; AID 1982). These reports provide an excellent background to Niger's present macroeconomic conditions. Our discussion here builds upon these earlier works, but is mainly limited to policy analysis of the rural/agricultural sector, the sector of greatest concern to AID's country program. While other critical macroeconomic issues arise in the Nigerien context, they are beyond the scope of this report. One such sector that needs a careful evaluation in itself is industry-manufacturing. It is likely that limited import-substitution potential exists in Niger, and that increased manufacturing might be a means of diversifying Niger's export portfolio. Agro-processing industries, such as meat packaging, might be feasible and increase the value added dimension to agricultural exports. As recent experience painfully points out, heavy dependency on one non-agricultural export product (uranium) leads both to economic instability and ill-fated planning.

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INSTRUMENTS OF NATIONAL POLICY FORMULATION, PLANNING AND IMPLEMENTATION

Throughout its entire history the government of Niger has struggled with several critical problems which limited its ability to be an effective instrument of national development. First, it has lacked the power and the resources to set its own development agenda. Until the advent of high-revenue uranium budgets, Niger was so dependent on foreign actors for its investment budget, and even to a degree for its operating budget, that it had to function as an open and dependent economy. Second, it has failed to create a sufficiently broadly based decision-making process in national planning to assure adequate support. Although several efforts have been made to involve segments of the administrative and political elite in this process, real control has been restricted to just a few decision-makers. Third, it has had great difficulty coordinating national policy and implementing it in a coherent manner. The tendency has been for problems to remain unresolved and for separate actors to operate independently of one another. Finally, it has failed to reform its bureaucracy in such a way that it could become an effective developmental force. Instead, Niger's bureaucracy has, for the most part been a "routine" one, with little interest in innovation and little ability to work with local-level producers. Although all of these problems persist in the current administration, they have been alleviated to some degree under the Supreme Military Council (CMS), whose strategy for development planning is not identical to that of the Diori years.

During the Diori regime (1960-1974), and to a more limited degree the current regime, Niger has been a country which has attempted to plan without power (Charlick 1972b). The economic constraints on the Diori government were painfully obvious. From 1961, Niger's national budget averaged a little over 7 billion CFA a year. In this same period foreign assistance averaged 4.2 billion CFA, with one country, France, providing 30 to 50 percent of the assistance. When aid from the European Community was included that amount occasionally reached 85 percent of annual budgets, and included not only almost all the national investment budget, but nearly 10 percent of the operating budget as well. Between 1967 and 1970, aid levels declined somewhat and direct budget subsidies ceased. As the drought set in, however, aid levels skyrocketed and French subsidies to the budget of over two billion CFA a year were restored. In 1974, at the height of the drought relief activity foreign aid represented 140 percent of Niger's official annual budget. Even during the late 1970s, when uranium revenues had picked up considerably, foreign aid constituted 75 percent of the budget and, despite the fact that the military government attempted to diversify its donors, France continued to contribute over 40 percent.

In addition, Niger has been dependent, to an extraordinary extent, on the domestic income side on two commodities, groundnuts and uranium. The world market prices of both commodities have fluctuated, affecting Niger's balance of payments and national budget severely. For a time Niger's groundnut revenues enjoyed limited protection from declining prices by a European Economic Community subsidy. However, when the subsidy was terminated prices to farmers declined. In addition, groundnut production was subject to marked variation due to weather conditions, which made the crop an unreliable basis on which to plan investments. With the failure of the crop in 1974, and the subsequent severe depletion of the local seed stock, export revenues came to depend very heavily on uranium ore sales. While not subject to the same natural uncertainties, world market demand and national energy preferences have led to a rapid deterioration in the terms of trade for this commodity, from a high index of 173 (1975=100) in 1978 to an estimated 91 in 1982. This evolution has had a dramatic impact on Niger, producing a 13 percent reduction in the national budget in 1983 (Le Sahel 1982), and suspending Niger's ability to finance planned investments through its National Investment Fund.

Simultaneously, Niger's currency, the CFA, which has been tied to the French franc and managed by the UMAO (Union Monétaire de l'Afrique de l'Ouest) (Hough and Elliott 1982), has declined dramatically in value due to devaluations of the franc, resulting in greatly reduced foreign earnings. Since 1980, the franc has lost over 40 percent of its value against the dollar and other major currencies. External control over its currency also has made it impossible for Niger to control its domestic money supply, and has restricted the amount of credit available to private sector borrowers. Niger's foreign debt burden has grown enormously with debt service payments tripling from 2.8 percent to 9.7 percent of exports between 1975 and 1982 (Hough and Elliott 1982:26). Debt payments currently absorb nearly 25 percent of the national budget (Le Sahel 1982:5).

Given the high proportion of its public investment capital deriving from external sources and its limited capacity to control its export earnings and debt obligations, many crucial decisions regarding Niger's investment priorities predictably have been influenced by foreign powers. Niger under the Diori government was an economy open to foreign interests with little concern for Nigerien needs. Not only were public decisions made with substantial foreign influence, but private sector development in Niger was almost totally under foreign control. In spite of efforts since the mid-1960s to share control through mixed ventures in such activities as textile production (NITEX), beer production (BRANIGER) and groundnut oil extraction (SICONIGER and SEPANI), nearly every major investment has had majority foreign capital. Foreign investment has had an important impact on the economy, resulting in substantial net capital outflows (IBRD 1976), as rates of reinvestment have been very low (Donaint and Ianrenon 1972:12 Moreover, key sectors of the Niger economy, such as banking, have been almost entirely foreign controlled. New financial institutions such as

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the BICIN (Banque Internationale pour le Commerce et l'Industrie du Niger) are largely or totally controlled by a subsidiary of the Banque Nationale de Paris (Le Sahel 1980), and the American CITIBANK has invested four million dollars to help facilitate the purchase of American industrial equipment (Caterpillar Tractor and Boeing, for example) (Le Sahel 1980:16). BIAO (Banque Internationale pour l'Afrique Occidentale), a long-time financial actor in Niger, is a subsidiary of the French BIAO (République du Niger 1980:338-339). Niger has found, however, that foreign investors have not been particularly interested in the industrial sector, despite an attractive new investment code (Le Sahel 1981:16).

Economic dependence led to political dependence as well with regard to the development plans of the Diori government. The major force in Niger's planning until the 1974 coup was clearly the French Ministry of Overseas Affairs. The limited judgment the Diori government was able to exercise in its rural development approach was largely because the more technically oriented group within French AID was counterbalanced for a time by actors like IRAM, and the BDPA who argued for more popular involvement in development (Charlick 1972:6). Their position made sense even to technicians, given the extreme poverty and lack of skilled administrative manpower in the country. Niger's development options were spelled out in the period 1958 and 1962 by a series of foreign missions from France and the United Nations, with little or no Nigerien participation.

Foreign influence was prevalent in decision-making and implementation within the country as well. Nearly half of all French aid, for example, took the form of technical assistance. In 1968, there was one technical assistance advisor for every thirteen Nigerien civil servants, and 80 percent of those advisors were French. French advisors were not merely numerous, they filled critical roles in Niger's planning and administrative process. For a period in the mid-1960s, a Frenchman was the head of the Planning Agency as General Commissioner for Development, another filled a key post as Counselor to the Committee on Rural Development, a third was a key advisor to both Animation and to the Niger Union for Credit and Cooperation (UNCC), another was a key advisor to the Agricultural Credit Fund (CNCA), while still another headed its agricultural research agency (IRAT). This list is by no means exhaustive (Charlick 1972b:31-33).

For the Diori government this dependence contributed to a number of policy orientations and subsequent problems. Perhaps the clearest orientation was the near total devotion of the regime to a development policy based on control over groundnut production and trade. From 1962 to 1968, the government put most of its emphasis on capturing revenue from the system of export and import trade, which up to that time was controlled by private, and often foreign commercial agents. The major instruments for this were SONARA (Société Nigérien de Commercialisation de l'Arachide), which had exclusive rights to export groundnuts, the BDRN (Banque de Développement de la République du Niger), which financed cooperative groundnut purchases, the UNCC (Union Nigérien de Crédit et Coopération), whose primary task became purchasing groundnuts from farmers and small traders, and CCPRO-

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Niger, a mixed enterprise designed to replace the private commodity traders who had been eliminated by the nationalization of the groundnut trade and which was active in gum arabic purchases.

Aid to groundnut production was relegated to a secondary position and supported by modest credit programs to help farmers purchase inputs such as fertilizer, shelling machines, seed dressing, and animal-drawn planting and cultivating equipment. These credits were financed by the CNCA (Caisse Nationale de Crédit Agricole), a bank established independent of UNCC. In every instance, credit was specifically oriented toward groundnut production, and in several instances the agricultural inputs promoted were useless or even harmful for cereals. At the national level, groundnut production was supported by IRAT (Institut d'Agronomie Tropical), which devoted the great majority of its time and resources to developing superior strains.

The Diori rural development policy corresponded closely with the goals of the Gaullist government in France; to assist Niger in adjusting to declining groundnut prices with the removal of Common Market support levels by helping it capture a greater percentage of revenues and by the establishment of a commodity buffer fund (Caisse de Soutien des Prix et Produits du Niger), without encouraging substantial increases in the volume of production, which, in the 1960s, already exceeded world market demand. As the logic of these policies became clearer toward the end of the decade of the 1960s, some attention began to be given to food production through irrigated agriculture or modernized production on rainfed farms, but the effort was minimal. As late as 1970, the regional productivity project planned for Zinder (the European Community financed Projet Trois M) was conceived almost entirely as a project to promote the groundnut crop through selected varieties and practices, including some attention to the soil degradation resulting from past groundnut production.

Although the Kountche government remains highly dependent on foreign economic forces, a number of factors have lessened its powerlessness in the domain of rural development. Foremost is the fact that, for the last few years, rural development was no longer as crucial for Niger's national accounts. Its uranium-derived export income alleviated the need for France and the EEC to continue to be concerned about prices and quantities of export crops. Second, since the 1974 drought, the industrialized countries and particularly the grain exporting countries have become aware of the prospect of long-term shortfalls in cereal grain supplies, and they have seen it in their interest to assist countries like Niger to become more self sufficient in food production. Nigerien self sufficiency in food production would mean less need to provide food grains through concessionary or aid channels which might otherwise find commercial markets in countries that could become long-term trading partners. External actors have recognized that food crises in countries like Niger could lead to instability that might affect extant strategic and economic interests in the Sahel, and create political and economic difficulties in coastal West African states which would have to absorb large numbers of refugees. Humanitarian concerns in France, Canada, Germany and the United States have also been factors in diversifying the Western view of Nigerien development. In

this context, a variety of aid donors have emerged, each with a smaller stake in Niger's rural development than was true of France in the 1950s and 1960s. The government of Niger has found itself in a better position to exercise some influence over programs and policies.

OVERVIEW OF THE NIGERIEN RURAL ECONOMY

Despite the rapid rise in uranium mining in the past decade, the rural sector remains the core of the Nigerien economy. It employs some 95 percent of the labor force and accounts for almost half the Gross Domestic Product. According to the World Bank (IBRD 1981:48), cereals production and livestock numbers have recovered to pre-drought levels, although per capita production has declined (and, we would add, the distribution of livestock ownership is quite different from what it was in 1968). Of the agricultural contribution to GDP in 1979, the crop sub-sector accounted for 54 percent, livestock for 36 percent, fisheries for two percent, and forestry for eight percent. The principal crops grown are millet, sorghum, groundnuts, cowpeas and rice. Livestock production constitutes a major rural sector activity, both in combination with crop enterprises and in transhumant herding activities. Livestock sub-sector production and interregional trading activities were severely disrupted by the 1968-1974 drought and, as a consequence, most of the last decade has been devoted to herd and flock reconstitution efforts. In recent years, however, earnings from the livestock sub-sector have contributed about 18 percent of total export earnings as a result of higher prices for livestock products in neighboring countries and despite reduced volumes of traded animals. Export earnings from crop production, on the other hand, have plummeted and now constitute only about 10 percent of the total.

Before 1973, Niger was basically self-sufficient in foodstuffs in "normal" years. Over a three-year period during the drought (1972/1973-1974/1975), however, cereal imports averaged about 120,000 tons per year, equivalent to only about 10 percent of estimated "normal" annual production but a much higher proportion, perhaps 50 percent, of marketed production. This disquieting experience drew renewed attention to cereal production — a hitherto neglected sub-sector — and this attention by the Niger Government and the donors has been sustained despite relatively good harvests in some recent years. Although some recent projections have suggested that there would probably be an important millet and sorghum deficit in the mid-1980s, present indications are that, provided rainfed farming productivity projects are implemented as envisaged, Niger will continue to be roughly self-sufficient in cereals in "normal" years in this decade (IBRD 1982). In good years, it is expected that grain surpluses will be marketable in northern Nigeria unless there is an exceptional crop year throughout the entire region; in poor crop years, deficits will be met, as in the past, by imports: either purchased by government or donated.

Over the longer-term, however, there is reason to be concerned about the country's ability to feed itself, particularly on the basis of current production trends. While food self-sufficiency and raising of the standard of living for the rural population constitute the main objectives of the Niger Government's development policy, the effects of increasing population, leading to the disappearance of fallow lands and the increased cultivation of more northerly, marginal lands, have led to significant declines in average crop yields. This process of declining overall productivity and consequent rural impoverishment has already accelerated migration from the rural areas to the urban centers within the country and out-migration to neighboring coastal countries. This process of slow economic decline is of course much more subtle in human terms than the relatively short-term devastation caused by the occasional drought but is an important problem facing Niger at this time.

The problem is made all the more pressing by the recent declines in the unit price for and the government revenues from uranium production and export, which had constituted the only other major source of economic activity in the country and which had provided both a short-term financial bonanza and an important economic safety-valve for the government's program in recent years. With the rapid decline in this alternative source of domestic development funding, the Niger Government is presently faced with the difficult task of stimulating increased productivity in the rural sector in an economically viable manner and at the same time, attempting to redress the present imbalance between population demands on the limited arable land and the capability of that resource to sustain production at an acceptable level.

Several significant policy issues arise in the context of Nigerien agriculture/rural development. These include:

(1) the limited scope for further productivity increases in rainfed production;
(2) the potential of expanded irrigated agriculture activities;
(3) the need more evenly to enforce the agriculture and pastoral zones policy;
(4) the inadequacy of official input and output pricing policies in crop agriculture;
(5) the need to intensify agricultural production in a cost effective manner; and
(6) the need to assure adequate grain supplies to grain deficit areas in the face of growing grain exports to Nigeria.[2]

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[2] Note however that in 1983 there has been a movement of grain from Nigeria to Niger, depressing local market prices.

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To date, the Niger Government's responses to these issues have included measures to:

(1) exploit the potential of existing rainfed agriculture through setting up regional productivity projects whereby improved extension, subsidized input supply, credit and marketing services would be made available to farmers;
(2) develop in an economically efficient manner the irrigation potential of the country as a complement to rainfed agriculture;
(3) make improvements in output prices by moving them closer to economic border prices and reduce subsidies where politically feasible; and
(4) encourage the rural population to take appropriate conservation measures such as the planting of trees for windbreaks and shelter belts and, in some cases, reserving areas for pastures.

ADDRESSING POLICY ISSUES IN THE AGRICULTURE/RURAL SECTOR

Informed agricultural policy must be based on good information, both of a micro and macro nature. With regard to micro-economic research on the rural sector in Niger, anyone with a long-standing acquaintance with the country cannot help but be impressed with the quantum jump in the availability of high-quality studies and, particularly, with the output from U.S.-trained researchers. Over the period since 1970, significant micro-level studies have been completed by Horowitz (1972 and 1975), Baier (1974 and 1976), Eddy (1979), Collion (1981), Makinen and Ariza-Nino (1982), McCullough and Arnould (1979), Thomas-Peterhans (1982), Wardle (1977 and 1979), Sutter (1980 and 1982), Charlick (1974 and 1977) and Faulkingham (1977). In addition, distinguished studies have been produced by non-U.S. trained researchers of which the long-term work of Bernus (1974, 1977 and 1981) and Raynaut (1980) stand out. Finally, there are a number of studies in process which should appear in the literature over the next few years. These studies include work by White, Swift, Maliki, Fitzgerald, Thomas-Peterhans, Loutan, and Curry.

It is obvious that comprehensive reviews of all these research papers are beyond the scope of this section, given the diversity of the topics covered. What can be said with some assurance is that an excellent start has been made at the micro-level in providing the Mission with relevant information for the envisaged policy dialogue and for the design and implementation of the various projects in the Mission program. Furthermore, there seems to be a trend toward tying the micro-level research studies more closely to the Mission's on-going projects and policy objectives. The recent work in the context of the Niger Range and Livestock Project is the outstanding example of this gratifying progress.

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For the immediate future, it is recommended that the Mission institute a process of integrating the information contained in these diverse studies into a series of Mission policy papers on the following key development issues:

(1) The optimal use of Nigerien land resources in the interface zone between the southern cropping area and the northern pastoral zone;
(2) the optimal balance between development activities directed at food self-sufficiency and those directed toward export opportunities for cash crop and livestock products;
(3) the micro-economic effects of government output pricing and subsidization of inputs on farm resource allocations in the cropping zone;
(4) the constraints to improved performance of governmental agricultural agencies and parastatals in development of the rural sector;
(5) the optimal role of the private sector in rural sector development;
(6) the economic feasibility of intensifying agricultural production in the rainfall zone; and
(7) the rationale for expanded irrigated agriculture.

Much information is available on many of the above topics; for example, there are considerable data on the livestock/agriculture interface which allow certain policy issues to be addressed (see Niger Range and Livestock Project reports). As such, it seems that where pastoral-agriculture land-use policy has been enforced it has favored the crop producers. Considerable rainfed crop expansion has taken place north of the pastoral zone border, and although official law states otherwise farmers have been able to collect on livestock-induced crop damage in the area.[3] It is important that the benefits (improved access to grain sources and increased fodder for stock) to herders of rainfed crop expansion be delineated. It is equally necessary to assess whether or not Niger's rainfed productivity projects and rainfed agriculture policy are indirectly enhancing agricultural expansion on pastoral lands. The subsidization of agricultural inputs, such as ox plows, support increased farm size units.

Similarly, there are data relating to the impact of state policies on agricultural/livestock production and marketing. Makinen and Ariza-Nino's (1982) livestock marketing study, as well as Thomas' (1982) work, provide a basis for evaluating livestock marketing policy. The former report indicates that the government's limitation on livestock exports actually reduces herder income and compels traders to seek illegal means for export. There also are adequate data to suggest that the official grain price is well below the actual farm-gate price, and that inefficiencies in parastatal grain marketing tax the national budget with minimal benefits to the producer.

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[3] Some pre-drought case material on legal disputes between herders and farmers is presented in Appendix II to the Section on Islam in the Socio-Institutional Profile.

What is lacking at the micro-level, however, is information on private grain trade in the pastoral zone and the impact cereal exports to Nigeria has on its performance. The Niger government is rightfully concerned with national grain security, although it is suggested (IBRD 1981) that an articulate national policy is yet to be devised. Food security issues are most critical in the grain deficit regions of northern Niger. While it is recommended by some parties (AID 1982), that grain exports to Nigeria be promoted, it is not adequately known how this affects domestic supplies available to grain deficit regions. If it is determined that grain supplies to the northern importing areas have been curtailed, then it would be prudent to reevaluate the promotion of cereal exports to Nigeria.

There also are other critical macro policy issues that need to be investigated at the micro level. For example, although there is some information on rainfed crop production (Arnould 1982; and Raynaut 1980), there are little data on the economics of agricultural intensification in the rainfed zone. At present rainfed agriculture has expanded, in part, because the government provides heavily subsidized agricultural inputs. If the government were substantially to reduce input supports, could intensification take place without the substitution of cereals for higher value crops? If not, are there higher value cultigens (other than cowpeas) that could replace the present crops? Evidence from other Sahelian countries indicates that agricultural intensification (i.e., increased production per land unit through fertilizer use and improved cultivation methods) usually is supplemented by higher value (often non-food) crops (Delgado 1979). In this respect, is Niger's goal of food self-sufficiency creating too great a tax (through input subsidies and ambitious production programs) on the national budget?

Another critical macro policy area that needs further clarification at both the micro and macro-levels is that of irrigated agriculture. The section in the SIP on irrigated agriculture summarizes the available literature on the subject indicating many of the social and ecological problems associated with Niger's irrigated agriculture sector. From a national policy perspective, what needs to be addressed is whether or not the irrigation sector can be a reliable vehicle for achieving Niger's goals of food self-sufficiency and food security. Empirical studies (Hecht 1982; Raynaut 1976) indicate that rice and high value vegetable crops can be economically produced on irrigated farms, particularly on small-scale (perimeter) schemes. However, the high cash outlays (as much as $20,000 per hectare) questions the production of low value cereal crops on the larger farms. Moreover, it is doubtful whether or not small holders will forgo their rainfed millet plots for irrigated cereal production, particularly since they are likely to incur higher production costs with the latter. Dry season or double cropping in proposed irrigated areas—as a means to partially recoup the high initial operating costs—also is likely to encounter problems. This stems from the fact that non-farm activities during this time are especially remunerative to local producers (Painter 1979). These critical production issues should be addressed in light of Niger's recent enthusiasm for irrigated agriculture.

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On the positive side there is reason to believe that small-scale irrigation with low initial capital costs per hectare is an attractive development strategy. The extent to which this is already practiced in Niger is unclear, but indications are that it is substantial and has favorable potential for expansion (IBRD 1981). It is important that not only the irrigated food production versus rainfed food production issue be examined, but that the government consider tradeoffs between large-scale irrigated schemes and smaller irrigated perimeter units. It is probable that on balance the latter investment strategy is more suited to the Nigerien context.[4]

Information on macroeconomic trends is available from a number of secondary sources (indicated in the beginning of this section). However, the validity and reliability of primary data sources are doubtful in Niger even more so than in many other African countries. Macroeconomic information, even regarding GDP and GNP growth rates, are rough estimations. For example, it is noted that Niger's real GDP grew at an average annual rate somewhere between seven to ten percent during the years 1975-1980 (Hough and Elliott 1982). Aggregated agricultural statistics also appear even more suspect than in most African countries. It has been suggested (Makinen and Ariz-Nino 1982) that aggregated data on livestock exports may be in error by as much as 400 percent due to the importance of informal trade.

The principal sources of macroeconomic information within the Niger Government are the Ministry of Finance, the Ministry of Plan, and the Ministry of Economic Affairs, Commerce and Industry. Outside of the country but in contact with the above Ministries, the principal agencies collecting and analyzing macroeconomic information are the International Monetary Fund (IMF), the International Bank for Reconstruction and Development (IBRD), and the Banque Centrale des Etats l'Afrique de l'Ouest (BCEAO). In addition, extensive records of Nigerien economic transactions are kept by the French Government as the principal economic backer of the countries in the CFA Franc zone and the chief administrator of the monetary arrangement with the French Treasury.

The accuracy of Niger's macroeconomic statistics is probably inversely correlated with the number of points at which the data must be collected for a particular statistic. For example, the external trade statistics maintained on the Nigerien uranium industry are probably quite accurate since the production and marketing channels are highly restricted and the flows of both inputs and outputs are monitored by several private sector and governmental agencies in both Niger and France. By contrast, trade statistics on livestock sales to Nigeria or on the actual percentage of any annual

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[4] For an extended discussion of these issues, refer to the section on Irrigated Agriculture in this Socio-Institutional Profile.

grain crop that is commercialized either in Niger or externally--apart from direct marketing through government marketing agencies--are guesses at best. This is so because in private external sales of agricultural or livestock products, the objective of the seller is to avoid both restrictive government price and tax policies and the agents charged with enforcement of those policies. This type of open border and sales activity through surreptitious agents obviously does not facilitate accuracy in government trade statistics.

The central problem with macroeconomic data for Niger of course is that there is essentially no alternative to the reams of figures and statistics released officially or unofficially by the Niger Government and the external agencies such as IBRD and the IMF. If one is compelled to use macroeconomic data for purposes of AID program and project planning, then basically one must accept as given the existing time series and cross-sectional data available. Unlike the situation posed by micro-economic data problems, where gaps can be effectively dealt with in the context of project design and implementation, most macroeconomic data series are of use only if maintained with a high degree of accuracy and uniform methodologies over a considerable period of time. Even moderately sophisticated econometric analyses would normally require data series with twenty or more entries--i.e., twenty years in the case of an annual series--to be anything more than descriptive in nature. Had the Niger Government maintained such series since Independence, the macroeconomic researcher in 1982 might have had the data necessary to begin serious research on the economy. Under the present situation, it would be better to view most macroeconomic statistics from Niger as approximations of reality at best and accept them with a considerable amount of skepticism. The simplest and least costly method of maintaining macroeconomic data series derived from the available information, is to arrange an exchange of information with the IMF. IMF produces a bi-annual report on the Niger economy and a series of supplementary reports on analysis of selected topics connected with the Niger Government's dealings with the Fund. Given these basic documents and others--e.g., the BCEAO's series entitled Notes d'Information et Statistiques--the information desired could be extracted and all data series updated annually. The Niger Government should now be in the process of formulating its next development plan for the period 1984 to 1988. It would be logical to assume that critical decisions on the direction of the Nigerien economy will be made over the next year or so which are bound to impact on the present and planned USAID programs through the end of this decade and beyond. USAID should, therefore, position itself to be an active and informed participant in such policy discussions and decisions. An initial step in this direction should be a comprehensive review of the economics results of the current Development Plan period. The stress here should be on three specific questions:

(1) Does the present Niger Government strategy for food self-suffiency and economic self-reliance still make sense in overall terms as a potential centerpiece for the next development plan, based on past events and the implementation under the present Plan?
(2) What elements of the economy's performance record under the present Plan can be attributed to specific government initiatives and what was attributable to exogenous factors unrelated to planned development?
(3) What was not successful during the present Plan period and what were the constraints to better performance?

If a policy dialogue is to be instituted at any level higher than project design and implementation issues, it must be proceeded by a determined effort to collect and analyze the requisite information needed to arrive at independent Mission judgments on pertinent economic policy issues. In some cases--e.g., the agricultural pricing and subsidy issues--considerable analytic assistance may be forthcoming from studies underway, like the FAO/African Development Bank/Caisse Centrale study, but USAID will still assume major responsibility for doing independent analyses of the assumptions and results of the work performed.

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PARTICIPATION IN DEVELOPMENT DECISION-MAKING

No thorough study has been conducted of the national policy-making process in Niger, and this is a gap that should be filled by additional research. What information is available from research on particular policy issues and from the experience of donors in particular foreign aid projects suggests that Nigerien participation in planning has always been narrowly based, and that efforts to broaden it, even to include national and regional administrative and political elites, have been only minimally successful. A dual policy-making process has existed during both the Diori and Kountche regimes, a formal process that seems to span at least most of the bureaucratic elements of the regime, and an informal one that has concentrated what effective decision-making power was left to Nigeriens, given massive foreign penetration of the process, in the hands of a few leaders.

Under the Diori regime, official rural development policy was made by the powerful Commissariat Général du Développement (CGD), an office responsible directly to the President, which encompassed planning functions and the mass-oriented delivery systems such as literacy training. Officially, the CGD developed support for its policies, by working closely with the Comité National de la Promotion Humaine (CNPH), an inter-ministerial committee that sought to link political and technical leaders with one another and with the office of the President. In reality, the CNPH never functioned. An effort to revive it in 1966, in order to develop more support for the "new system" policy and improve the coordination of implementation, led to the creation of the Comité Permanent de Déve-l loppement Rural (CPDR). The CPDR attempted to coordinate the programs of the agriculturally oriented services under the Ministry of Rural Development such as Agriculture and Livestock, and the cooperative agency (UNCC). Interviews with participants and observers in the late 1960s indicate that there was little support for the CDPR on the part of Nigerien administrators, who preferred to define their own programs and control their own agencies in a vertical fashion. The main impetus for the committee, in fact, seems to have been its French technical counselor.

The informal organization of rural development policy-making during the Diori period was more centralized. The major dynamic seems to have been the struggle for influence between bureaucratic and political leadership groups. While Niger's single party system functioned, Boubou Hama dominated party cadres through his position as President of the National Assembly and his great influence in the Ministry of Interior. Hama's direct involvement in rural development policy, however, was rooted in his control of the UNCC. During this period, the UNCC was formally autonomous, independent of the Ministry of Rural Development, although technical ministers held seats on its council. UNCC council sessions, in fact, reveal more about the balance of political forces in Niger during this period than do the National Assembly debates. Hama's

political strategy seems to have been to forge a coalition of the more powerful traditional chiefs and PPN deputies, while promoting Nigerien control over the national economy by gradually weakening the private groundnut traders. This policy was not without its difficulties because some traditional authorities and long-time PPN supporters had strong interests in the private stock organizations which had formerly controlled groundnut trade as well as a good deal of consumer credit and retail trade. By the late 1960s, the party organization remained significant only in major cities and secondary centers. The policies Hama favored generally did not threaten chiefs, having a more direct impact on the "al-Hadj" class, the town entrepreneurs whose base of wealth was transportation and commerce.

Hamani Diori, for his part, had little political support in the areas of the country most involved in groundnut production, the heavily Hausa arrondissements of southern Zinder and Maradi. He was, therefore, more open than Hama to a development strategy that might undermine the power of traditional chiefs over villagers. In fact, Diori's support seems to have been substantially external. His presidency was most noted for his diplomacy and the careful cultivation of his international backers. He could hardly forget that his PPN had come to power through the intervention of the French in the referendum of 1958, and was able to maintain itself in power against the Sawaba opposition largely through French-run national security forces.

In the mid 1960s, Diori personally supported the creation of a national Animation Service which, linked to the new system of cooperatives, could substantially increase peasant involvement in rural development. With the exception of the Say arrondissement of Niamey Department, this strategy was implemented most vigorously in the Hausa areas of the country.

As is discussed in the section on institutional structure, Animation was unable, even with considerable support from its French advisors, effectively to increase villager involvement in decision-making or to create a coalition between the peasantry and the development-oriented civil service (Charlick 1974). The burden for this failure rests upon the bureaucracy and the department and county party officials who may have perceived Animation as a competitor.

Rural development policy was made by the two Presidents, Hama and Diori, and their key advisors. Official policy certainly was dominated by Diori and his French advisors, who substantially wrote the Ten Year Perspective Plan. Unofficially, Hama supported some of the reforms in the economic system, while limiting their impact. Beyond that, a number of key ministers effectively made policy by protecting their own bureaucracies and by building their own channels to foreign technical support, often from very different elements of the French Ministry of Cooperation than those who supported Diori. It is remarkable that a documentary study

of the Diori period could find almost no support for the animation-participation policy among key directors of agricultural services, or even the Ministers of Rural Development and Finance. And, with the exception of the national and regional staffs of the Animation Service, the middle level administrative cadre of the country seems to have had little involvement in policy even at a rhetorical level (Charlick 1972b:35). The first major conference of top level administrators in a decade was scheduled to take place about one month after the coup d'état of April 15, 1974 which overthrew the Diori-Hama regime.

Rural development policy formation also has been highly centralized under the Kountche government. During the early years of the military administration, decision-making was even more centralized than under the Diori-Hama regime because the power of the party cadre and of the traditional chiefs was virtually eliminated. The Army played a dominant role at the outset, with most key ministerial and administrative positions down to the arrondissement level being held by officers. With each reorganization of the government (there have been at least seven since 1974) fewer military men have held administrative positions, and the government increasingly has been in the hands of young, technocratic civil servants. It is difficult to say to what degree the army as an interest group made development policy, even in the earlier period, as Kountche seems to have been firmly in command. Although the army officially holds all legislative and executive power, it has done little to build its own institutional base. It remains small, with less than 4,000 personnel and consumes just over five percent of the national budgets. On occasion, it has been used to mount specific development operations, such as Operation Sahel Vert, but there is little indication that these operations have been conducted on behalf of army policy interests. More recently, the army's main function has been to provide technical assistance to public works or emergency transportation operations.

By 1976, the pattern of involving a few exceptionally well qualified civilians had been established. The most remarkable case was that of Brah Mahamane, a Hausa Gobinawa who had been jailed in the last days of the Diori government for political dissent shortly after returning to Niger from Europe, where he had been educated. Under the CMS regime, Brah rose from a position as director of agricultural statistics to become the Permanent Secretary for the Ministry of Rural Development, the Director of the UNCC. He then became the Minister of Rural Development and in April 1981 he was Minister of Planning. He undoubtedly has been one of the most influential civilians in the regime in terms of development policy, and he played a crucial role in the formulation of the Société de Développement concept. No doubt Kountche regards Brah highly for his technical and administrative skills, and Brah's personal odyssey through Niger's bureaucracy may indicate that there has been a substantial effort to increase the coherence of the development policy-making and implementing process. There is no doubt that, with Brah as its head, UNCC was for the first time integrated into the Ministry of Rural Development, at least unofficially. It is a positive sign as well that he now heads the Ministry of Plan,

which seemed for a considerable period to be irrelevant to policy formulation, focusing instead on studies preliminary to the census, and on technical statistical studies. But it is unclear how widespread input into policy-making and the planning process is beyond Kountche, Brah, and a few of Kountche's most trusted military advisors.

The Kountche government has not been notably more successful than its predecessor in involving large numbers of Nigerien administrators in policy deliberations. Prior to the establishment of the National Commission for the Société de Développement, the only official institution for involving leaders in planning was the Conseil National de Développement (CND). This consultative council, created in the Fall of 1976, had two elements: a plenary assembly designed to provide channels for dialogue between leaders of professional and social organizations such as the Women's Association and the high-ranking officials of ministries and parastatal organizations, and a series of commissions designed to involve civil servants in technical planning issues (République du Niger 1979:214-215). Assembly meetings have been very infrequent and are likely to be replaced by the popular councils of the Société de Développement (SD). Technical commissions are reported to have been useful in developing both the interim plan (1976-1978) and the Five Year Plan (1979-1983). Interview data indicate, however, that commission members have been very cautious about participating in planning, preferring to await clear guidelines from the President and Ministry of Plan, rather than debating new options and innovating approaches to development. Even when the President has announced a clear preference, the commissions have been reluctant to act. This was the case in 1976, when Kountche asked the CND to propose a reorganization of rural development services following his announcement that the Animation Service was to be disbanded and that the cooperatives left much to be desired. The commissions failed to come forward with any reorganization plan to meet these concerns.

Overall, too little information is available on the current government to make blanket statements regarding its success in broadening the participation of ordinary Nigeriens in rural development planning. Much will depend on how successful the new SD councils are in encouraging people to express their opinions and to propose alternatives. Most recent observations indicate that planning continues to be highly centralized and statist in its approach, with a preference for highly structured, interventionist development projects that foster dependence on the state, rather than the development of local decision-making capabilities (Thomson 1982:16). Concommitant with this has been a tendency on the part of the planning agencies to take very narrow technical perspectives on issues, neglecting their social aspects almost entirely (Thomson 1981:227).

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THE BUREAUCRACY

Studies of development in Niger, including those conducted by Nigerien planners, have pointed to bureaucratic deficiencies as major factors in the difficulty in implementing policy. Two general problems prevail. First, the structure of the bureaucracy provides little incentive to cooperate and coordinate programs and services so that limited resources can be used more effectively. Recent observers note that as was the case in the 1960s, technical ministries continue to control their staffs vertically, attempting to hold them accountable to the Ministry in Niamey. Efforts to induce cooperation among civil servants at the field level, such as the "integrated zones" concept in the 1960s, or the technical committee approach of the 1970s, have improved the tendency to operate in isolation one from the other, but they have done little to alter the overall structure. A few efforts which proved to be more successful were accomplished only by detaching personnel from a ministry's service, and assigning them to a project, as was done in the World Bank/IDA Project in Maradi. The Government of Niger and individual ministries seem to be very resistent to this approach.

A second pervasive problem involves the professionalism, or lack of professionalism, of the bureaucracy. During the Diori era it was commonplace to hear the head of state criticize the bureaucracy for holding on to colonial attitudes, caring little about rural people and attending only to their own personal needs. These same themes have returned in the rhetoric of the Kountche government. Not only have civil servants been criticized for not working hard enough, but in the past two years Kountche has repeatedly warned against opportunism and corruption at the highest levels and among the most critical services (Le Sahel 1980; Nigerama 1980:64). Recent field level observers cite examples of corruption in virtually every rural development program, ranging from the selling of water to herders to stealing village health funds (Thomson 1982:27).

These problems are clearly linked to each other and to the entire planning and implementing process. Simply put, there is little accountability in the Nigerien system, except at the very top. Since the instruments of mass involvement have not been allowed to function, bureaucrats have little incentive to serve the people and little fear of censure if they allocate to themselves the resources of the powerless. Occasionally, the President may force some accountability through unannounced personal inspections, but these uncover only the most blatant forms of corruption and misallocation of public resources, and produce no regular system of control.

The purpose of the Société de Développement, and of some bottom-up channels for communication, is as much to address this problem as it is to create a sense of involvement on the part of the people. Unless the Société de Développement is permitted to create truely mass-based institutions with assured linkages to authority, Niger will be unable to break out of its long standing pattern in which rural development, if it works at all, can serve only the few.

INSTITUTIONS OF RURAL DEVELOPMENT

Union Nigérienne de Crédit et de Coopération (UNCC)

The UNCC was created in 1962 as an instrument of rural development, under the authority of the Minister of Rural Development (UNCC 1968). It was established to provide tutelary administrative support to a network of peasant cooperatives which were successors to the colonial pre-cooperatives (Société Mutuelles de Développement Rural). Under the Diori government the UNCC was substantially autonomous from its tutelary ministry. It was governed by a 16 member administrative council presided over by Boubou Hama, who was President of the PPN/RDA, the unique political party in Niger, and of the National Assembly. Other important council members included representatives of ministries with rural development programs, and financial institutions such as the BDRN and the BCEAO.

Day-to-day administration of the UNCC was conducted by its departmental delegates, appointed by the UNCC director in Niamey. Even after 1965, when UNCC cooperatives were converted into voluntary membership groups to be locally managed, departmental delegates set most of their working rules and made most of the critical decisions. In effect, cooperatives continued to be treated as pre-cooperative institutions. The role of the uNCC evolved between 1962 and 1970 from a major focus on the promotion of agricultural investment and new technology through cooperative credit to administering groundnut markets and assuring continued groundnut production through the supply of seed.

During the 1970s, the UNCC broadened its role considerably, moving into the marketing of food grains and other cash crops and taking a leading administrative role in a number of development projects such as the Trois M project in the Zinder Department. A new division, the Production Service, was created and charged with management of irrigated agricultural projects, cotton production projects, and rural handicrafts projects. Under the direction of Amadou Garba and subsequently Brah Mahamane, the role of the UNCC as a major supplier of agricultural equipment grew significantly, as did its staff of accountants. Cooperative education has become progressively less important in its total activity. Simultaneously, however, UNCC leadership promoted the new cooperative statute (Ordonnance 78-19, October 12, 1978), which provided greater autonomy to peasant-run cooperatives. These cooperatives are supposed to play a major role in the Société de Développement. Nevertheless, their actual status as independent actors remains far from realized. The decrees and regulations passed in May 1979 retain centralized UNCC control over the cooperatives by specifying the exact content of their rules and by obliging them to follow a standard set of UNCC procedures such as the use of UNCC accounting forms (Thomson 1981:249). As a national actor, UNCC is viewed by many foreign assistance organizations as the most reliable and competent bureaucracy because of its substantial experiences with project management and accounting. However, UNCC remains a tutelary agency which continues to limit the growth of a truely mass-based organization that could adapt itself to different circumstances and needs in different locales.

Caisse Nationale de Crédit Agricole (CNCA)

Originally the credit arm of the UNCC, the CNCA was separated from it in 1967 at the strong urging of the Schmandt mission. In the past, CNCA loans were made available only through UNCC agents at the county level, but there was considerable embezzlement of loan repayments as UNCC agents were not directly accountable to the CNCA (Thomson 1981:215). CNCA loan repayment records, moreover, have differed markedly from those found at the county and departmental levels of the UNCC (Charlick 1976:32-36). In the late 1970s, at least, CNCA data seemed dubious at best.

In an effort to correct these deficiencies, the CNCA has been allowed to set up regional offices and may, under the Five Year Plan, be permitted to function as a rural credit institution at the county level, where it could make individual loans directly to members of cooperative mutuals. The less favorable interest rate and the extremely cumbersome procedure set up to deal with individual loans, involving review by UNCC agents and the county COTEAR financial committee, makes it very unlikely that this institution will grow in importance as an instrument of mass production credit (Thomson 1981:217). Where it does award individual loans, they are likely to go almost exclusively to wealthy farmers or herders, as was the case with the old style UNCC cooperatives (Ibid.:219).

Société Nigérienne de Commercialisation de l'Arachide (SONARA)

In the early 1960s, SONARA was created as part of the effort by the Diori government to control the marketing of groundnuts, over which it held exclusive rights, both inside Niger and abroad. In addition, SONARA was charged with the selection of improved seed varieties and the maintenance of seed stocks. By giving SONARA exclusive rights to sell groundnuts, the government of Niger also enabled it to fix prices in order to mediate market fluctuations. For the most part, under the Diori regime it was used to extract capital from the peasantry by setting prices well below world market levels. For example in 1971, a year of falling prices to producers, the government boasted that SONARA had been able to accumulate 1.5 billion CFA from the sale of groundnuts, and to provide the state with 350 million CFA in additional revenue. At the peak of Niger's groundnut production, farmers earned less than 4.5 billion CFA from sale of the crop. SONARA's policies constituted a stiff tax on producers, which only compounded the high tax burden from capitation taxes.

Originally SONARA was a mixed enterprise with 50 percent public sector financing (Bulletin de l'Afrique Noire 1969:10853). Under the Kountche government, it became largely a parastatal with only a little over six percent

public sector financing. Following the coup d'état, SONARA was under careful scrutiny, and was widely suspected of large scale corruption. Its director, who was also director of the president's cabinet, was imprisoned. But its greatest failure stemmed from the policies of the Diori government in vigorously enforcing tax collections in 1973 and 1974, forcing peasants to eat or sell their remaining seed stocks. SONARA for its part failed to protect the seed stocks and Nigerien farmers lost much of the stock of local varieties which might have been more resistant to the post-drought weather conditions. In an effort to maintain production, the government gave out huge seed loans in 1974 and 1975, which it forced SONARA to finance to the tune of 1.5 billion CFA. But by this time, SONARA could only provide the seed by importing foreign varieties. The result was a series of disasterous harvests in the second half of the 1970s. With the advent of large-scale government revenues from uranium and the dramatic decline in groundnut production, SONARA gradually lost its significance as an actor in rural development. It has been able to retain some importance, however, as the external marketing agent for the growing cowpea (niebe) crop.

Office des Produits Vivriers du Niger (OPVN)

Created in 1970 to serve a role analogous to that of SONARA (food grain marketing and price stabilization), OPVN was given a monopoly on grain sales both within Niger and with foreign purchasers. The ostensible purpose of OPVN's intervention in the market was to equilibrate supply between surplus and deficit regions of the country, and to counter price speculation between regions and during the production and distribution cycle. In addition, during the drought, OPVN was given a major role in the distribution of famine relief grains. This operation greatly overtaxed the management, accounting, and storage capacities of this young agency, and inefficiency as well as corruption were clearly evident at the time of the coup. Despite efforts to purchase grain domestically, the majority of OPVN's stocks in the mid-1970s were obtained from foreign sources in the form of food assistance. As of 1981 (Le Sahel 1981:10), government purchased stocks amounted to only about 40,000 tons while the shortfall in production in Diffa and Northern Niamey was estimated to be at least 100,000 tons.

OPVN's efforts to counter price speculation have been only marginally successful, due to its inability to purchase grain to use as countervailing stocks. In 1981, for example, OPVN was paying what it considered to be a highly speculative price of 75 CFA/kilogram for millet, despite a favorable 1980 harvest. At the same time unofficial prices paid by private traders were double that (Le Sahel 1981). Not surprisingly, OPVN was able to buy only about three percent of domestic production and control about one-sixth of retail sales, despite its official monopoly status. UNCC marketing cooperatives that were authorized to purchase grain at the official price found that members either withheld their production from the market

or found private market purchasers. To the degree that farmers in some cases have been obliged to sell some of their production to the OPVN at these prices, the policy of indirect taxation has continued (Hough and Elliott 1982).

Equity questions about OPVN sales also have arisen from the beginning of its operation. During the drought of 1972-1974, observers noted that it was far easier for bureaucrats and town dwellers to purchase relief foodstuffs than it was for villagers. This policy apparently has persisted. One report from Diffa in 1981 indicated that, when thousands of people were lining up daily to purchase millet at official prices, peasants were permitted to purchase only one sack, while bureaucrats were allowed to purchase a sack each month (Le Sahel 1981:9).

Recently, the failure of OPVN to control price speculation and monopolize sales has been recognized. It now appears that OPVN will attempt to play only a limited role in market mediation, and will encourage greater involvement on the part of cooperatives in the stocking and marketing of staple grains (Thomson 1981:240-241). But, unless local organizations are permitted to compete with private traders in price terms, this policy will be little more than an official admission of defeat.

Banque de Développement de la République du Niger (BDRN)

Created in 1961, the BDRN was designed to provide the Government of Niger with a capacity to stimulate economic activity in enterprises that could not find commercial credit through existing banking institutions. As indicated, Niger's private banks, such as the BIAO, were foreign controlled, and invested only in short term credit designed to facilitate cash crop trading (Sahel Hebdo 1978:64). Its main mission has been to generate capital that can be invested in mixed enterprises deemed by the government to coincide with planning priorities. Under the Diori government, the BDRN was considered to be highly politicized, especially since Boubou Hama held a leadership role in the bank. Reportedly, it was on the verge of collapse at the time of the April 1974 coup, due to corruption and politically oriented investments (Ibid.).

Under the CMS, capital for the BDRN has expanded considerably, primarily through the obligation of SONARA to provide substantial capital from its surpluses, and from higher rates of domestic savings. But it also has obtained external loans from the French Central Bank for Economic Cooperation (CCCE), the African Development Bank, and the World Bank. External capital amounts to about 30 percent of its resources. The BDRN has been more active in participating in mixed enterprises since the CMS came to power. In 1977, about two-thirds of its loans were to the state for mixed enterprise investments. In that year it held interests in 28 sociétés d'état. These interests have afforded the government direct representation on the administrative council of the enterprises. There have been few charges of politics in BDRN affairs in recent years.

Agricultural Service

Given the importance of agriculture in the economy, it is surprising that the agricultural service has never been a dominant bureaucratic or political actor in Niger's development system. This fact may be attributed to its lack of strong and innovative leadership, and to a narrow conception of its role as a technical service.

During the early years of the Diori government, Niger's agricultural service was extremely small, with a very limited number of trained agents. At the national and often the departmental level, it was dominated by French technical assistants who promoted specific programs oriented toward cash crop production. At the county and local level, agricultural agents had little contact with most farmers, preferring to continue the colonial pattern of working intensively with "progressives" with animal traction or irrigated cultivation. It has continued this tradition by running young farmer training centers (CFJA). Frequently, the agricultural service's role in integrated development actions has been restricted to collecting an inventory of the products farmers wish to purchase. As credit became a more important consideration, the UNCC progressively replaced agricultural agents in many tasks. In regional and national productivity projects, agriculture has also played a minor role, often leaving the supervision of agricultural monitors to the animation service or UNCC. The use of auxiliary assistants has increased the visibility of the agricultural service in some areas, however, such as the Trois M Project area.

Niger's agricultural service continues to suffer from several primary deficiencies. First, it has far too small a staff to reach most producers. In 1976, the agricultural service had only 138 agents trained to at least the monitor level, and only 468 agents including some trained for only one month (Nigerama 1978). Reports written during the period suggest that at least four times that number were required for effective extension. And more recent AID estimates put the number at nearly ten times the 1976 level. Given the scarcity of agents, however, the agricultural service has done little to explore and adopt new and more efficient techniques, such as group extension. In some regional projects, village-recruited professional agricultural aides have been used, and in others, aides recruited by the project to demonstrate specific techniques (aid-encadreurs) have been integrated into extension activities. But no effort has been made to examine the relative effectiveness of each method, or to examine extension principles and organization in general, despite assistance for this task made available through programs like the National Cereals Project (Enger 1979, Vol. I).

Institut National de Recherches Agronomiques du Niger (INRAN)

INRAN was created in 1975 to replace the French-dominated IRAT and orient agronomic and botanical research more toward food production. Initially, INRAN was under the authority of the Ministry of Rural Development. Now it is considered an "autonomous entity under the authority of the national Higher Education and Research Ministry (MESR) (Saunders 1981). INRAN's dual task of developing improved varieties and multiplying seed stocks, probably has contributed to its difficulties. As a relatively new institution with very modest resources, it was expected to produce usable results in a period of a few years. Developing new varieties for the Sahelian climate may well require a ten to 20 year time perspective, and crash food production programs involving the multiplication of dubious varieties have put undue stress on INRAN's capabilities (Eicher 1982:165-171).

Beyond this, however, lies a more profound difficulty. INRAN has yet to establish any effective mechanisms by which it can involve small farmers in the research process, either in terms of consultation at the technical level, or in terms of genuine on-farm trials. Its relations with the agricultural service are such that efforts to demonstrate new varieties are not supported by the research institute, and often are not understood by the agricultural agent, much less the farmer demonstrator. By forging workable links to the extension services and the producers, limited research resources may be used more effectively, and when important breakthroughs do occur they can be effectively tested under a range of real-life field conditions. By working with small farmers from the outset, INRAN might be able to avoid the worst errors of past extension efforts, the creation of technologies, such as the animal traction package, that cannot be supported on most farms in the country and, therefore, can never bring about broad-based change and far-reaching increases in production.

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THE INSTITUTIONAL STRUCTURE OF NIGER

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INTRODUCTION

A great deal less is known about the institutional structure of the Republic of Niger since the army took power on April 15, 1974 than about the institutions that functioned under its predecessor regime. Relatively little scholarly work has been done on the political and administrative system, despite the good groundwork that had been laid by French, African, and American scholars in the 1960s and early 1970s (Berthier 1973; Charlick 1974b; Collins 1975; Donaint and Lancreon 1972; Oumarou 1974; Robinson 1975; Thomson 1976). The information that is available concerning the institutional transformations that have taken place under the Conseil Militaire Suprême (CMS) comes mainly from unpublished reports of consultants working on specific project- or sector-related activities, or from scholars who have focused almost exclusively on economic problems precipitated by the drought and its aftermath. These studies and reports indicate that there is sufficient continuity in the institutional life of the nation to permit a comprehension of its significant dimensions despite inadequate current information. This is not to suggest that present knowledge is adequate to detail how a number of institutions impact on development efforts. But, with what is known, we can at least begin to ask the right questions and plan fuller analyses based on these answers.

The overall thesis of this section is that, despite a number of significant changes brought about by the Kountche government, Niger's basic institutional structure remains largely unchanged from the last days of the Diori regime; it remains a highly centralized, directive, statist system which is unable to resolve its basic development dilemma. That dilemma is, simply put, how can Niger's leaders consolidate the power of the state, and provide effective direction to promote rural development, while permitting sufficient participation to mobilize support for its policies? The present analysis rejects the proposition that Niger's leaders never valued rural development, opting instead only for the consolidation of their own power and position and that of their client state (Franke and Chasin 1980). However, unless solutions to this dilemma can be encouraged, formulated and found to be successful, the goal of order may replace the aspirations for development, as it had in Niger by 1971.

Since the early 1960s, the leaders of Niger have struggled with the problem of how to involve the mass of rural dwellers in development, while maintaining a sufficiently centralized regime to assure order and their own retention of power. Neither the Diori government nor the successor regime of Colonel Seyni Kountche have been able to resolve this dilemma satisfactorily. To the extent that rural development is seen as vital to Niger's political and economic health, both regimes have recognized that villagers must be involved in the development process. Both have emphasized the desirability of mass participation in official rhetoric, although participation has most frequently been taken to mean mobilized and guided support for concrete development actions. And both adopted instruments to assure the necessary levels of participation. The

Société du Développement, with its focus on village councils and local-level cooperatives as cells of development, is the most recent effort to resolve the problem of under-participation. But it is based almost entirely on previous efforts that were inadequate to the task. Without a substantial change in attitudes in Niamey as well as at the departmental and arrondissement levels, the conditions for rural development programs are not likely to improve.

The structures for involving people in development in Niger can be classified as (1) ascending—those structures that strive to create upward flows of information, initiatives, and demands; and (2) descending—those expressly designed to generate popular support for programs initiated and designed by the government (Goussault 1970:120-142). The conception of popular participation has been colored so heavily by the notion of mobilized support and national integration that the commitment to effective ascending institutions, with concomitant growth in local organizational capability, can be questioned. In the early 1960s, foreign advisors to the Diori government argued that the ascending channel, needed to lower costs of implementation and to promote widespread acceptance of change, would involve considerable political decentralization. One advisor publically spoke of the necessity of "peasant self-government" (Tottee 1963). Self-government gave way to an emphasis on changing the attitudes of peasants, awakening them to the possibilities of a better life through cooperation with governmental authorities. Ascending institutions either acquired phantom-like existence, or were controlled by the state. The key words that described this conception of participation were "prise de conscience," an induced state of self-awareness produced through a dialogue with change agents, and sensibilisation, a process of preparing a population to comprehend how its interests lie in associating itself with an externally initiated activity. Niether terms convey the same sense as conscientization, or even consciousness-raising, which assumes that solutions can come from the mass once people comprehend the true nature of the problem. Moreover, neither allows for the possibility that peasants understand full well the dilemma of their underdevelopment, but feel powerless to do anything about it in an organized manner. While the proposed Société de Développement is supposed to create a bottom-up mechanism for planning, it is remarkable that nearly everything written about it by Nigerien cadres, including a recent text by the current director of the Animation Service, stresses the need to change peasant mentalities and motiviations rather than the need to address the objective conditions that disempower villagers, or make it difficult for them to see their interest in a government-proposed technical change (Thomson 1981:118, for quote by Salao Kane; République du Niger 1980:83; Kountche speech of November 1979 reported in Le Sahel 1979:3).

ADMINISTRATION AND MASS PARTICIPATION UNDER THE DIORI GOVERNMENT

Background

Niger's newly independent government inherited from the French colonial era an administrative structure with a fundamental difficulty, it could command, but it could do little to bring about the changes it ostensibly sought. Initially, the colony was ruled by a handful of semi-autonomous commandants, who were overseen from the capital only for reasons of national order. These administrators ruled with almost no local involvement, but were at the same time dependent on native canton chiefs to administer day-to-day affairs. The theoretical goal of the colonial administration was to turn these chiefs into civil servants who would begin to interject the power of the state in local processes so that the abuses of traditional authority, which misallocated resources and kept villagers isolated from the benefits of the system, could be reached. Of course, as long as commandants needed canton chiefs they could not accomplish this goal, since these leaders sought to retain their hold over the peasantry. The policy of expanding the number of provincial administrators (from nine commandants de cercle to 16) and of adding subordinate administrators for subdivisional posts (chefs de poste) did not rectify the situation. Nor did the creation of the first in a succession of village committee structures, which was attempted in 1932 (Delavignette 1950:77). But, as long as the colonial administration had little in the way of a rural development program to promote, the inherent contradiction of the system was not too severe. Eventually, the colonial regime settled for a conseil de notables which worked with the commandant, and which was permitted to run pre-cooperative structures (the SMPRs and SMDRs). By 1958, these structures were bankrupt having fulfilled their role as patronage organizations, but having failed to extend agricultural credit or technology to ordinary village producers.

When the Diori government took power in 1960, it too faced a dilemma concerning the nature of administration. On the one hand, a number of national leaders urged that the bureaucracy be reformed so that it could communicate more effectively with the rural population. This, it was generally recognized, would require "sweeping aside" the chiefs (Charlick 1974b:73), or educating them so that they would no longer limit broad-based national programs. On the other hand, the government was too weak, both politically and administratively, to function without them. From 1960 to 1964, the solution was to leave things as they had been, with a commandant in the administrative centers, and the traditional nobility in the countryside.

In 1964, a major effort was made to reform the administration. Territorial administration was reorganized into nine Departments, headed by prefects, and 35 arrondissements, headed by sub-prefects (République du Niger 19791:23). Three objectives guided the reform. First, the national

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government wished to strengthen the power of regional and arrondissement administrators so that they could reduce the authority of the traditional chiefs. This was seen as a particularly important step toward gaining control over the production and marketing of cash crops. Second, the authority of the state would be decentralized, giving greater control to the préfets and their subordinates so that administration would be closer to the people and, it was hoped, more responsive. At the same time, reformers hoped to improve the coordination of activities between technical services at the operational level by making them accountable to the préfet or sous-préfet. Finally, a major focus of the reform involved the effort to foster popular involvement in the planning process, thus supporting both of the previous goals. To accomplish the third goal, arrondissements were given some discretion over their share of the tax revenues, and councils empowered to advise on county budgets were created with representatives "elected" by the people of the county. A second tier of citizen participation in planning also was provided for through the creation of Departmental Consultative Commissions, drawn from representatives to arrondissement councils (Oumarou 1974:11). At the national level, these councils were linked to the Comissariat Général de Développement, an over-arching planning authority under the direct control of the President.

Beginning in the period of the Four Year Plan (1965-1969), the Diori regime attempted to address the lack of coordination between technical services and the absence of appropriate skills among arrondissement and departmental staff to deal with mass-based planning agencies. The issue of coordination was first addressed in the groundnut zone counties, which were designated as "zones d'action integrés." In these areas sous-préfets were expected to coordinate the planning and execution of a variety of technical programs by bringing local heads of services such as health, literacy, agriculture, livestock, and forestry together to consider how best to use their resources. Rendering the bureaucracy more suitable to working with mass institutions was the task of the Human Promotion agency (Promotion Humaine), and was done primarily by authorizing trainers from the Human Promotion services' Bureau de Formation des Cadres to train local officials in planning. This aspect of the reform did not begin until 1969, and it focused on creating a greater consciousness of how arrondissement budgets were to be allocated, as well as the improvement of accounting and management skills at this level.

Although we cannot undertake a full evaluation of how this reform actually functioned, a few observations are in order. A number of local level studies indicate that, in the decade of the 1960s, little was done to reduce the power of traditional authorities who often were solidly entrenched in the county-level branches of the Parti Progressiste Nigérien-Rassemblement Démocratique Africain (PPN/RDA). In many counties, it appears that arrondissement-level administrators determined that they had to continue relying heavily upon traditional authority structures in order to carry out their programs. The major change, however, was that traditional authorities and their allies in private commercial houses, lost control over the major cash

crop, groundnuts, in a number of areas of the groundnut belt, and were replaced by a combination of cooperative structures (Union Nigérien de Crédit et Coopération or UNCC) and a parastatal marketing organization (SONARA). The loss of control by traditional authorities and private traders, however, was by no means complete, even in the areas where UNCC officially took over the marketing function (Collins 1975).

The 1964 reform did not lead to a clear decentralization of administrative power, or to a substantial improvement in the coordination of services at the county level. Studies of the planning and budgetary process indicate that national decisions generally took precedence over local initiatives. But to the degree that local préfets or sous-préfets operated with autonomy, they were continuing in the vein of the old commandant system. Paradoxically, the more independent adminstrators drew their power from their connections with the national PPN leadership, as was the case of the sous-préfet of Matamey in the late 1960s (Charlick; field notes 1970). While the linkage between administrators and the national politicians could have centralized power, it served instead to facilitate their ability to run arrondissement government as local patronage organizations.

As for coordination of service activities, the official creation of Technical Committees both at the Departmental (COTEDEP) and arrondissement (COTEAR) levels did provide a regular forum for the heads of separate services to meet. But it was not until 1970, when the Human Promotion service began to give these committees the task of formulating regional productivity projects that they demonstrated any marked change in behavior. Nigerien reports, confirmed by observers in county and village level sites, state that inter-service conflicts were still the rule, reducing the impact of such programs as the village health care system, and the cooperative functional literacy scheme. However, in a few departments such as Zinder, where regional projects commenced prior to the military coup of April 1974, there were signs that COTEDEPs had begun to function, if only to further their mutual interests. Elsewhere, as in Matameye county, planning conferences produced shopping lists of projects, and there was little effort to fit them into a local development strategy.

Efforts by the Diori government to reform the administrative system and to make the bureaucracy responsive to villagers, while developing popular support for development activities, fell far short of the goals and expectations of the regime itself. This is evident in the period statements by Diori concerning the need to encourage participation and to change the attitudes of the civil service.

The Animation Network and Local Cooperatives

The primary structures the Diori government created to link the countryside to the development effort were the animation network and the cooperatives. The animation network was designed at least in part to create a channel for villagers to express themselves to the bureaucracy through elected local-level animateurs and animation delegates from each group of animated

villages (Rassemblement de Village Animé or RVA). In addition, animateurs were to be the final link in a descending network that would convey information from the technical services and government administrators to ordinary villagers. Studies from villages in Maradi and Zinder Departments of Niger indicate that animateurs rarely played a representational role. Some animateurs used the position to enhance their opportunities for personal advancement with powerful county-level governmental authorities. While others, particularly in Maradi, may have used the animation network to build support for themselves, as opposed to the incumbant PPN/RDA figures. But in general animateurs made no efforts to represent the opinions of villagers outside the village, or to help villagers develop and express their opinions within the context of the village assembly (Charlick 1974:288-291). Within a few years, the only role for animateurs was that of assisting extension services training villagers for particular technical skills (IRAM 1968), and in many villages, the position was defunct.

With the demise of the village animateur as a local representative, the institution of the RVA never became established. In Matameye county political party (PPN) leaders were so concerned that the RVA might become a source of autonomous power that they insisted on a commitment from the County Animation Service that the RVA would be nothing more than an "administrative echelon" or a "flexible group" to meet the needs of information exchange with the population (Tottee 1966:11-12). Although the RVAs were not permitted to become descending structures for mass participation, in many instances, they were adopted to serve as cooperatives. Inter-village political conflicts (based on kinship, ethnicity, or traditional status) between leaders of rival factions tended to be played out at this level, as is apparent from several of the studies conducted in the peanut zone (Collins 1982; Groff 1982; Charlick 1974b:294-297). The RVAs or cooperatives remained the affair of the few political activists who struggled for status and the economic benefits to be gained from holding elected positions in cooperative marketing organizations. Villager involvement rarely even extended to being able to supervise and sanction elected officials such as weighers; or to control the distribution of credit and default on associated with cooperative loans (Belloncle 1967: 204; Charlick 1974b).

The village cooperative was the other primary structure the Diori government sought to employ as a basis for rural development. Unlike earlier marketing cooperatives controlled by a few notables, the cooperatives outlined in Niger's Ten Year Perspective were to be broad-based development associations (République du Niger 1965:25). These associations would permit the local-level producers to increase their agricultural production through collective association in a common enterprise. It was widely accepted that the traditional social and cultural structures of Nigerien society favored such a collective approach, and that cooperatives could be built on existing examples of shared labor, such as seasonal work parties (Ibid:192). While foreign experts such as Belloncle and Gentil argued that the collective or community-wide membership principle accorded well with traditional norms and that peasant cooperatives should be substantially self-managed, Gentil's critique of pre-existing cooperative efforts

pointed to a different phenomenon. He argued that external guidance and control over new reformed cooperative structures would have to be maintained for a substantial period because the experience of the old cooperatives had proven that autonomy led to narrowly based membership, dominated by the wealthier farmers, operating on their own behalf, and leading to little development investment because they used profits mainly for conspicuous consumption (Gentil 1977:155).

The basic institution of this new cooperative development strategy was to be the Groupement Mutuel Villageois (GMV). Each village would have a single cooperative mutual based on the assumption that unanimity was possible at this level and that commonality of interest would override existing socio-economic distinctions. Villagers who did not wish to take part in the GMV would not be required to do so, but they would be denied benefits of cooperative marketing and credit. The assumption of the foreign experts who designed these new cooperatives was that, since village chiefs govern by consensus, GMVs would not work against the interest of any group and would make decisions that would be highly equitable (Ibid.:158-160). As we have outlined above, village mutuals were grouped into cooperatives at the level of the old RVAs, and their members were required to market their production at a single weighing point, established to assure an automatic linkage between marketing dividends and repayment of loans. Eventually, the entire cooperative structure could build toward the regional level and become a fully self-governing force with mass-based input into development policy.

In 1966, the GMV became the officially sanctioned model for how a cooperative should be constituted. A close reading of the documents from that period (Belloncle 1967) and of subsequent studies (Collins 1975; Gentil 1977) indicate that the "new system" was essentially conceived by foreign experts, and represented an effort at structural reform, rather than at revitalizing existing structures. The reform was inspired principally be the desire to make cooperative institutions financially sound so that agricultural credit to modernize production could be facilitated. In fact, a number of close studies of Hausa society existed that indicated that the GMV system was alien to that culture, and that forms of traditional cooperation always were based on exclusive membership of people with clear common economic interests (Nicolas 1968; Smith 1957). The cooperative mutuals created by the Animation and Cooperative Service instruments for broad-based development were actually empty structures devoid of any sense of cooperative spirit (Nicolas 1968:90).

Studies of the actual functioning of cooperatives in Hausa Niger almost universally indicate two things. First, the base-level institutions designed by the new system failed to function as planned. Second, the other bases of cooperation which did spring up in response to new economic opportunities were discouraged, ignored, or, at best, tolerated with indifference by the government. By the late 1960s, it was evident that GMVs were not becoming multi-functional agencies of peasant managed development. Summing up the situation accurately, President Kountche labelled them "merely marketing organizations" (Charlick 1976:24-25). The principles upon which they were

built, moreover, resulted in ineffective promotion of agricultural credit, since villagers sought to avoid the principle of collective responsibility for debt (Bachard 1976). Internally, there is evidence that the GMV system was far from being broad-based, either in terms of participation or in terms of sharing benefits. Women, who may be responsible for over 50 percent of agricultural production in Niger (Keita 1982), were excluded almost totally from the new cooperatives in groundnut and cotton producing regions. Poorer farmers may have been better off under the private trader system (Collins 1982). After the UNCC pulled back its agents from direct supervision of the cooperative and market level operations, the cooperatives simply became one more area in which the traditional notables struggled among themselves for political power. In this struggle farmers in outlying villages had little chance to defend their interests against traditional notables, who often were supported by the civil administration (Groff 1982; Collins 1982).

Notwithstanding the above, under certain circumstances, cooperation in production and in risking joint capital investments is possible in Niger. Nicolas and Raynaut, for example, note that in Maradi groups called hadakai or Groupes d'Animation au Développement Rural (ADR) are capable of joint investments and of managing plant nurseries, irrigated gardens, collective groundnut fields, collective credit and savings associations, animal powered agricultural equipment rental and grain trading operations (Nicolas 1968:44-59; Raynaut 1967). In Chadakori, efforts to create peasant-run seed stacking associations were notably more successful when villagers were allowed to develop their own criteria for membership and rules for operation (Bachard 1976). Interestingly, none of these institutions were traditional. They represented responses of local-level Hausa society to new economic opportunities, responses made possible because local-level organizations were permitted some autonomy from central control. None of these organizations reached the entire population, and each might have resulted in some inequality, but each offered the promise of meaningful local involvement, a characteristic notably lacking in the official cooperatives.

The lack of success by the Diori regime in creating mechanisms by which villagers could voice their concerns to the central government may be seen in the experience of the arrondissement councils. Rather than representing villagers, these were dominated by the sous-préfets and a handful of locally influential bureaucrats and party faithful who constituted an executive sub-committee. Villagers had no knowledge of the proceedings (meetings were legally held in secret), and knew little about the council. The only contribution the councils seem to have made to mass involvement was in causing individual councillors to become useful patronage channels. Through them, individual villagers could attempt to influence administrative decisions or appeal abuses of authority. An analysis of county council planning in Matameye in the period 1969-1971 revealed that most of the tiny arrondissement budget was allocated for routine administration, leaving very little for project investment, and that a substantial proportion of what was left went for obligatory contributions to sepcific services, such as the Prefecture

tax, the UNCC tax, tax for National Security, and the tax to create the Collectivity Loan Fund. These revenue problems were exacerbated by the fact that arrondissements were prohibited from raising taxes on their own.[1]

Participation in Party Committees

The Diori government came to power through substantial French military intervention, and for the first several years it did little to mobilize mass support. By 1962, however, a major effort was made to use the structure of the political party, the PPN/RDA, as an instrument of mass involvement and political change. Party committees with designated officers were appointed in every village and town to perform a number of tasks, such as the organization and cultivation of collective groundnut fields, the maintenance of party guest houses, the organization of youth divisions to help patrol the countryside against the threat of civil insurrection, and the organization of social and cultural events. It appears that most of the villages in the sedentary agricultural area did organize party committees, and that the party was able to build up a substantial organization in the major towns. The impact of party organization on local society varied widely, even within the same administrative area of the country. In some instances party organization helped bring to the fore younger, more dynamic leaders who challenged the authority of traditional village chiefs. In towns, the newly emerging leaders often were drawn from economic groups such as merchants or craftsmen, who sought to lend political legitimacy to their economic success (Nicolas 1965:35). Where this was the case the party constituted a channel for defending the political interests of even the "poorest inhabitants of the canton" (Ibid.:40). In a number of villages, the youth division of the party, which was built on the pre-existing traditional youth association (samariva), constituted an internal pressure group for change at the local-level (Ibid.:35).

Elsewhere, the situation was quite different. In some instances party positions were taken by villagers who were competitors of the local chief, and who hoped to use party position to displace their rival. These rivals were frequently from the same lineage or clan as the traditional chief. They were not likely to be more open to change than the traditional chief or to constitute a source of dynamism for the village (Raynaut 1968:156). In other cases, where canton chiefs still were powerful and had maintained good relations with the colonial administration, local party leaders were merely the traditional agents of these chiefs, and often the close relative or client of a village authority.

Whichever of these circumstances prevailed in a given area, the drive to establish the PPN strengthened the regime by giving it new tools to

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[1] Arrondissements did in fact levy "illegal taxes" such as the market tax on sellers in peanut markets, and the truck tax levied on vehicles passing through the customs checkpoint in Matameye. It is unclear, however, whether these funds were available to augment the investment budget of the county.

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maintain order. During this period, youth groups also were organized into civil militias (the Service Civique) to support the government and help enforce its policies in the primary and secondary urban centers.

Almost from the outset, however, it was evident that the party was not serving as an effective instrument of rural development. It was apparent that the party was being controlled principally by cantonal and local authorities and not by the national leadership. Speeches and reports written by Nigerien political leaders and their foreign advisors in the period 1963-1965 are replete with references to how unresponsive the party was to national goals, and how it should become the means by which rural people become motivated to change (i.e., "animated"). In response to this dilemma, the Diori government created the animation rurale system. It was to be promoted and administered by a National Service under the direct supervision of the President and his appointed Commissioner for Human Promotion. Unlike the party structure, the animation network was to bypass the traditional authorities such as canton chiefs, and create a new leadership core which would emerge from the most "progressive" elements in the towns and villages. However, as noted earlier, where traditional authorities were strong, as in Matameye County, the animation service encountered almost immediate opposition from the party and traditional authorities, who curtailed the scope of its operations. Elsewhere, as in Maradi, animation came to be viewed for a period as a second party, but this image did little to help the government promote development programs, which inevitably required the cooperation of local traditional authorities.

A second response to the dilemma of mobilization which the Diori government adopted was to allow the PPN to fall into disuse, and hence weaken it as a political force at the local level. By 1968-1970, the party had largely disappeared as an instrument of national mobilization. Few villagers in Matameye, for example, still cultivated party fields, or even maintained a party house (Charlick 1974b). Party committees existed officially, but they had been assimilated into the traditional village power and canton structure (Ralph Faulkingham; field notes from the Madawa region, January 4, 1969).

But, as has been pointed out earlier in this section, when the party declined the animation network was never permitted to take its place. By 1969-1970, village animateurs and animation delegates had even less influence than party officials, and the Animation Service had been reduced to a technical agency whose task was to help the agricultural and health-related officials improve services at the village level. After 1969, the Diori regime abandoned the hope of having an effective means of mass mobilization and relied entirely on the bureaucracy to administer rural development (Bouboka-Sabo, Le Niger, 18 October 1971; Boubou Hama; speech of 16 December 1971). With this shift came a tendency to speak of self-managed peasant cooperatives, and to design and implement development projects that relied on foreign experts with little or no popular input (Barres 1967) and authoritarian decisions and methods to "make the work" (Charlick 1972a:27).

ADMINISTRATION AND MASS PARTICIPATION UNDER THE CONSEIL MILITAIRE SUPREME

Background

The instruments and dilemmas of mass participation during the Diori period were discussed in considerable detail because they set the stage of the 1974 change of government. Moreover, they colored the thinking of Niger's new leadership in a number of important ways. Most criticisms of the earlier efforts, in fact, have been voiced by members of the new government, and may be found reiterated in the Five Year Plan for 1979-1983. The PPN was disbanded immediately after the coup d'état. In September 1976, Kountche announced to the National Development Committee that it would be suspended, as were all councils organized on the basis of direct or indirect popular participation. The national animation service was slated for elimination, and spent the entire second half of the 1970s fighting for its survival. Despite these actions, it has been difficult to discern what has been the CMS's own policy toward mass involvement. The military government had not promoted efforts fostering village participation beyond mobilizing them to demonstrate and march in support of official policies; yet the November 1982 national seminar on intervention strategies for the rural milieu seems to have returned to the rhetoric of popular participation:

> L'objectif de la Société de Développement étant, entre autre, de susciter la participation volontaire et active de la population à l'oeuvre de construction nationale, de lui donner la possibilité de gérer elle-même ses propres affairs et de prendre en charge les opérations locales de développement... (République du Niger 1982:1).

Although the administrative organization of the country remained the same after 1974, the Kountche government significantly increased the centralization of power and bureaucratic authority. Until the recent implementation of the Société de Développement, all traces of popular input into planning and administration, apart from those built into specific productivity projects, were eliminated. While county councils still existed officially, their functions had been suspended because the government felt that the need to take energetic measures to stabilize the national economy required a strong centralization of authority (République du Niger 1980). For example, the arrondissements lost the formal power to allocate revenues through their own budgetary process, and they still have no independent taxing powers. Although revenues available to arrondissements for social investments greatly have increased with the allocation of much of the National Investment Fund

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(FNI) to this purpose,[2] local authorities and villagers have nothing to say about how these funds are to be spent. Even the power to raise the arrondissement-level tax (increased in 1981 from 350 CFA to 400 CFA) resides with the national government (Le Sahel 1980:241).

The coordination of administrative services varies considerably from one region of the country to another, primarily as a result of the role of foreign donors who have established different structures for administering development activities. Enger (1979 I:36) concluded that the structure of the civil service remains essentially vertical with little integration between the agents of different technical services at the operational level. He also speculated that what horizontal integration exists at the project level is likely to disintegrate once external funding terminates (Ibid. II:37). While disintegrating horizontal coordination is a distinct possibility for a project such as the World Bank funded Maradi Project, it seems much less likely to occur in the Department of Zinder, where Nigerien technicians have been working together since 1971, and where the COTEDEP process of regular consultation between services may have become an established institution. Should this proposition be corroborated by more systematic observation, it may well be that a contributing factor is the nature of the project. In Zinder, the Common Market (FED) funded Trois M project was managed entirely by Nigeriens from the outset; essentially the Préfet and the COTEDEP. On the other hand, a special authority was created for the Maradi project, whose area of jurisdiction did not correspond to government administrative units for the first four years of its operation. However, while the overall CMS policy has been to centralize and minimize participation, it has permitted considerable decentralization to occur through the establishment of the Productivity Projects. It is not surprising that, of all the Productivity Projects, the most centrally dominated has been the one serving the capital region, the USAID funded Niamey Department Productivity Project.

However, it has been apparent since late 1979 that the GON is not content with the administrative system as it has been functioning. The bureaucracy has been critized openly by the President, and the government's rural development training has been described in its Five Year Plan as having "les caractères directif et répétif" (République du Niger 1980:582). Like the Diori regime before it, the Kountche government has been seeking to decentralize and reform the system to make it more "participatory." At the heart of this reform is the conception of the basic unit of development from which all

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[2] Recently the Kountche government has called for a pause in FNI investments at the arrondissement level, and a number of agencies simply will not have operating funds this year. This decision is a direct result of the budgetary crisis in Niger attributable in large part to the falling demand and price for uranium.

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subsequent involvement flows. For the CMS, the search for the basic cell of development parallels almost completely the earlier policies of Animation and Cooperation, initiated in 1964 under the Ten Year Perspectives.

For its first five years the Kountche government seems to have adopted de facto a continuation of the Diori government's methods, although Kountche's policies are more concerned with basic needs and food self-sufficiency. From the outset the focus was to be on mobilizing support for production-oriented development actions. The principal tool for this program was to be regional productivity projects designed and implemented by bureaucrats. Planned villager involvement was limited to specific roles, such as peasant-demonstrators, or young farmer trainees. Projects frequently have relied on cooperatives to support certain tasks, but, until recently, cooperatives were strictly controlled by the national agency that also is charged with managing several irrigated agriculture projects in Niamey and Tahoua departments, and supervising three major regional productivity projects (Dosso, Badeguichiri in Tahoua, and 3M in Zinder). Project level decisions usually were made without any popular input by technical committees consisting of civil administrative and technical personnel at the departmental (COTEDEP) or arrondissement (COTEAR) level.

The Samaria

Until the announcement of the Société de Développement program in 1979, the only effort to involve villagers was the attempt to activate the samaria organization. As noted earlier, samaria is the traditional name for village-level youth associations of young men and women (Oumarou 1974:35). These associations at one time were prevalent in both Hausa and Zarma society, and were expressions of community-oriented service by all the youth of a given village. Although periodic efforts had been made to involve these youth associations in development through the party youth division and through the youth animation program, by the late 1960s, samaria had little more than ritual and social roles and rarely engaged in community work. With the banning of base-level institutions as early as 1975, the CMS began to rely heavily on the revitalized samaria to perform a number of tasks. The government attempted to organize a nation-wide network of samaria, which was to serve as the main instrument for mobilizing village labor and resources for participation in community development actions. In addition, the samaria replaced the animation service as the principal vehicle through which villagers are to participate in concrete development actions. This new role places an enormous burden on an institution that never had any formal organization beyond the village, and that drew whatever dynamic it ever had from purely parochial social and economic concerns.

In reality, the CMS has created in the samaria a wholly new organization that has only limited connection with collectivist strains in traditional society. Although the government frequently claims that the samaria are voluntary autonomous associations, it is clear that, since 1975-1976, all villages are expected to have a functioning samaria that can help to carry

out community projects (President Kountche in Nigerama, 18 December 1978). In theory samaria are supposed to mobilize local self-help resources, and to initiate projects themselves (Thomson 1981:12). In fact almost all samaria activities are undertaken in response to programs called opérations, decided upon at the national level. The first opération was initiated by the government in 1975 and called on the samarias to build primary school classrooms throughout the country. According to official data (République du Niger 1979:154), over 1500 classrooms were constructed within a six-month period. This activity, called "Opération Construction des Classes," has been institutionalized under the Office of Community Works, and about 1500 additional classrooms have been built with voluntary community labor. From 1977 to 1981, the program was temporarily suspended due to the drastic reduction in the National Investment Fund budget. Opération Sahel Vert, a second opération launched in 1976, was designed to mobilize villagers to combat desertification through erosion control and reforestation activities. Official results of this operation has not been published to date. However, it is generally agreed that its success was limited due to the technical problems associated with such an ambitious program. The need to follow-up initial plantings with periodic irrigation also hampered its progress. In a number of villages, samaria have heeded the call to engage in collective production of food-stuffs, particularly millet and, in Niamey Department, rice. This activity represents a return to the party-field days, although it is not clear how villagers feel about their participation. Party fields were rarely considered to be village activities and were usually looked upon as the "government's field." The actual level of involvement in samaria activities is difficult to ascertain, as are the motivations of villagers who contribute their labor. James Thomson reports that currently 30 to 50 percent of the villages throughout the sedentary zone of the country have some form of samaria activity (personal communication, November 1982).

From the earliest efforts to revitalize the samaria, it has been clear that the CMS view participation as a sign of patriotism and loyalty. As the samaria program has evolved, it increasingly has taken on the aspects of a national populist political movement. Beginning in 1978, the samarias were encouraged to hold national meetings, and in June 1981, a series of national institutions were created including a national assembly of the samaria, and a National Office of Samaria Affairs. The national organization oversees the activities of regional representatives who are charged with animation activities, information dissemination, and coordination of regional samaria programs. The national samaria movement even designated several agents to represent the samaria in foreign countries. These structures, to the extent that they are promoted vigorously by the government, suggest that the regime is attempting to create some sort of mass-based movement, without explicitly calling it a political party. As a result, county- and village-level authorities, many of whom previously were associated with the PPN, have accepted key roles in the samaria. No careful studies have yet been conducted on the implications of the national samaria movement for popular participation, and any serious assessment of Niger's institutional context as it relates to development actions must begin by filling this void.

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Initial information suggests that, like its predecessors, the samaria functions as a heavily directive association that involves few new actors at the local-level. It is already fairly evident that the government intended to make use of the samaria as a channel for issuing orders to the grass roots level, as was done in April 1980 when samaria and women's association representatives were instructed by the Minister of Interior to ask young people who were away doing migratory labor to return to family farms so that they could assist in food production efforts. Whether the samaria also will constitute a new channel for vertical information flow to the government through the Société de Développement consultations remains a question.

The Société de Développement

Since the announcement in 1979 that the government would initiate a new structural arrangement, called the Société de Développement, there has been hope that villages would be able to use the structure to make their concerns felt by the central government, rather than the reverse always being the case. In other words, it was hoped that the efforts to integrate Nigerien villages into the state (République du Niger 1980:94-95), might involve a real decentralization of power so that villagers could participate in national development as citizens with enhanced ability to influence policy, rather than merely as subjects to carry out national policy. Thus far, it is impossible to judge the extent to which the Société de Développement program will go in decentralizing development participation, although some of the documents from the November 1982 Zinder seminar imply movement in this direction (Sahel-Hebdo 1982:16-21). For now the question can be addressed only by outlining how the Société de Développement program emerged, how it has affected the two institutions considered to be its fundamental pillars, the samaria and the cooperatives, and how other institutions associated in the consultation process are being affected.

The decision by the government to create a "Development Society" did not emerge totally from the October 19, 1979 decree, or in Kountche's speech of that date. Almost from the outset of his regime, Kountche recognized the necessity of integrating the Nigerien nation around broadly accepted principles of national development (Thomson 1981:101). While he attempted to avoid the divisive politics that might ensue from allowing various groups fully to air their demands for policy options, Kountche realized that development activities were hampered because villagers had only minimal stake in them and because they felt a remoteness from the state. In June 1976, when it was under heavy attack from Kountche, the National Animation Service held a seminar in Maradi in which it spelled out the need for more popular participation, consultation and local initiative as the only way out of the existing impasse on non-functioning institutions. Of most serious concern was the realization that cooperative structures, on which many new development programs were being based were unworkable in terms of promoting substantial support for new development activities (see République du Niger 1980:554-555, for a critique of the cooperative structures). While

Animation's analysis was not seconded immediately by the government, in early 1979 Brah Mahamane, former director of the national cooperative agency (UNCC) and later Minister of Rural Development, began to focus on the serious problem of rural cooperatives and conducted a national seminar on peasant organization. These concerns led to the establishment of the National Commission, whose tasks were very circumscribed, and whose conclusions were clearly predetermined (Thomson 1981:193). Although there was substantial discussion on the need for a bottom-up consultative process based on village level development cells, national leaders also stressed the need to structure the SD so that rural production could be increased, and so that a "mystique de développement" could be inculcated at all levels of society (President Kountche in Le Sahel, 5 November 1979 and 15 April 1980). Discussions on the SD had to be structured in such a manner as to avoid any hint of regional or ethnic differences in development policy. They had to be non-political and harmonious. Nor were the leaders of the CMS interested in upsetting local power structures by putting forward the idea of an SD. Clearly, to associate the rural sector with national development plans they would have to "promote integration of the elite into the future society" (Le Sahel, 17 March 1980, p. 5), and a special effort was made to involve traditional notables through a revitalized Association of Traditional Chiefs (République du Niger 1980:80). The top-down nature of the consultation process is perhaps best spelled out in the Five Year Plan for 1979-1983, where the associated institutions are described as "transmission channels for the fundamental options of development."

The previously discussed conversion of the samaria into a national political party appears to be for the purpose of transforming it, along with the cooperatives, into the organizational bases for the Société de Développement. The implication of the SD for cooperatives, in terms of prospects for a more participatory development pattern, then becomes crucial. At the heart of this issue lie two questions: what is the basic cell of development to be, and what should be the relationship of this cell to the broader development system?

The exact nature of the basic cell of development was explored at the Zinder Seminar in November 1982. In general, both the cooperative reform act of 1979, and the pronouncements of the President and the Minister of Rural Development led to the view that the government prefers to support the Village Mutual Group (GMV) as the standard institution for cooperative organization. Official criticisms of cooperatives have been aimed mainly at their limited function (marketing) and the very low level of participation in or even knowledge of them on the part of villagers (République du Niger 1980:554-555). Structurally, the cooperative scheme remains so similar to the system cooperatives of the Diori period that Enger concluded that it was unchanged (1979:60).

It is clear that while the leaders of the CMS see the necessity to involve farmers more fully in cooperative affairs, and want base-level cooperatives to be largely self-managed, they are cautious about permitting them

substantial autonomy. Prior to November 1982, the government insisted that all the producers in a given locale join the cooperative by corporate decision, that they accept joint responsibility for their financial obligations, that they maintain self discipline to assure their credit worthiness (Brah Mahamane in Le Sahel, 25 February 1980, p. 26), and that they be of sufficiently large-scale to make them economically viable. The CMS justified these conditions by arguing that normally villages are "sociologically and economically homogenous stable units," where any stratification that does exist does not exclude an individual from effective participation (Ibid.). Whether or not the CMS leadership in fact believes this rationale, which is premised on a superficial assessment of village social structure, it is evident that the real reason for this decision is the belief that cooperatives become truly multi-functional and perform the vital task of providing credit to producers so that agriculture can be modernized only if discipline is imposed by the central government.

The definition of the new cooperative mutual may not be as confining, however, as it was under the Diori government, since villagers in large agglomerations (several hundred producers) may have the opportunity to choose between one of several GMVs (Painter 1980:21). Under the conditions mutuals might begin to reflect some pre-existing shared ties or interests. The existence of an alternative type of mutual, the Groupement Mutual de Production (GMP), has yet to be fully reconciled with the GMV concept and may provide for some flexibility as well. GMPs have been based on the need to associate producers at specific production sites, such as irrigated rice projects, seed production plots, or cotton fields. These producers might not reside in the same village, and could conceivably be associated on a number of different bases, including kinship relations, or pre-existing cooperative arrangements. Until now, GMPs have not been consciously constituted on the basis of sociological affinity, a fact which could have limited their effectiveness. Instead, they usually have been created by external technical agencies as a function of their requirements for a particular project (Painter 1979:3; Charlick 1974a). But as long as the GMP is not obligatorily reconciled with the village GMV, flexibility to use this form for a variety of tasks and based on a variety of ties exists.

Perhaps the most serious problem with the notion of development cell, however, has to do with its application to nomads in projects involving pastoralists. The unit of association for herders officially has been designated to be the "tribe," although a good deal of discussion has already taken place about the need to organize at a smaller level, perhaps the camp. Thus far, the CMS has made no effort to block the organization of herders on the camp level, and Thomson is hopeful that other forms of association based on sub-camp affinities or different associational principles may be permitted (Thomson 1981:16-18). If the new cooperative policies are able to accommodate a variety of forms of association, this will represent a significant departure from the previous policy, which tended to weaken producer cooperation, limit credit and savings, and retard investment in agriculture.

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Unless such new associational principles are permitted, it is quite likely that the cooperative structures will not only continue to limit production, but that they will continue to distribute benefits in a highly inequitable manner. Cooperatives constructed on male-dominant associational principles, have in the past frequently shut out women almost entirely (Keita 1982:9-10), and have in some instances worked against the interests of the poorest farmers.

The relationship between local-level cooperative mutuals sponsored by the SD and the 1979 law, and the broader administrative and economic system cannot yet be fully described. There are a number of indications, however, that control will continue to be exercised hierarchically, despite the stated goals that the UNCC would eventually disappear. The 1978 cooperative statute was supposed to lay the foundation for self-management by enabling local cooperatives to structure their own internal rules (Enger 1979:61). However, several aspects of the law-making capacity of cooperatives have been retained by the national government, which has enacted legislation making it difficult for local associations to control the definition of their membership and to structure incentives for corporate responsiblity (Thomson 1981:12; 59-61). In brief, cooperative membership is set initially by the rules for GMVs, although individuals may decide not to join. Cooperatives are hampered in their ability to raise operating or investment revenue by the prohibition on their taxing power. Members are held mutually responsible for unpaid debts of other members; yet, members are permitted to quit and there is no provision for recovering debts from a member who withdraws. Members also have been unable to exercise influence over how their own capital is to be invested (Painter 1980:19).

Power relationships with the external system are clearly suggested by the law which permits the Minister of Interior, or the tutelary agency (the UNCC) to dissolve any local organization it deems to be in contravention of the cooperative law. These external constraints coupled with the fact that UNCC agents use a standard set of statutes and accounting forms in organizing cooperatives (Thomson 1981:249) could easily lead to the situation in which members see cooperatives essentially as state organizations over which they are powerless. Thus far, UNCC officials seem unconcerned about understanding the specifics of situations in which they foster cooperatives, particularly regarding the basis of local involvement (Painter 1980:17). In the pastoral zone, where government agents are often biased against nomads, whom they consider to be unreliable and highly mobile (Thomson 1982:23), this tendency to control cooperative affairs from the outside could intensify feelings of allenation on the part of herders leading to their non-cooperation, and could result in the loss of opportunities to improve production that might result from permitting them greater decision-making power. Given the opportunity, herders could develop workable solutions to some of their difficulties. The decision on the part of the Nigerien leadership to permit or to stifle de facto decentralization of some power and authority will be the test of how successful the CMS will be in changing the previously unsatisfactory relationship

between the people and state, and in promoting the basis of true rural involvement in developmental change. It is encouraging that at the November 1982 seminar on rural development strategies, the government of Niger singled out the pastoral associations formed under the USAID-financed Niger Range and Livestock Project as exemplary instances of the Société de Développement.

While the samaria and the cooperative mutual were designated as the primary pillars of the Société de Développement, the program to create a new Nigerien society began with heavy emphasis on the village development council (v. Le Sahel, 17 May 1982). This new institution is supposed to constitute a permanent base for the national consultative process, whereby local opinions and felt needs can be translated at cantonal and departmental levels into planning priorities. Village councils under the action phase of the Société de Développement are supposed to differ from past efforts at local institutions by assuring broad-based representation of local groups, interests, and actors. Clearly, for this process to produce significantly different results from those experienced in the past, considerable discussion and study would have to precede the creation of a village council, since the conditions and needs of various groups differ from site to site. In fact, there is already considerable concern that councils may simply be created by administrative fiat, and thus fail to alter mass-elite relations or the internal dynamics of village life, which keep some groups from gaining access to information and resources. In the first phase of the SD, the plan to consult with the village-level society was to have produced in-depth discussions held by the Animation Service and the samaria in most villages. The actual implementation of the consultation, however, restricted discussions to most towns and only three villages per arrondissement (Thomson 1981:211). In June 1982, the Animation Service representatives met in Maradi to express their concern that the consultative process involved in creating village councils was totally insufficient, particularly in the pastoral zone (Le Sahel, 28 June 1982, p. 10). Should the village councils be organized according to a single administrative model, they would fail not only to take account of local realities, but even to persuade villagers and herders of its desirability. Based on past experience, it will not even prove to be a valuable channel for communicating information from the top-down under these circumstances. Opportunities to enhance local organizational capability in the countryside could well be lost again (Thomson 1982:37).

Other Mass Institutions and the Société de Développement

Thus far, this discussion of structures of participation has been restricted to rural institutions, and this is perhaps justified in light of the fact that at least 80 percent of the Nigerien population are still small producers. A number of other groups, including urban-based ones, however, have also been asked to participate in the SD. These include the unions, the Women's Association, the Student Association, the Association of Parents of Students, the Veteran's Association, the Association of Businessmen (Chamber of Commerce), the Islamic Association, and the Association of Traditional Chiefs. In assessing the implications of CMS policies for the nation, it is useful to

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indicate the nature of these groups, and to show how each has been affected; three are singled out for brief examination.

Unions. Labor unions in Niger have been tiny, marginally significant political actors since the pre-colonial period. Niger's primary union prior to independence, the USCN, was organized largely by the French communist Confédération Générale de Travail (CGT). Djibo Bakary, the leader of the first elected government of Niger (UDN-Sawaba) under the 1956 Loi-Cadre drew some of his urban support from this union. At the time of the referendum of the French Fifth Republic, the USCN along with its West African affiliate, UGTAN, advocated immediate independence from France, a position which Bakary also supported. When the referendum was manipulated to come out in support of continued association, Diori's party (PPN/RDA) was installed in power and the Diori government rapidly moved to dissolve UGTAN, and replace it with a largely government-controlled Union Nationale des Travailleurs du Niger (UNTN). The Diori government viewed organized labor with suspicion, because of its prior association with the remnants of an opposition political party. Under the Diori regime, the UNTN remained one of the few organized interest groups which periodically criticized government policy, mainly on narrowly defined economic issues. This was in spite of the fact that its leadership was entirely dominated by PPN cadres. As such, it was seen as a regressive force, insufficiently committed to the building of the nation (Charlick 1982b).

Following the change of government in 1974, the UNTN was dissolved and replaced by a new government-controlled union, the Union Syndicale des Travailleurs du Niger (USTN). But only months after its creation, USTN leadership was implicated in the attempted coup of May 1976. It was then totally reorganized under strict control of CMS loyalist Boureima Mainassara, and most of its semi-autonomous sections were eliminated as potential sources of opposition (Le Sahel, 24 December 1979 and 4 May 1981). Since 1976, the CMS' policy has been to neutralize the USTN as a political force, while attempting to buy off labor unrest among the 11,000 organized workers in Niger by raising the basic salary scale (the SMIG). At the same time, union members are expected to show loyalty to the regime by participating in a "voluntary" salary check-off system whereby they can contribute to the state's emergency relief plan (Le Sahel, 24 December 1979). Dicussions about the role of labor in the SD indicate that the unions may not yet be totally subservient to the state, since Kountche continues to urge them to give up their confrontational or class conflict oriented approach, and to work on behalf of the whole nation (Ibid.). But the role of the union in the SD is to function as the representative of wage laborers in urban areas, and they have been told in no uncertain terms that they are to be "responsible" and "constructive". Clearly, the CMS had no intention of allowing the union to serve as upward bound information channel to the regime.

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Women's Association. Unlike the labor union, women's organizations in Niger typically have viewed females as a category of society, rather than as a subordinate social stratum with interests of its own. Gender relationships, particularly in the rural area are defined principally by Quranic law, and by the traditional norms prevailing among the several ethnic groups in the country. Women in the sedentary zone were excluded from direct involvement in any public sector activity until the advent of the women's animation program in the mid-1960s. In the second half of the 1960s, Animation Féminine, funded substantially by UNICEF, focused on the woman's role in family nutrition, public health and sanitation, and midwivery (Belloncle 1980). Pilot animation féminine programs in Zinder Department conducted extensive discussions with village women. Through this mechanism they learned of women's concerns for health care and for economically oriented programs, such as aid to small stock, food crop, and cash crop production (Charlick 1982c). For a period, female animation workers met with women in village-level animatrices directly to assure that they had access to seeds, seed-dressings, and fruit trees. Efforts to create village health care systems, however, rapidly led to the exclusion of women from prominent positions such as memberhsip on monitoring committees, and to the selection of men as village first aid workers (Charlick 1982c). Despite the fact that women are major producers and processors of both food and cash crops, by the early 1970s economic programs to village women had terminated, with the exception of the sporadic delivery of selected varieties of ruminants and poultry. Several productivity projects, having met with failure in recruiting young males to be trained for long periods as farmer trainees, began to offer the program to farm couples. However, no effort was made to help rural women organize an interest group that could make their particular needs known and influence programs in such a way that these needs could be better met. In brief, animation féminine never became a base-level association and had little clearly articulated support from educated women and men in the urban areas.

Urban women had only one association available to them under the Diori government, the Women's Branch of the PPN. The major function of this group appears to have been to support public manifestations of loyalty for the regime. Few educated women identified with the organization which came to be known as an association of "free women," paralleling the organization of divorced women headed by the magajiya in rural villages: a dubious status in a highly Islamized society. In 1975, the nature of the women's association began to change, when a group of educated women lobbied the new military government to create the Association of Nigerien Women (AFN) to facilitate their participation in the International Woman's Year. A major conference was held in Niamey in 1977 and in that year the first Congress of the AFN was held (République du Niger 1979:161).

While the Diori government enhanced women's access to the customary tribunals, the CMS has in general been more disposed toward encouraging women's rights and it has committed itself publicly to a stance of non-discrimination in public services. Officially, it recognizes the AFN as the

representative of all Nigerien women, urban and rural. The association, however, is exclusively an urban affair headed by several dynamic, well-educated women including the sociologist Boureima Mariam Keita. For the past several years, these women have begun to influence public policy orientations on behalf of urban and rural women. At its recent Third Congress, the AFN adopted the position of promoting training and employment for women, and of reorienting the adult literacy service to increase its access to rural women (Le Sahel, 6 September 1982, p. 23).

As a constituent group in the Société de Développement, the AFN clearly represents an urban top-down communications channel with no effective organization below the level of its departmental representatives. Its utility as an instrument even of top-down information diffusion is clearly limited, and it is poorly situated to help mobilize agricultural labor. On the other hand, it is also not feasible to mobilize the support of most women for the AFN. There is some evidence, however, that pressure from urban educated women may influence specific programs in favor of both urban and rural women. A recent encouraging statement by the Préfet of Zinder indicates that he recognizes the need to improve the skill level of rural women through such programs as literacy if women are to become involved in the Société de Développement (Le Sahel, 6 September 1982, p. 27).

Traditional Chiefs. The policies of the two post-independence governments of Niger toward traditional authorities have been ambivalent and complex. Both regimes struggled with the need to unify the country and to create national as opposed to ethnic and regional loyalties in order to implement national programs, and both initially saw traditional chiefs as obstacles to needed transformations. yet both regimes rapidly learned that they had to involve traditional authorities to maintain order and to mobilize popular support. Policies toward traditional authorities have been further complicated by ethnic and class segmentation; the current political climate does not facilitate objective discussion of these topics within the country.

Prior to independence, many of Niger's traditional chiefs aligned themselves with the colonial administration in an effort to protect their positions and prerogatives against growing nationalist opposition to local aristocracies. The French supported the chiefs' political party, the Union Nigérienne des Independants et Sympathisants (UNIS), because it appeared likely to retard the demands for radical political and social change change promoted by the PPN (Fuglestad 1975). As an affiliate of the RDA headed by Houphouet-Boigny (a movement that received considerable support from the French Communist Party), the PPN was perceived as a clear threat to continued colonial hegemony. When the RDA broke with the communists in 1954, the alignment of chiefs tended to follow ethnic rather than class lines. Since Diori's power base was among the Zarma of central and western Niger, a number of prominent Hausa chiefs formed the Bloc Nigérien d'Action (BNA), a successor to UNIS, and supported the opposition Union Démocratique Nigérienne (UDN), the presumably more radical party of Diori's cousin and rival Djibo Bakary (Fuglestad 1973). This curious alliance between the con-

servative chiefs and the radical Djibo Bakary was successful in the first elections ever held in the country in 1957, and constituted an elected government with a modicum of internal self rule. But French efforts to avoid immediate independence led to the destruction of the UDN and to the exile of its leadership. This brought to power a party considered by many to be heavily dominated by the minority Zarma group. Predictably, a number of PPN officials argued for the suppression of the traditional chieftancy in order to weaken their Hausa opposition in parts of Zinder and Maradi Departments. Within a short time, however, the Diori government had incorporated some of the most powerful traditional authorities, including several prominent Hausa chiefs into the regime (Robinson 1975), and had allowed them to curtail the effects of the grass roots reform movement initiated by the Animation Service.

When the Diori government fell, Kountche attacked chiefly power across a broad front and imprisoned several traditional notables who had served in the previous government. But instead of abolishing their political organizations, the military government replaced them with officers who continued to perform their functions. Within a few years, the chiefs had been released and, in some instances, regained their power. By the late 1970s, the CMS had adopted a policy of strengthening the power of local authorities by revitalizing the Association of Traditional Chiefs (Robinson 1982). This policy implies a limitation on the ability of the regime to mobilize rural groups, such as small farmers and women, independently of the traditional power structure. By involving the Association of Chiefs in the Société de Développement and encouraging the participation of canton chiefs now considered loyal, popular participation risks continuing to be curtailed and following the logic of individual patron-client relations, as it has in the past (Robinson 1982). However, in those areas of the country where the loyalty of traditional authorities is considered questionable, particularly in the pastoral zone dominated by the Iullemmeden Twareg Confederation, the regime may use the community and county council and the tribal cooperative system to limit the power of its potential opponents (Thomson 1982:55-56). In brief, the policy toward the chiefs and traditional institutions continues to be dictated more by a concern for order and effective control of the countryside than for popular involvement in development.

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DRYLAND AGRICULTURE

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INTRODUCTION

Population Growth and the Rural Economy

Despite rapid urban growth, about 87 percent of Niger's population remained rural in 1980. Pastoral peoples account for about 14 percent of the total population, sedentary villagers about 73 percent, and urban dwellers constitute the remaining 14 percent (projections from Borsdorf 1979:3; see Table 1 below). Most of the nation's agricultural production is from small scale farms using family and household labor. A number of capital intensive, industrial irrigated perimeters are among the few exceptions to the smallholder family farms.

Borsdorf's projections suggest that a major change in the rural/urban distribution of Niger's population will occur during the next two decades--indeed, has already begun. According to official figures, in 1960 about 77 percent of the nation's population was made up of rural villagers, about 18 percent of nomadic pastoralists, and only about five percent were urban residents. By the year 2,000 however, urban residents will make up about 30 percent of a Nigerien population nearly three times larger than in 1960.[1]

Historically increases in production in Niger have generally been achieved by bringing more land under cultivation rather than by improvements in yield per unit of cultivated area. Shifting cultivation associated with long fallow times, and several ecologically sound intensive systems of cultivation (Franke 1982), protected the resource base. Labor rather than land was the most limiting factor of production; with sufficient labor, more land was available for the clearing (see discussion of customary land rights later in this chapter). When taxation and other colonial interventions created a need for money in the rural world, additional land was brought under cultivation to produce export crops for cash sale. The strategy of maintaining or increasing production extensively, through a horizontal expansion of farmland (often at the expense of pasture), is of declining viability in much of the country. Lands capable of being cultivated with technologies currently available to the peasantry have become very scarce, a consequence of expanding population, increasing monetization and privatization of agricultural holdings, and the depletion of soil nutrients through overcultivation and shortened fallow periods. Improvements in production on existing farmlands utilizing economically feasible technical packages which do not simultaneously increase the dependency and economic vulnerability of the small producers thus becomes the major priority for the government of Niger and the donors. Unfortunately, such technical packages are not readily at hand.

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[1] See the discussion of urbanization in the Introduction, pp. 25-30.

TABLE 1

RURAL-URBAN AND SEDENTARY-PASTORAL POPULATION DISTRIBUTION IN THE NIGER REPUBLIC, 1960-2000

(in thousands)

Year	Rural Sedentary Number	Percent [a]	Pastoral Number	Percent [a]	Urban Number	Percent [a]	Total
1960	2485.1	76.7	580.0	17.9	174.9 [b]	5.4	3240.0
1970	3189.7	75.4	673.8	15.9	366.7	8.7	4230.2
1977	3756.4	73.7	740.0	14.5	602.0	11.8	5098.4
Annual Growth Rates:		2.43		1.43		7.27	2.67
Population Projections:							
1980 [c]	4024.0	72.7	772.4	13.9	740.9	13.4	5537.3
1990	4892.9	67.9	846.7	11.7	1471.4	20.4	7211
2000	5724.5	60.8	896.6	9.5	2793.3	29.7	9414.4

(Borsdorf 1979:3; République du Niger n.d.)

Notes to Table:

a All percentages were calculated from the figures given in Borsdorf 1979:3.

b Borsdorf states that he recalculated data on urban populations so that older data reflect the same urban units as used in the 1977 census.

c Data for 1980 were calculated from Borsdorf 1979:3; his growth rates.

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Rainfed agriculture is a key element in the economic activities of the sedentary villagers who make up about three-fourths of Niger's population, and as such it is the major focus of this chapter. However, it must be clearly noted that many, perhaps most, villagers do not gain their livelihood solely from crop production. Rural households draw on a range of economic activities to support themselves, and a significant proportion of village households is not self-sufficient. in staple grains even in years of moderately good rainfall (Raynaut 1973; Sutter 1982; Arnould 1982a:428).

In the survival strategies of rural households, rainy season production of millet and sorghum for domestic consumption with some marketing of the surplus, may be combined with cash cropping, livestock activities, or during the dry season with irrigated market gardening. Wage labor on the farms of better-off neighbors may provide cash for grain purchases during the months before the harvest, to the detriment of yields on one's own farm. Part-time handicraft and service occupations, and petty trading are also practiced by small producers to increase household revenues.

Finally, large numbers of men take part in seasonal migration, spending the dry season in casual employment in Niger's few urban centers and in the cities of her southern neighbors. Although migrants hope to return with some cash and various purchased goods, recent observers have found men leaving for the dry season even if they brought back little or nothing (Arnould 1982a). Their absence relieves the demands made on the food supplies of thousands of village households during the long dry season. Their absence also undermines productivity (Faulkingham 1976; Arnould 1982a). In this light Nigeria's February 1983 expulsion of foreign workers poses a serious challenge for Niger. Possibly as many as 150,000 seasonal migrants have returned two months early, with uncertain prospects for future dry seasons (Le Moyne et al 1983:32).

Monetization and the Rural Economy

In his contribution to the 1979 AID Niger Agricultural Sector Assessment, Sutter argues that one of the central forces shaping the contemporary Nigerien rural world is the monetization of the rural economy which has been underway since 1900. Monetization has transformed traditional social as well as economic relationships:

> ...collective ties, based on reciprocal responsibilities centered on the extended family production and consumption unit, have become progressively replaced by social relationships mediated through money. The family as an economic unit has become less important in supplying the needs of the individual, who has become more isolated and responsible for his own subsistence (1979:1).

In his view, which is shared by a number of recent researchers, colonialism and integration into the market economy subjected rural Nigeriens to increasing

monetary pressures which have had a profound impact on traditional production systems:

> It is the need for money that pushes young men, and even family heads, into working as salaried laborers and into selling land... [The] inability of the family head to maintain the heavy financial obligations to his extended family... [contributes to] the nuclearization of the farm production unit (Ibid.:1-2).

The penetration of the money economy into rural communities began in the first decade of colonial rule with taxation policies. After 1910 taxes had to be paid in French francs (Collion 1982:264). Faced with the necessity of generating revenues from a territory with a few resources, the colonial administration turned to the promotion of export crops, principally groundnuts. In addition to taxes payable in cash, other coercive measures such as requiring each taxable person to plant a minimum area (0.6 ha in 1943) in groundnuts, were adopted (Ibid.:300; Sutter 1979). French trading companies also stimulated monetary needs, as the imported goods they offered had to be purchased for cash, or alternatively for tokens which peasants received for groundnuts (Baier 1974; Collins 1974). Much of the cash earned from agriculture quickly left the rural community in tax payments and purchases of imported cloth or other goods. Little remained in the village, and even that was unlikely to be invested in improving agricultural production.

Groundnut production spread rapidly during the 1930s and 1940s, but its progress was uneven. While cash and prestigious imported goods purchased with cash gained firm holds in gift exchanges, marriage arrangements, and other essential social actions in Hausa-speaking areas, money penetrated less rapidly in other regions. Zarma farmers in western Niger showed less interest in export crops than did Hausa producers, even during the peak years of groundnut production in the 1960s (Raulin 1965). Manga farmers in the east were too remote and the rainfall too uncertain to allow for groundnut production in commercial quantities. However, dry-season labor migration provided an alternative means of raising money for taxes, which attracted some members of all ethnic groups, and especially the Zarma with their weaker traditions of agricultural production.

In sum, taxation in the colonial period was vigorously and effectively pursued and provided the initial mechanism for forcing rural Nigeriens into a money economy. But once this breach was made in the traditional domestic economy, money played increasingly larger roles in the rural economy. By the time the Niger government eliminated the national capitation tax in 1977, leaving only the local arrondissement tax (350 CFA per taxable person in 1979) (see Thomson 1979 on other effects of the head-tax system), taxes were only one of many money obligations of rural households. Indeed, many rural households are no longer self-sufficient in staple grains and must meet these basic food needs through purchases (Arnould 1982:428; Sutter 1979:12-13, Tables 2 and 3; Raynaut 1973:1477). This severe monetary pressure must be kept in mind as we examine the rural world.

Suppression of the head tax was one of the most commonly cited reasons why rural Nigeriens supported the Kountche government, and provided a rupture with the long-standing agonistic relationship between government and peasantry (Spittler 1979). Reimposition of the head tax would have two likely effects: (1) it would rob the government of rural political support; and (2) it would certainly accelerate the flight of younger, more vigorous elements of the labor force to the cities. It remains to be seen whether the government decides nonetheless that the budget crisis demands restoration of that tax.

It is also worth noting that the monetization of farming has not as yet resulted in a general shift from labor intensive to capital intensive production. Thus, the health and nutritional status of the working members of each household continue to be significant determinants of farming unit productivity (Norman, Simmons and Hay 1982:165). Many households in Niger have caloric intakes below recommended levels (Sutter 1982:222; Rupp 1976), causing further reductions in available labor. This trend seems likely to continue as food production per capita and per hectare has declined during the past several decades (USAID 1976a:14; Speece 1980:26).

Farm Revenues and Household Budgets

The discussion of the monetization of the rural economy would be incomplete without some mention of the relationship between farm revenues and household budgets. The role of money in the survival of the rural farm unit is of increasing importance in Niger. No longer does control of labor and land suffice to ensure the success of the local unit of production. Village survey data collected in Zinder by the Arid Lands Natural Resources Committee (1979: Appendix 3) indicated that people required money primarily to obtain certain non-locally produced consumer goods, such as cloth, and to buy food, and only secondarily could they use it to obtain livestock and other inputs to production: seeds, tools, and agricultural labor.

Tables 2 and 3 provide a more detailed portrait both of the evolution of household money needs and uses, and also some idea of the uses to which cash is put in the modern farm household economy. Table 2 shows first that the size of household incomes has increased dramatically over the past two decades as the distinction between a "subsistence" sector and a "market" sector has eroded. Secondly, it shows that revenues from crop sales account for a smaller percentage of total revenues than was formerly the case. This Table does not show how the proportions of income from various crops have changed. In the Kantche study conducted in the late 1950s, it was found that sales of groundnuts accounted for the largest proportion of produce sold, and these sales covered 75 percent of household budget requirements (Nicolas 1962b). By contrast, in Dogo canton and Tanout county in the late 1970s, sales of cereals accounted for over 60 percent of the agricultural produce sold, and in Dogo income from groundnuts covered no more than 13 percent of the average household's expenditures.

TABLE 2 - EVOLUTION OF HOUSEHOLD BUDGETARY REVENUES

(In U.S. dollars)

Revenue Category	Canton of Kantche, 1956[1] (N=182)		Maradi, 1962[2] (N=113)	Maradi, 1965[3] (N=34)		Canton of Dogo, 1978[4] (N=15)		Canton of Mirria, 1979 (N=14)		County of Tanout 1977[5] (N=46)		County of Matameye, 1977 (N=42)	
		Percent	Percent		Percent		Percent		Percent		Percent		Percent
Agricultural Produce	13.20	27	41	46.34	33	161	21	76	4	56.88	17	38.22	9
Livestock	2.80	6	3	2.96	2	325	42	237	12	38.66	11	54.44	12
Crafts and Commerce	21.20	44	35	57.30	41	144	19	1204	63	75.10	22	115.55	27
Gifts and Loans	11.20	23	21	34.16	24	63	8	362	19	82.66	24	101.78	24
Other						75	10	36	2	89.33	26	119.11	28
Total	48.40	100	100	140.76	100	768	100	1915	100	342.63	100	429.10	100

(1. Nicolas 1962; 2. Malnet and Nicolas 1965; 3. Nicolas, Doumensche and Dan Mouche 1968; 4. Arnould 1982a; 5. Sutter 1982.)

TABLE 3 - EVOLUTION OF HOUSEHOLD BUDGETARY EXPENDITURES

(In U.S. Dollars)

Expenditures Category	Canton of Kantche, 1956[1] (N=182)	Maradi, 1962[2] (N=113)	Maradi, 1965[3] (N=34)		Canton of Dogo, 1978[4] (N=15)		Canton of Mirria, 1979 (N=14)	
	Percent	Percent		Percent		Percent		Percent
Food	25	24	4	3	315	40	557	24
Adornment	} 19	} 18	19	14	147	19	343	15
Household			14	10	42	5	166	7
Gifts	45	34	77	57	89	12	768	33
Investments	9	12	21	16	186	24	475	21
Other	2	12	0	0	0	0	0	0
Total	100	100	135	100	779	100	2309	100

(1. Nicolas 1962; 2. Mainet and Nicolas 1965; 3. Nicolas, Doumenscha and Dan Mouche 1968; 4. Arnould 1982a.)

Since agricultural production cannot in many cases meet household cash needs, it is not surprising to see that other elements of peasant production now enter the market system with greater frequency and move through it with increased velocity. This explains the dramatic increase in the importance of livestock sales in farming unit revenues. In the late 1970s, 42 percent of household income in one village in Dogo canton derived from livestock sales, and Sutter (1982:186) reports that 65 percent of total animal offtake in the village studied in Matameye country was destined for the market. It should be borne in mind that these livestock are individually owned, not collectively owned like farmlands, and thus the greater importance of livestock in household budgets is both a causative factor and a symptom of the oft-reported individuation of the household economy.

Perhaps the most striking feature of Table 1 is the importance of the "Other" category in contemporary revenues. In the villages studied by Sutter a major component of this category was revenue from seasonal wage labor. His remarks on the subject are telling (1982:188-191):

> Migration today has become one of the most lucrative strategies that peasants employ to earn the cash of which...they have such great need. As commodity production thus becomes, of necessity, internalized into the household reproductive cycle, it is inevitable that peasants begin to sell...one of their principal resources, i.e., labor power, in order to obtain their basic necessities. That these sales occur while peasants still control their basic means of livelihood (i.e. land) is a reflection that the process of transition to capitalism is far from complete, although...this last great resistance to the total commodization of the domestic mode-of-production is being eroded.

Some households, such as those studied in the village of Mirria canton, have found the returns from agriculture on their increasingly fragmented landholdings are too low to sustain them purely as farmers. They have therefore specialized in pottery production to earn money not only for basic necessities, but to pay for agricultural labor which permits them to farm what little land they do have more intensively and to buy or rent additional plots in the hope of achieving a scale of agricultural activity that will provide an adequate return.

Table 3 presents data concerning household expenditures, and illustrates a number of trends indicative of the increasing commodification of the domestic economy. The data are persuasive about the increase in the proportion and amount of household income spent on basic foods as a result of declining productivity and diversification of income earning strategies. Many of the same households which sell cereals at harvest in order to obtain cash to buy clothing, celebrate marriages, and cover other expenditures return to the marketplace later in the year to buy cereals at the higher prices which prevail as the dry season wears on.

The scramble for cash is accompanied by a decline in solidarity at the village level, nowhere more eloquently seen than in the decline in the proportion of household expenditures spent on gifts. This fundamental integument of village solidarity in the West African Sahel (Raynaut 1973; 1976; Meillasoux 1982) is being eroded as relatively more money must be spent on food, and increasingly is used to make calculated productive investments in livestock and agriculture.

Although the relative share of household expenditures on gifts has declined in some cases, it has increased in absolute terms. This is evident in Mirria canton, where almost $800 per household was spent on gifts in one village. The inflation of gift expenditures which most certainly detracts from the household's potential to invest in agriculture, derives in part from the emulation of elite, urban consumption habits observed by male migrants, but also reflects the changing conceptions of wealth in rural society. Where once the control of labor through interpersonal ties (arzikin mutane) was the ultimate measure of wealth, today control of money (arzikin kud'i) and the consumption goods it provides is increasingly the standard of wealth and prestige employed (Nicolas 1969). Table 3 also shows that household expenditures on productive investments consume a relatively and absolutely larger share of household budgets than was formerly the case. A more detailed breakdown of the types of investments found in two villages proves instructive:

TABLE 4

Sample Annual Household Invetments, Rural Zinder, 1978-1979

(in U.S. Dollars)

Investment Category	Canton of Dogo (N=15)	Percent	Canton of Mirria (N=14)	Percent
Livestock	$ 83	45	$224	47
Agriculture	35	19	24	5
Groundnut Loans	19	10	.2	0
Craft Goods & Raw Materials	24	13	81	17
Labor	18	10	8	2
Loans	6	3	138	29
TOTAL	$185	100	$477	100

These data must be interpreted with the utmost care since they represent information gathered from but two of Niger's thousands of villages. However, it is suggestive of a probable declining role of groundnuts in the rural economy as well as of the importance livestock has come to assume as a store of wealth and an investment for the future. Whereas groundnut production was

tied to the needs of a distant and alien metropole, farmers are now anxious to profit from the Nigerian livestock market.

Table 4 also shows that there is considerable variety in investment priorities even between two communities. Agriculture per se is not where the smart money goes in either village. In the Mirria canton village, intensified cash pressure due to fragmentation of landholdings has led villagers to specialize in pottery trading. Cash derived from the trade is often lent out, or invested in strengthening the ever more tenuous bonds of inter-household reciprocity through ceremonial exchange. In one of the villages Sutter studied, farmers were heavily involved in a livestock fattening scheme. Research conducted in other villages in Zinder provided evidence of other differences in investment priorities, between villages, between men and women, and between younger and older adults (Henderson 1983).

The increasing commodification of the rural economy, and the growing importance of cash as a means to purchase food and as a component of household investment strategies is underscored by research on the marketing systems of Niger (Arnould, in press, a, b). Niger's periodic markets move substantial quantities of basic foods and other goods, and move the former relatively efficiently as judged by comparing annual inter-market price series. The government controlled marketing organizations are far less effective (Stewart 1978). The number of weekly periodic markets has tripled since 1900 to handle the increased volume of sales, and these markets are growing steadily. Nonetheless, no more than 25 percent of the 1400 traders interviewed in 1978-1979 in Zinder's markets considered themselves specialists; the true number may be lower. Fifty percent of them had been active in trade for less than ten years at the time of the study, i.e., since the drought of 1968-1972. Most of them claim to be cultivators or herders seeking to earn cash through (often speculative) market transactions. They indicate that their primary sector activities no longer provide them with an adequate livelihood.

The "involuted" and speculative character of the trade can be illustrated with some other data. Few traders held large inventories, and often bought and resold goods in the same market in a single day. It is rare for goods to be held for any length of time, where they might profit from market price fluctuations. Due to competition, and the poor quality of market and transport infrastructure, profit margins are generally narrow, no more than 15-25 percent in most cases. It seems that more and more part-time traders are competing for a decreasing share of the limited "surplus" in the country. Although these findings are based on research conducted in Zinder, they were echoed by researchers working in Maradi and Tahoua Departments who were conducting regional market studies at the same time as the University of Arizona study was being conducted (Arnould personal communication).

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Interviews with over 800 consumers in Zinder's markets were also of interest. They showed that residents of the farming zone were more regular market visitors than residents of the livestock production zone (and we assume are therefore more market dependent). These interviews also showed that the vast majority of consumers were also sellers; most brought something to market, usually cereals, to sell in order to obtain cash to finance other purchases. Year round selling, and sales of subsistence stocks to finance the purchase of other necessities are comparatively recent phenomena brought about by the chronic liquidity shortage in the countryside.

THE SPATIAL ORGANIZATION OF AGRICULTURE

Ecology[2]

A. Land Use Potential and Constraints. Available official data on land use potentials in Niger as of 1977 are summarized in the Introduction (p. 18). The Niger government classifies about 15 million hectares of its total area as potentially fit for cultivation. Another 15 million hectares counted as "agriculturally useful" are actually considered useful "only for seasonal pasturelands and a vegetative reserve covering soils too poor for productive activities" (USAID 1981:1).

The Niger government estimated that only 3,129,000 hectares, or about one-fifth of the "arable land," were under rainfed cultivation in 1977. About 31,000 hectares were reported to be under irrigation, with only 5,000 hectares under "modern management" (Ferguson 1979:2). Detailed data from local studies in both Zinder and Maradi Departments suggest that official estimates of the area under cultivation are far too low. The University of Bordeaux studies in Maradi Department estimated that 35.9 percent of the total area was under cultivation, while the Ministry of Rural Development (MDR) estimate was 12.6 percent. In Zinder Department, the University of Arizona calculated from remote sensing data that 15,000 km^2 were under cultivation while the MDR figure was 10,400 km^2 (Enger 1979b:9), and on yeild per hectare collected in Zinder in 1978-1979 were substantially below official figures (Arnould 1982a). As noted in the section on population growth above, these figures suggest that official estimates of yield per hectare are also too high and that official views on land available for further expansion of cultivation are overly optimistic.

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2 Much of this material is outlined in the Introduction to the Socio-Institutional Profile, pp. 9-22 and pp. 31-38.

Rainfall and soil fertility are the most limiting factors in the agricultural use of Niger's land mass under prevailing technological conditions. Only about one-fourth of the nation usually receives annual rainfall of 300 mm or more. Both total rainfall and its distribution over the four to five month rainy season are subject to wide year-to-year and geographic fluctuations.

Recognizing both the rainfall constraint for agriculture and the importance of livestock in the national economy, the Niger government has established an official "limite nord des cultures," or northern limit of farming, which follows approximately the 300-350 mm rainfall isohyet. In principle, the area north of the limit is closed for cultivation and reserved for grazing. However, local studies show that farmers continue to move northward beyond the official limit, despite the enormously risky nature of crop production in this zone (Eddy 1979).

Soils form another limiting factor for crop production. Much of Niger's cropland is made up of relatively poor soils. For millet production, farmers have preferred light sand soils (jigawa) which are easier to work with traditional hand tools over more fertile but heavier soils. These heavier soils are difficult to work with the sunqumi sowing tool, and the iler weeding implement, one of the basic tool kits of the Nigerien farmer. In northern Nigeria it has been found that it takes 137 percent more man hours of labor per hectare to cultivate wet lowland soil (fadama) than lightly upland soils (jigawa) (Norman, Simmons and Hay 1982:117).

B. Ecological Zones. In the current five-year plan, the Niger government distinguishes six major ecological zones based on rainfall, soils, land use, and water resources. One of these is the pastoral zone, which is geographically distinct, lying north of the agricultural zones. The five remaining ecological zones all include some cultivated areas. One is a category distinguished by favorable water resources, scattered across the three agricultural zones described above in the form of valleys, goulbis, and other lowlands. Another category, also scattered across the agricultural zones, is distinguished by its poor soils. The remaining ecological categories reflect rainfall and population density, forming roughly east-west bands across the nation.

The distribution of these ecological zones is shown in the departmental land-usemaps (Introduction, Annex I). Major features of the five zones which play some role in crop production may be summarized briefly (v. République du Niger 1980:535-545).

(1) A transitional zone ("zone de transition") between the pastoral zone to the north and agricultural areas to the south. This zone follows the northern limit of cultivation, with an average of less than 350 mm of rainfall per year. Although more suitable for herding than for crop production, cultivated areas have been pushing northward into this area.

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(2) A zone of low agricultural potential ("zone à faibles potentialités agricoles"), which covers large areas in Niamey, Dosso, and Tahoua Departments and scattered areas in Zinder and Diffa Departments. It is defined primarily by the low agronomic value of its soils, but also has poor water resources. Nevertheless in years of normal rainfall significant amounts of millet are produced in this zone.

(3) An agro-pastoral zone ("zone agro-pastorale"), which includes the southwestern corner of the nation (parts of Niamey and Dosso Departments), a wide band across Maradi and Zinder Departments, and small areas in Tahoua and Diffa Departments. Medium to good rainfall, dune soils of medium fertility, and the presence of large numbers of livestock characterize this zone. The possibility of an association of crop and livestock production is the defining characteristic; manure is available for soil improvement, and livestock finishing activities using agricultural by-products are possible here. However cultivation tends to be extensive rather than intensive, and the expansion of cultivated areas threatens to leave insufficient pasture areas.

(4) A critical agricultural zone ("zone agricole critique"), including the southern portions of Zinder and Maradi Departments, and parts of Dosso, Tahoua, and Niamey Departments. It includes, for example, the Dallol Bosso, the northern Dallol Maouri, and the Maggia region. The Niger government sees this as the "critical" agricultural zone because it is at high risk of serious ecological degradation: very high population densities (often 50-60 per km^2) and semi-permanent cultivation of fields without adequate fertilization and manuring result in soil exhaustion. Lack of pasturelands limits the ability of this zone to support livestock which would provide manure for use on fields; this in turn reflects the near disappearance of fallow. Although historically this zone has been the most agriculturally productive area of Niger, a "downward spiral" has begun which calls for priority government intervention to stop the decline and begin the long-term process of restoring a balance.

Pastoral-nomadic and sedentary relationships have often been described as "symbiotic," an element of which is the exchange of manure for fodder as herders pasture their animals on cropped grain fields after the harvest (Horowitz 1972 and 1977). The annual manuring contributed to the refertilization of the fields and to their long-term stability and productivity. In recent years, many farmers have begun to reap the stubble themselves, either to use for stall-feeding of livestock or to sell to others who have invested in animals. Their fields are consquently unattractive

to herders, who no longer find on them adequate post-harvest graze for their animals. The loss of annual manuring is reflected in declining yields despite the general adequacy of rainfall.

(5) A lowlands zone of valleys and goulbis with irrigation potential ("zone des vallées et goulbis"). This zone includes the valley of the Niger River, the borders of Lake Chad, and smaller areas in other departments including the Koroma cuvette (Zinder Department) the Komadougou valley (Diffa Department), the Traka valley and an area in Konni (Tahoua Department), the valley of the Goulbi of Maradi, scattered oases in Agades Department, and a few other places. Fertile soils and the availability of good water for all or most of the year define these areas. Both "modern" capital intensive irrigation schemes and small-scale indigenous irrigation are essentially limited to these areas. The Niger government sees a large potential for increasing the areas under modern irrigation, although some specialists are less optimistic that this increase can be cost beneficial. These policy issues are discussed in the section on Irrigated Agriculture in this Socio-Institutional Profile. In the past, development of modern irrigation systems has resulted in farmers' loss of political and economic control of their lands, often with unforeseen effects on household and village dynamics (Olivier de Sardan 1969; Keita 1975).

The University of Bordeaux team has distinguished three major subdivisions in Niger's agricultural zone based on their research in Maradi Department (Koechlin 1977):

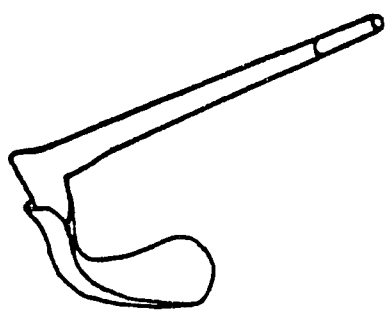
(1) The southern zone, located roughly between Route Nationale 1, the principal east-west road in the country, and the border with Nigeria. This zone receives average rainfall in excess of 550 mm per year (although it drops about 100 mm in Zinder Department, and declines even further in Diffa Department, which is therefore functionally if not geographically outside the zone.) The Maradi portion of the zone is the major groundnut producing area in the country, with regular expansion in the amount of land devoted to the crop from the 1930s through the 1960s. There has been a substantial decline in groundnut production since the 1968-1973 drought, due in part to continued erratic rainfall, the end of price-supported purchases by France, and to attacks of pests and plant diseases (Péhaut 1970; Franke and Chasin1979). The southern zone has the highest population densities and the smallest area cultivated per active worker of the three zones.

(2) The intermediate zone, which receives an annual rainfall of 400 to 550 mm, again less in Zinder and in Diffa. This is the prime area for millet cultivation, and population densities are high, sometimes reaching 40 to 50 persons per square kilometer (although they are lower than in the southern zone where a high of 67.1 person per km^2 has been reported for Matameye arrondissement [Sutter 1979:19-20]).

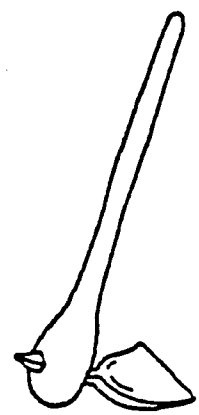
(3) The northern zone, where the annual rainfall is less than 400 mm. Low and erratic rainfall make this a high-risk area for agriculture. Cultivators sow large areas in the hopes of having an adequate harvest, and therefore this zone has the largest cultivated area per active worker. Most settlements in the northern zone have been established since about 1930, as land in more favored regions becomes scarce. Population densities are lower than in other parts of the agricultural zone, as are yields per unit land.

While these three zones identified by the Bordeaux research group have the general geographic distribution indicated by the terms "southern," "intermediate," and "northern," in fact, each of them contains sub-areas that, due to local variations in rainfall, soils, ground water, and flora, would appear to be characteristic of the others.

C. Agronomic Zones. Nigerien farms have developed distinctive agronomic systems for utilizing the different agricultural zones. One is based on rainfed cultivation of light, sandy soils; the other involves dry-season irrigated cultivation of heavier soils in low-lying areas. These production systems differ in seasonality, in crops, tools and techniques, as well as soils. Millet, cowpeas, groundnuts, and, where precipitation allows, sorghum are cultivated on sandy upland soils. Orchards, sugar cane, vegetables, and other specialty crops are produced on the heavier soils. Among the Hausa, cultivation of an upland, sandy field (a gona) is called noma, and is associated with the iler, a long-handled cultivating tool that hardly penetrates the soil. (The iler is found historically and archeologically in all the Sudanic states, stretching from Gao on the Niger River in modern Mali, through the Hausa bokwoi, Bornu, Kanem, Wadai, Darfur, Kordofan to Funj in the Valley of the Nile.) Cultivation of an irrigated garden plot (garka) is called kaptu, and employs the short-handled hoe (fartanya) and hand plow (kalmi).

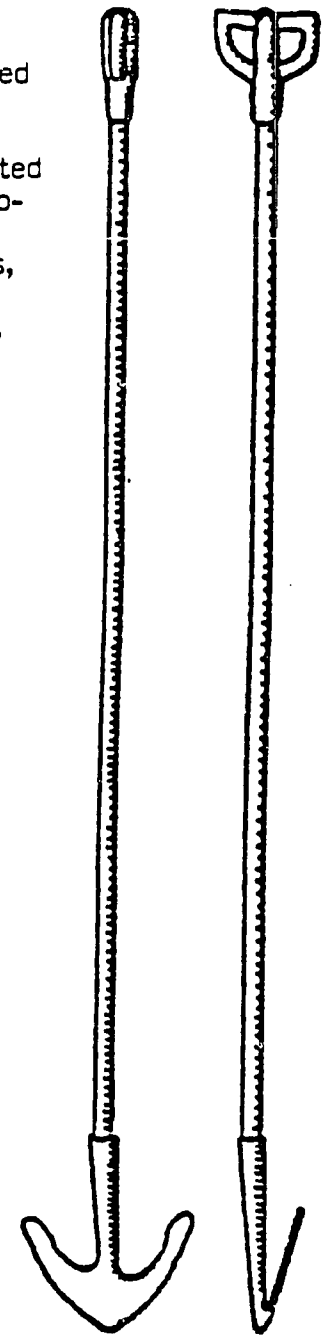


kalmi



fartanya
or kwasne

(Mainet and Nicolas 1965)

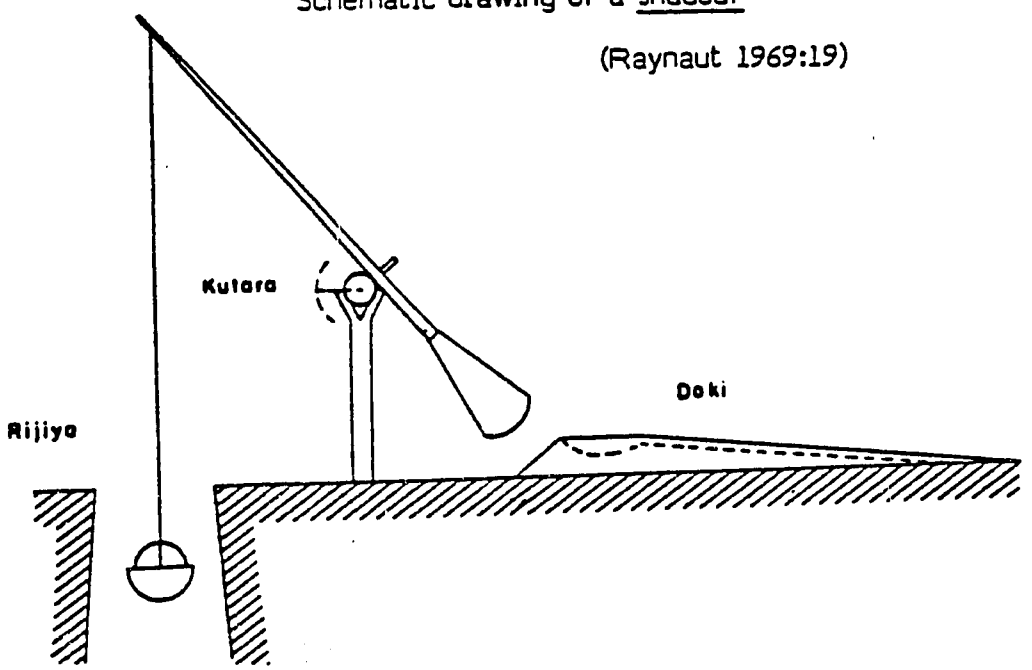


iler (Raulin 1963)

(Along with non-agricultural activities in trade and crafts, kaotu was once regarded as a separate occupation or sana'a, but this distinction appears to have little current significance [Koechlin 1977; Nicolas 1960; Saunders 1980]). Today, Hausa men are increasingly active in gardening, whenever suitable land (fadama or marshy lowlands) and marketing outlets for garden crops, especially in northern Nigeria, coincide. Manga and Mobeur men and women garden, especially where fields in proximity to the Komadogou Yobe can be irrigated using the shadouf.

Schematic drawing of a shadouf

(Raynaut 1969:19)

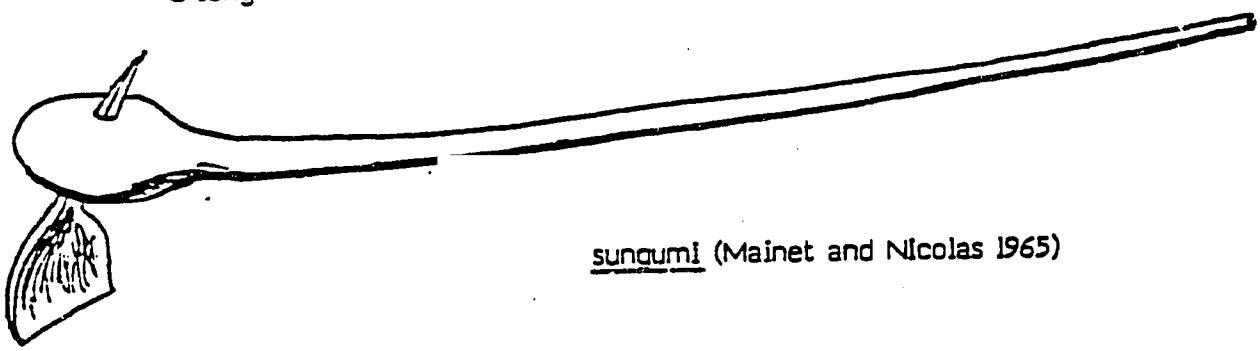


Gardening is also becoming an important activity among the Zarma, although it is reported historically that Zarma men did not garden.

Hoe cultivation is often also associated with the ridge technique on upland fields. If properly employed (meaning ridges are aligned with the topography) the ridge technique serves to concentrate topsoil enriched with ash and plant residues around the plant roots, protects against soil erosion on slope contours, and improves aeration of plant roots during the height of the monsoons by providing drainage. Ridges can easily be cross-tied to conserve water and soil for groundnuts, tubers and bulbs (Raulin 1963; Norman, Simmons, and Hay 1982:50). This technique involves greater disturbance and manipulation of the soil and may trade off short-run increases in productivity for long-run soil exhaustion if fertilizers are not applied to restore base fertility and thence-

forth to maintain it. Chemical fertilizers which are prone to leaching during the rainy season on less disturbed soils may more successfully be employed with this technique (Norman, Simmons and Hays 1982:59).

The iler or hawya technique, employed extensively in the west of Niger and throughout Zinder and Diffa Departments is less labor intensive than hoe cultivation. It takes half the time, say 20 hours, to cultivate a hectare with the iler in comparison to the hoe. The technique makes use of a long-handled implement with a crescent-shaped blade some 15 to 25 cm long mounted transversely to the handle used for weeding and a long-handled hoe-like implement, called sunqumi in Zinder, for planting.



sunqumi (Mainet and Nicolas 1965)

Neither implement requires the farmer to be bent double as does use of the short-handled hoe. In addition, both tools are commonly employed on light sandy soils, on previously cleared land, and/or on the out-fields of the concentric rings of fields around each village. The hawya, is pushed along ahead of the farmer, the blade a few centimeters below the soil surface. It clips off weeds at the root, and minimally disturbs the fragile, erosion-prone dune soils. Weeds are left where they fell to preserve soil humidity and hinder additional weed growth. The iler technique may extend the long-term productivity of these soils at the cost of lower per hectare yields. Application of organic fertilizers which break down more slowly and are less prone to leaching is recommended for use with this technique and is an extension of actual practice. This involves cutting the grain stalks and leaving them in the field to decompose along with the root clumps which are left in the soil (Raulin 1963:36; Norman, Simmons and Hays 1982:56). Increased livestock production among sedentary farmers has meant that these crop residues are now sometimes removed from the fields and used as fodder to the detriment of soil fertility.

Raulin (1963) considers that the more intensive system of hoe cultivation requires greater interaction between the farmer and his/her environment and entails a consequent transformation of his/her concept of agriculture as a year-round activity requiring continuous long- and short-term planning (Raulin 1963:38). Such a step might be encouraged as a prelude to more mechanized agriculture. Norman, Simmons and Hays (1982:59) point out that given limited development funds, increased costs of fossil

energy, and the fact that many Sahelian farmers have not willingly adopted the technologies proposed to them, efforts that aim solely at modifying the physical environment in this region to fit desired cultigens are ill-advised Farmers in Niger indeed seem to have been more receptive to approaches which have changed the physiology of crops (such as shorter cycle, drought- and pest-resistant seed varieties) and to integrated pest management (ranging from barbed wire fencing to aerial spraying) to fit crops to the environment, than to modifying the environment to fit the crops. These authors suggest that this emphasis be adopted in future agricultural development schemes. They believe that hand-operated and mechanical technologies which facilitate these processes, rather than animal traction schemes, seem more likely to succeed and to contribute to agricultural productivity in the long run for the majority of rural farmers.

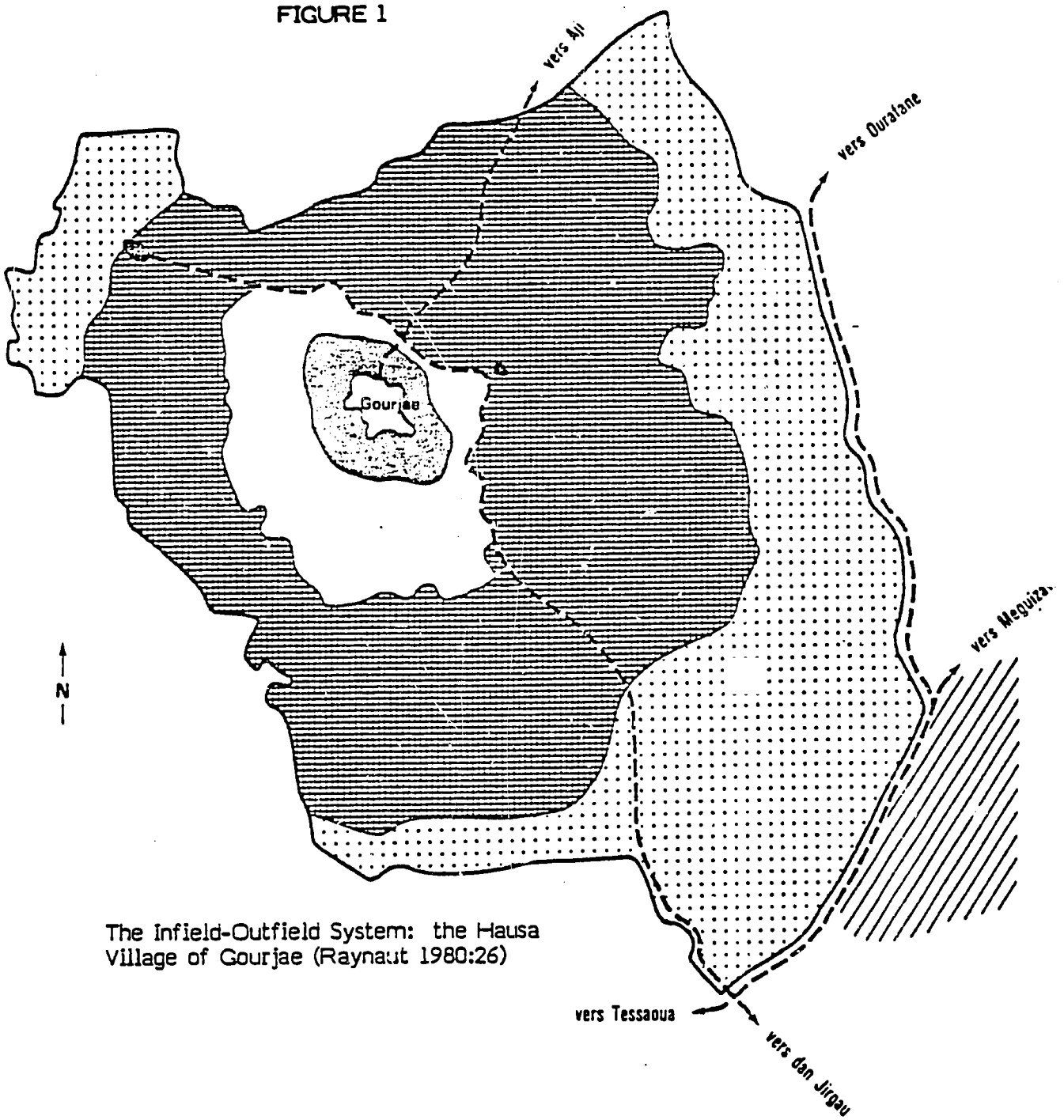
THE ORGANIZATION OF VILLAGE FARMLANDS

The "Infield-Outfield" Pattern

Throughout semi-arid West Africa, small farmers distinguish at least two kinds of rainfed agricultural fields in terms of their distance from the village (or from the household compound in areas where the people live in dispersed rather than in nucleated settlements): the "infields" are in close proximity to the settlement; the "outfields" are at some distance from it, in the "bush." This spatial distribution of farm plots is characteristic of all the sedentary peoples in Niger. Stier (1980) reports the pattern among Zarma peasants and Horowitz (1971) among Manga peasants. But it is best described among the Hausa (Raynaut 1973; Hill 1972; Norman, Simmons and Hays 1982), where lands are organized into roughly concentric rings surrounding the village. Each land-holding individual and household typically has a number of fields, and each parcel is subdivided among the heirs when the landholder dies, such that there is increasing fragmentation with each generation. Figure One presents an example of the pattern from the University of Bordeaux studies in Maradi Department (Raynaut 1980:26); it is clearly visible in the excellent aerial photographs of Niger available from the Institut Géographique National in Paris (v. Raulin 1963), and in remote sensing imagery (Reining 1980).

"Infields" are cultivated more intensively than "outfields." Farming units with access to enough fields in the inner ring may have no farms at all in the outer ring of bush fields. Other households, usually those of young men, poor men, and strangers or immigrants, have little or no land in the inner zone, and rely entirely on the bush fields. Indeed, relative ease of access to infields is a determinant of post-marital residence, since the new couple may elect to live where more productive land is to be had. (Senechal [1973] documents this residence strategy among Gourmanche in extreme eastern Upper Volta and, ostensibly, in westernmost Niger). Most farming units have some plots in each zone.

FIGURE 1



The Infield-Outfield System: the Hausa Village of Gourjae (Raynaut 1980:26)

Karkara

Regularly manured zone

Occasionally manured zone

Maiso

Heavily cultivated short-fallow zone

Long-fallow and pastoral zone

Zone cultivated in common with two other villages

Livestock migration corridor

Rainy season ponds

Scale: 1/60,000

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Fields in the inner zone are regularly fertilized with human and animal manure, and thereby are in almost continuous cultivation. (Dogon farmers in Mali on the Seno plain increase the manuring by penning livestock on the fields closest to the household during their infrequent fallow periods.) Manure is not carried to fields in the outer ring, although they receive some manuring when the cropped stubble is grazed. As long as enough land is available, these fields are left fallow to restore their fertility after a period of cultivation. Recent demographic pressure on the land is leading to a progressive shortening of the fallow periods, and therefore to erosion, degradation, and declining yields.

In Mirria county, Zinder Department, it is believed that ideally a field should be successively cultivated for no more than five years and that millet and sorghum should be rotated with groundnuts and cowpeas during this period. The field should then be allowed to rest for four years. Thirty currently fallow fields in one village studied had in fact been cultivated for an average of nine consecutive years, and had then lain fallow for the prescribed four years. Sometimes fallowing is provoked by insufficient local rainfall in a given year. As for rotation, a common practice today is to vary the location of patches of the major cultigens within any given field during the period of cultivation (Arnould 1982a:412), which is effectively a kind of crop rotation.

Fields in the inner and outer zones are known by different terms. Zarma cultivators in the Ouallam area distinguish koiratie infields, forming a ring 1.2 to 2.0 km around the village, from zigi bush fields further off. Small gardens near the compound are called kali, and are fertilized with ashes and household wastes (Stier 1980:17). In the Dallol Bosso, FulBe farmers distinguish ouinde, manured fields adjacent to the compound, from guessa or balanga, cultivated fields which were not manured (Ibid.:30). The corresponding Hausa terms in the Maradi area are karkara ("manured fields") and maiso ("bush fields"). Swanson (1978) has presented a superb outline of the complex Gourmanche land classification system.

For the farming unit, a system of scattered parcels offers certain advantages. Holding fields in various locations reduces the risk of total crop failure, as rainfall, insect attacks, damage from livestock, and so on, may vary from field to field even within a radius of a few kilometers. Scattered fields may also take advantage of different soil types included in various sections of the village lands (Arnould 1982:413). There are also a number of disadvantages. These include the additional travel time spent walking to and from fields, transporting inputs and harvests, etc. In addition it is more difficult to make efficient use of animal traction, long promoted by Nigerien extension agents with little result: even when the total size of holding is large enough that animal traction might prove profitable, it is more difficult to use animal traction on small, irregularly shaped plots.

At the community level yet another disadvantage can be seen: not only has the proportion of the total area left fallow been decreasing in many farming villages, but scattered fallow fields are often surrounded by cultivated areas. Hence they may be inaccessible to livestock, despite the pressing need for rainy season pasture if livestock are to be maintained in the village community throughout the year. The inner ring of continuously cultivated fields suffers when pasture disappears, since this entails the loss of the manure necessary for maintaining soil fertility. Although regrouping of fields into consolidated farm holdings has been suggested, farmers have generally opposed this approach for the agro-ecological reasons cited above (Raulin 1963; Raynaut 1980:64).

An Alternative Land-Use Pattern

Although the infield-outfield system of scattered parcels is by far the most common pattern of field organization in Niger, it is not the only one. The Bouzou or Bugaaje in particular developed a distinctive pattern of land tenure, unusual for West Africa, which some observers attribute to their efforts to combine herding with farming.

The following description follows Thomson (1976:261-264), Nicolas (1962) and Franke (1982:14-17). Thomson's work is based on field research in a canton in Mirria County, south of Zinder; Nicolas studied a Bouzou village 70 km west of Zinder. This system was also observed among semi-sedentary FulBe in Doga canton, south of Zinder in the late 1970s. The favorable impact on yields there was evident to Hausa observers (Arnould personal communication). Franke's analysis is based on Nicolas' field research.

To cite Thomson:

> Bugaaje land tenure creates incentives which promote enclosure. Among these are substantial economies in fencing, low cost, convenient control of livestock movement, and efficient coordination of farming and herding activities. Their land tenure organization enables the Bugaaje, without extra effort or cost, to concentrate most of the manure generated by their livestock directly on the fields where it will most improve agricultural productivity (1976:261).

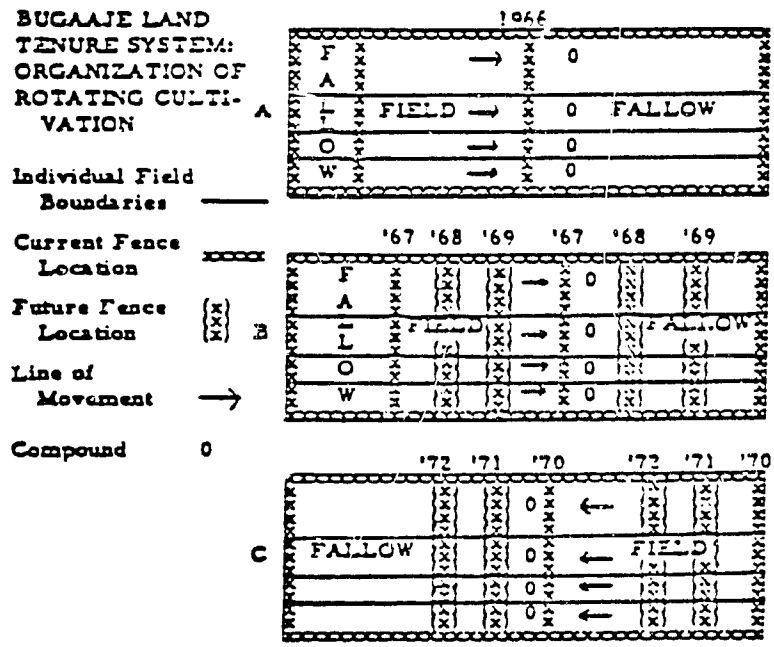
The basic elements in this system of organization are as follows:

> Each family lives on its own field, a long narrow strip of land aligned with similar strips in a parallel rank. Each constitutes a quarter in a village, entirely surrounded by a thorn fence. This exterior fence is gradually constructed by the first owners of the two outside fields of each quarter, as residents annually clear new land at the head of their fields, while fallowing a similar amount at the rear of the cultivated portion. Once constructed, the exterior fence can be maintained with minimal effort by periodic patching (Ibid:262).

Figure 2 illustrates the Bugaaje pattern as it operated in the late 1960s and early 1970s in Zinder Department, in clear contrast with the system of concentric rings described above.

FIGURE 2

THE BUGAAJE LAND TENURE SYSTEM



(Thomson 1976:263)

During the dry season, livestock graze over the entire area; at night animals are tethered near their owners' compounds. As Figure 2 illustrates, each year compounds are moved further back into the fallow portion of the long, narrow fields. This allows the heavily manured area where animals were staked during the previous dry season to be cleared and planted. An interior fence, which is also moved each year, separates the fallow portion from the portion under cultivation; the fallow area provides rainy season pasture for the livestock. In this way it is possible to keep many livestock right in the village for most of the year, although Nicolas (1962) noted that herds were taken to another area for grazing late in the dry season. In cases observed in Zinder in the 1970s, herd sizes seemed to be on the order of 25 beasts per households. But herd size was flexible because each herd was made up of the animals of different household. Sub-herds might be split off to be moved to other pasture at different seasons in order to adjust herd size to available forage.

This close association of farming and livestock activities in turn retards the decline in soil fertility over the total Bugaaje landholdings more than is typically the case in the Hausa system. However, external pressures were beginning to have an impact on this pattern even at the time of Nicolas' research. Franke has pointed out the increasing monetary pressures due to taxes and consumer spending patterns which affect Bugaaje as well as other Nigerien farmers. He also noted the negative repercussions of increasing land pressure outside the Bugaaje village, which reduces fallow fields and uncleared bush available for pasture nearby (Franke 1982:17). Thomson found the system still working in Mirria County in about 1970, but by 1982 continued population growth with little or no room for expansion of village lands had resulted in fragmentation of the long, narrow strips and the system's breakdown (Thomson 1982).

Despite its current decline, the system is of continuing interest as an indigenous model for integrating farming and livestock activities making use of closely grouped fields rather than scattered parcels.

NIGERIEN FARMING UNITS

Towards a Typology of Farming Units

Over the past decade agricultural development specialists have become aware of the range of variation in the internal organization of farming units and no longer credit the assumption of rural homogeneity whereby any individual unit is representative of the whole. The notion of the "average peasant" or "average household" is being replaced with more detailed typologies of farming units based upon significant variables in Third World agriculture. The number of people in a household, the age and sex composition of the group, and its organization as an extended or nuclear family, are fundamental differentiating factors in farming behavior at the level of the productive group in Niger (cf. Norman, Simmons, and Hays 1982:109). But many students of farming systems in the Sahel have stressed the increasing differentiation and indeed stratification of farming households in terms of their access to resources.

Table 6 provides data assembled from a number of village studies (Sutter 1979:21-22) on some characteristics of farming units in terms of the ecological zones outlined. The average area cultivated per household ranges from a high of 16.9 hectares in one northern zone village, to a low of 5.2 hectares in a southern zone village; but another northern village showed an average of just 6.6 hectares per household (based, however, on a very small sample). Area cultivated per active worker falls between 1.3 and 2.0 hectares in four of the villages, but reaches 4.4 hectares in one northern village. The diversity seen here and in other studies indicates the need for caution in extrapolating to larger regional or geographical units on the basis of village level studies alone. Ethnicity, local historical events, and ecology affect settlement patterns and the availability of land, for example, which in turn affect the average size of holdings for local farming units.

TABLE 6

CHARACTERISTICS OF FARMING UNITS BY ECOLOGICAL ZONE[a]

	Southern Zone More than 550mm[b] of rainfall		Intermediate Zone Between 550 and 400 mm of rainfall		Northern Zone Less than 400mm of rainfall	
	"Y"[c] (Zinder)	Magami[d] (Maradi)	Sarkin Haoussa[e] (Maradi)	Maidoki[h] (Zinder)	"Z"[f] (Zinder)	Dan Koulou[g] (Maradi)
Area cultivated per HH	7.4 ha (NA)	5.2 ha (NA)	10.5 ha (4.3)	9.7 (NA)	16.9 ha (NA)	6.6 ha (3.0)
No. of fields per HH	7.4 (NA)	NA	NA	2.8 (NA)	2.4 (NA)	NA
Average area of a field	1.0 ha (.8)	NA	NA	5.19 (NA)	7.2 ha (5.8)	NA
No. of people per HH	6.9 (4.9)	7.6 (3.7)	9.0 (3.3)	7.8 (NA)	6.5 (2.8)	NA
No. of active adults per HH	4.0 (NA)	4.4 (2.4)	5.3 (2.4)	2.7 (NA)	3.8 (NA)	5.0 (1.5)
Area cultivated per active adult	1.9 ha (NA)	1.3 ha (.25)	2.0 ha (0.6)	3.5 (NA)	4.4 ha (NA)	1.4 ha (0.7)

Notes and Sources:

(a) The data presented here are averages, with the standard deviations in parantheses

(b) The isohyets used to define the three ecological zones have been calculated using rainfall data from 1960 to 1977, and therefore include the drought years of the early 1970s. When these drought year data are included, there is of course a considerable shift southwards of the isohyet. A rough 1960-1977 mean for each village is: "Y" = 555 mm; Magami = 560 mm; Sarkin Haoussa = 440 mm; "Z" = 265 mm; Dan Koulou = 322 mm.

(c) Data collected for 44 households, representing 327 fields, Village "Y", Matameye Arrondissement (Sutter 1982).

(d) Magami data for 8 households, representing 62 fields (Miranda 1979:10, 67).

(e) Serkin Haoussa data for 7 households, 83 fields (Miranda 1979: 10, 67).

(f) "Z" data (Tanout Arrondissement) for 48 households, representing 115 fields (Collion 1982).

(g) Dan Koulou data for 6 households representing 34 fields (Miranda 1979: 10, 67).

(h) Maidoki data for 23 households representing 46 fields (Arnould 1982a:312, 317, 411, 423; Sutter 1979:21, 22). Note the similarity to "Z".

A. Primary and Secondary Enterprises. A typology of farming units useful for development planning must reflect the differences in responsibilities, production objectives, decision-making powers, assets and resource endowments of different farming units. The dichotomy between farming units responsible for meeting the basic subsistence needs of their members and those which do not carry this responsibility provides a starting point. Adopting terminology suggested for Senegal, these may be termed "primary" and "secondary" enterprises respectively (see Kleene 1974; Lallamand 1977; Saunders 1980). Nigerien farming units may be further distinguished by their access to land and labor, the crucial factors of production in West African smallholder agriculture, given the lack of capital at their disposal. The lack of capital is a result of taxation, marketing policies, and consumption habits (Charlick 1974; Spittler 1979; Nicolas 1970; Stewart 1978; Collion 1982; Sutter 1982).

The primary enterprise/secondary enterprise distinction is based on differences in goals and responsibilities among farming units. Individuals engaging in secondary farming enterprises already meet their basic subsistence needs as participants in a primary farming unit. Secondary enterprises usually consist of the private farming activities of single individuals such as wives and dependent sons. Although occasionally individuals may cooperate to work on each other's private plots, yields are usually privately owned and they often provide cash income.

Primary units vary in organization. They include, but are not limited to, extended family farming units such as the Hausa gandu unit. Nuclear families and even solitary individuals frequently form primary farming units when they must independently meet their own subsistence needs. In two villages in Zinder only 55 and 54 percent of the households were of the extended family variety (Arnould 1982a:312). Lallemand has described a single large Mossi compound in Upper Volta whose 35 members formed six distinct primary farming units: one extended family group, two formed by nuclear families, and three "solitary" units made up of a single active worker each (Lallemand 1977). Even when a primary farming unit includes just one active worker, it differs from a secondary unit in that the farmer must allocate his or her labor, land, and capital, not to maximize personal cash income but to provide for staple food needs and essential cash obligations such as taxes.

The members of large primary farming units are particularly likely to conduct private secondary farming enterprises, or engage in other occupations in addition to their work in the primary pooling unit. Income from these secondary occupations helps to explain the larger size of these units. The primary/secondary distinction blurs in situations in which consumption needs are met by different units at different seasons of the year, or as the composition of the household changes through time, since in these cases the defining characteristic--subsistence responsibility--is shared by more than one unit.

It should be noted that primary and secondary units, although defined in terms of the constraints imposed by subsistence responsiblities, also differ in other ways. Secondary enterprises typically control less land (often small parcels allocated from a larger household unit) and less labor (that of one adult during time not committed to the primary farming unit and/or domestic chores).

B. A Land-Resource Typology. Based on the University of Bordeaux studies in Maradi Department, Claude Raynaut developed a land resource typology of farming units based in (1) spatial location of fields; and (2) area per active worker (1980:44-45).

The location axis differentiates farming units with fields in an inner ring of manured, intensively cultivated fields from those with most of their fields in outer zones. Fields farther from the village are rarely manured and are also less well maintained during the growing season (for example, they are not weeded as thoroughly). Combined with the size of holding axis, this classification generates four types of farming units:

(I) Farming units most of whose fields are in the central zone, but with limited total land holdings;

(II) farming units most of whose fields are in the central zone, with large total land holdings;

(III) farming units most of whose fields are in the outer zone or zones, with large total land holdings;

(IV) farming units most of whose fields are in outer zones, with small total land holdings.

In three study villages in different ecological zones of Maradi Department, farming units of types I, II, III and IV differed in numerous traits, including: (1) average area cultivated per farming unit; (2) area cultivated per actif (active farmer); (3) average proportion of land left fallow; (4) production per actif; (5) average cereal yields; (6) cattle per farming unit; and (7) small ruminants per farming unit. Farming units of Type IV with small holdings in unfavorable locations, were worst off on these measures, while Types II and III, with largest holdings, were better off than Type I (Ibid.). Although large total holdings are generally advantageous, fields located in closer proximity to the village give significantly better yields per hectare (Raynaut 1980:24):

Distance from Village	Average Cereal Yields
0 - 500 m	477 kg/ha
501 - 1200 m	198 kg/ha
1201 - 2500 m	183 kg/ha
2501 - 4500 m	134 kg/ha
4500+ m	56 kg/ha

At Gurgae village, Hausa farmers achieved average yields of 477 kilograms per hectare on fields within 500 meters from the village, while average yields for fields from 501 to 1200 meters away fell to 198 kg/ha (Raynaut 1980:24). Fields closest to the village usually benefit from greater applications of manure; they are also likely to be weeded more often and more systematically (Sutter 1979:26, 26b).

C. The Gandu Approach to Typology. Much agricultural research in Niger and in northern Nigeria has been preoccupied with the extended family farming unit known in Hausa as gandu. Beginning with the work of Greenberg (1947) and M. G. Smith in the 1950s (Smith 1955), the gandu has been a major focus of attention even though gandaye (pl.) account for only a minority (often 25 percent or fewer) of actual farming units.

Each Hausa farm village was traditionally built up around a core family group (dengi) composed of agnatic kinsfolk. The fundamental unit of residence, production, distribution, transmission, and reproduction was the gida. At a mature stage of the domestic cycle, the gida was a patrilocal multiple family household of at least two generations depth, and comprising the conjugal family units (iyali) of the household head (mai gida) and his married sons and their children (Greenberg 1974). Some wealthier gida contained farm slaves.

The gida was essentially a family farming unit (FFU) distinguished from other FFU by usufructory rights of land tenure (Raulin 1965), control of its own granary, and by its disposition of the labor power of its active members.

The mai gida partitioned the household land into gandu (collective) and gamana (individual) parcels. Men worked together on the gandu five days a week, and junior men in the gandu and their wives worked on their gamana one day a week. The mai gida held the fruits of gandu production in trust and was obliged to feed, clothe, and pay taxes and ceremonial expenses of his household from the gandu produce during the agricultural season (Greenberg 1947:195). With the help of the extended agnatic kin group, the mai gida ensured that his sons and daughters would marry. Individuals and junior iyali fed themselves during the dry season from the produce of the gamana and, in addition, used gamana produce to participate in ceremonial events and exchanges (baptisms, marriages, funerals, etc.). Gandu produce could never be sold; gamana produce could be marketed, but the bulk of production took place on gandu plots. The Zarma also distinguish communal fields (ifari beri or windi fari in the Ouallam area) from individual fields (known as kourba) (Stier 1980:17).

Upon the death of the mai gida, the inheriting sons did not immediately divide the land and slaves, but continued to work together, with the eldest brother assuming the role of mai gida. At this stage of the development cycle, the gida became a patrilateral extended family household (frérèche). As the families of the brothers grew, the patrimony was divided. Junior brothers were often compelled to clear new bush lands as they fared less well in the division.

In the traditional setting, small households could overcome temporary or seasonal labor bottlenecks by calling young men in the village to participate in a labor party (gavya), which was a form of inter-household labor exchange. Gavya were also called by young men to meet labor service obligations to their wives' parents (Nicolas 1970:412). Gavya aided the social reproduction of the community because they enabled smaller and poorer households to cope with accidents of demography or illness which threatened their agricultural productivity and viability.

Interlocking conditions have been cited as favoring extension of this sort of household system over a very large part of the Sahel: long fallow hoe cultivation, limited agricultural productivity, a complex agricultural calendar with seasonal labor bottlenecks, periodic localized crop failure, abundant land, a low level of development of transport and intra-regional commerce, the weakness of supra-local political institutions, high fertility, and the necessity for local defense from the razzia of rival city states (Greenberg 1947; Nicolas 1960; Burch 1972; Hill 1972; Raynaut 1973; Faulkingham and Thorbahn 1975).

Farmers in some villages in Zinder now equate gandu with the family farmng unit (FFU) whether or not the gandu conforms to the multiple conjugal family unit (CFU) ideal household described above, and this definition of the household is adequate for most descriptive purposes. Application of the criterion of cooperation in production yields fairly consistent data on the mean size of family farming units not only for the communities studied by Arnould but also for other Hausa communities as well, as shown by the information in the third column of Table 7.

Defining the household as the FFU or production unit, is not entirely satisfactory if other tasks are employed as criteria of household membership. As Goddard (1973) showed, there is considerable variability in the allocation of household tasks between members of CFU within FFU in different communities despite the fact that they farmed land in common (see below).

People in the communities studied in Zinder actually seem to employ a multi-variate definition of the gida or household. Members of a gida reside close together in clusters of compounds and labor on gandu fields together. However, young men's and women's gamana plots consume more labor time than was true in the past, it is claimed, and the distinction between gandu and gamana has grown fuzzy so that any CFU may consider itself proprietors of gandu if other criteria of co-membership in another household are not met. In addition, there is tremendous variation from the ideal in the degree to which junior households participate in agricultural tasks such as field clearance, granary construction, fencing gardens, and so on, which contributes to qualitative differences between gandu organization among gida. There is also considerable variation in pooling of dry season income from gardening and other activities.

TABLE 7

COMPARATIVE MEASURES OF FARM UNIT SIZE

Location	Mean Size of Conjugal Family Unit (iyali)	Mean Size of Family Production Units	Mean Number of CFU/Gida*	Percent of Gida with Married Sons
Maidoki	4.9 (N=42)	7.8 (N=28)	1.5	68
Kadafan Tulu[1]	3.6 (N=77)	6.9 (N=39)	1.8	34
Central Niger[2]	4.6	7.6	1.7	
Tudu, Tahoua Province[3]		19.0		
Maradi Province[4]		5.7		
Katsina Nigeria[5]		5.09		24
Sokoto:[6]				
Riverine			2.4	69
Accessible			2.2	58
Remote			2.0	36

Sources: 1. Arnould 1982; 2. Pool and Piche 1972; 3. Faulkingham and Thorbahn 1975; 4. Raynaut 1976; 5 Hill 1972; 6. Goddard 1972.

In this table gida are defined as equivalent to household production units, which are termed gandu in the rural areas.

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Because extended-family farming units typically include both more active workers and a larger total household size than do other farming units, they involve a larger proportion of the population than their incidence alone would suggest. For example, in two Hausa villages of Zinder Department, 31 percent and 30 percent of farming units were organized as gandu. As Table 8 shows, however, in the northern village these units accounted for 46 percent of all married men while they accounted for 58 percent of all married men in the southern village. From the table we can calculate that about 52 percent of the sample population in the southern village was included in gandu units, and about 39 percent of the sample population in the northern village (see Sutter 1979:43). However, a significant proportion of the total land held by extended family farming units may be controlled by individuals in the form of private plots, rather than forming part of the communally-farmed gandu land (see discussion of land holdings in a later part of this section). In two other villages studied in southern Zinder only 55 percent of the households were of the extended family variety, accounting for 77 percent and 87 percent of the population of each village respectively. However, as discussed below, the degree of coordination and control over labor exercised by the household heads varied considerably within the gandu.

D. Typology Based Upon the Allocation of Labor. Wallace (1978) argues that the use of the gandu concept by Smith, Hill, Norman and others is ambiguous, glossing such a variety of economic arrangements that the term itself has no clear-cut meaning. In Wallace's view, it is particularly misleading in understanding the allocation of labor in Hausa agriculture. First, the majority of Hausa primary farming units today are nuclear family units (iyali), not gandu units. Indeed, under Hausa demographic conditions the situation could hardly be otherwise; many farmers have no adult sons and the fathers of many farmers are already deceased (see Hill 1972:46; Wallace 1978:143). Fraternal gandaye made up of adult brothers farming together after the father's death are even less common than paternal gandaye. Only nine households of 66 studied in two villages in Zinder were of this variety (Arnould 1982a:312).

Second, even in gandu units, the mai gida exercises only limited control over the labor of other household members: he directs their work for only some days of the week and only during the farming season. Wallace found that planners of the Kano River Project (an 18,000 hectare irrigation scheme located about 50 km south of Kano, Nigeria), drawing on available literature with its emphasis on the ideal gandu, overestimated the availability of unpaid household labor on a year-round basis. This error has practical consequences for the outcome of the project (Wallace 1978).

Older men in Maidoki and Kadafan Tulu, the two villages studied by Arnould (1982a), said they lived in households which corresponded in morphology and task performance to the ideal or complete gida described above. Complete gida are preserved morphologically in both villages today,

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TABLE 8

GANDU AND NON-GANDU UNITS IN TWO VILLAGES IN ZINDER DEPARTMENT, 1978

	Village "Z" (Tanout Arrondissement)	Village "Y" (Matameye Arrondissement)
Number of Gandu[a] Households (HH)	15 (31%)	13 (30%)
Number of non-Gandu HH	33 (69%)	31 (70%)
TOTAL	48 (100%)	44 (100%)
Number of Married Men in Gandu HH	30 (46%)	41 (58%)
Number of Married in non-Gandu HH	35 (54%)	30 (42%)
TOTAL	65 (100%)	71 (100%)
Average number of people in Gandu HH	8.1	12.1
Average number of people in non-Gandu HH	5.7	4.6
Total People in Sample	313	303

a. Gandu defined as a unit containing 2 or more married males and their respective families.

(Sutter 1979:43).

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but they are based upon changing tasks and diversified resources, and are associated with higher relative wealth.

Nearly 70 percent of gida in Maidoki, a purely farming village, contain married sons. In riverine Sokoto, Nigeria, a similar percentage was associated with a relatively low degree of off-farm income. Households in Maidoki are indeed highly reliant on on-farm activities for their income. Nevertheless, the ideal gida morphology and division of labor occurs in a few households which cultivate many fields and large gardens, have high fertility overall and dispose of enough labor to respond quickly to seasonal shifts in labor demand, and also possess large livestock holdings derived from success in the groundnut trade. Neither the possession of abundant land and labor alone is sufficient to ensure the household conforms to traditional models. It is also necessary that land and labor be employed in producing market crops and that the household has large grain and livestock reserves. These findings are consistent with those of Sutter (1982:217) in Matameye.

In Kadafan Tulu, a village highly dependent on income from pottery production, the number of married sons in gandu is relatively low, but the incidence of complete gandu is lower still. The village chief is one of the few men to maintain a household which conforms morphologically to the traditional norm, but is unusual in other respects. The two married men in his gandu were matrilateral relatives for whom he provided bride-wealth and whose taxes he pays. Of the six fields they cultivate together, two were purchased, and one is an interest free loan. The household pools pottery trading revenues as well.

In both of these communities, new commercial resources, livestock, and pottery allow some households to preserve the pre-colonial household ideal; yet few households, due to a shortage of livestock in Maidoki, and of land in Kadafan Tulu, can muster the necessary cash resources to support a large number of people. Two other kinds of household morphology and organization were found in these villages that differed from the ideal pattern.

The household organization of a number of FFU in Maidoki corresponds to Goddard's (1973:214) description of the land gandu. In this case, the land held in usufruct by the household may be sub-divided amongst daughter households while the mai gida lives. Subordinate men contribute to marriage and tax payments from individual enterprise, but retain a larger share for themselves. The participation of subordinate men in gandu activities, other than cereal production, is limited by migration and other individual economic activities. Distribution and pooling is reduced at the level of the multiple family household, and individual CFU provide for more of their own needs than was true in the past, primarily because the mai gida cannot come up with the resources necessary to support his dependents year round. These findings confirm Sutter's (1982:218) Matameye data.

Land gandu are also associated with a shift in inheritance patterns which tend to hasten division. Youngest brothers often remain at home while older siblings migrate. The former participate more fully in gandu activities, and are more likely to inherit the paternal gandu under an informal system of ultimogeniture. Inheriting sons, however, must assume primary care for aging parents. If migrating sons were excluded from the count of men in gandu because of their lessened contribution to maintenance and reproduction, then land gandu might be said to resemble a stem family household system more closely than the ideal multiple family system. Land gandu describe the majority of FFU in Maidoki which lack access to the commercial resources which are available to households which approximate the ideal pattern. Disinclination to obey the authority of the mai gida and the first wife (unwar gida) on the part of young men and their brides is also cited as a reason for lessened cooperation and early division of the gandu by the older folks in the village.

The most radical departure from the ideal gandu is to be found in Kadafan Tulu. Individual CFU which share gandu fields, pool labor and resources during the rainy season of cultivation, but for most of the year male labor migration and women's pottery production act to limit extensive cooperation. In other words, high individual cash incomes disrupt older patterns of agricultural cooperation and pooling. The arable land is not divided among nuclear households only because there is a serious shortage of land. Thus, equating households with FFUs in this village yields over-estimates of effective household size.

Barely a third of gandu contain married sons. Nor are all members of a gida necessarily active even in cereal production, essential to the preservation of the multiple family household. As in Matameye (Sutter 1982:217) in Katsina (Hill 1972), and Maradi province in Niger (Raynaut 1976), successful individual commercial activities have reduced the scope of intra-CFU cooperation, pooling, and agricultural production.

It is important to note that a market for hired labor exists in Niger. Sutter (1982:285ff) found that about half of household heads in his study communities employed agricultural labor, but few of them hired labor for more than three or four days work in a year. These results are consistent with other research in Hausa farming zones (Nicolas 1965:251; Arnould 1982a:341-342; Hill 1972). Norman, Simmons and Hays (1982:106) found that about 18 percent of the total labor input on family farms in Zaria was purchased, more than in Niger. A day's wages averaged between 150-600 CFA depending on the strength and vigor of the laborer and the wealth of the employer. Labor is usually hired during periods of labor bottlenecks, especially for sowing after the first rains and during the first weeding.

Landless laborers in Niger do not constitute a distinct economic class. It might however be argued that the large numbers of migrants who have swelled Niger's urban places during the past decade indeed

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portend a class of landless refugees, driven off the land by population pressure, drought, or pestilence. Hill (1972) describes something along these lines for northern Nigerian villages, although her interpretation remains at variance with those of most other researchers.

Most authors do agree that wage labor is linked to rural differentiation and inequality with direct consequences for agricultural productivity. That segment of the population whose subsistence production is insufficient often must sell its labor power to raise cash during the pre-harvest period. In this sense, wage labor is a consequence of rural inequality. Rural farm labor is also a cause of differentiation in that salaried workers are employed on other people's fields during the critical weeding periods when they should be at work on their own land. The situation is such that wealthy men sometimes feel it is demeaning to resort to unpaid reciprocal agricultural labor, gayya, and prefer to hire laborers. In eastern Niger, among the Manga, it is performing agricultural—or any kind of domestic—labor for wages that is considered demeaning, whereas the same activity can be honorably performed in an exchange relationship (Horowitz 1972).

The impact of salaried agricultural labor on peasant differentiation is restrained by a number of factors. The first is the persistence of unpaid reciprocal labor amongst less well off households. The second is the micro-zonation of crop maturation which enables farmers in southern zones to complete their weeding before venturing to northern or eastern regions where weeding is just beginning. The third is that few wealthy farmers are willing to hire wage laborers permanently because of the kin-like obligations such patronage still entails in Niger.

Actual working relations within extended-family farming units and the intersection of farming and non-farm activities thus show a wide range of variation (see Hill 1972 for examples from a Hausa community in Nigeria). Either lumping all farming done by all household members as a single enterprise, or focusing on the farming of the household head to the exclusion of other household members, distorts the organization of agricultural activities. Possible differences in productivity, in technology adoption, in the allocation of labor, and in other farming activities are lost when distinct farming units are not considered separately.

However, defining appropriate units for data collection and analysis for research on African farming systems continues to pose many problems. Since economic functions do not neatly coincide with residential groups, researchers have tried various other criteria for defining household membership (reviewed briefly in Eicher and Baker 1982:75-76; Arnould and Netting 1982). Much time and effort may be required to identify actual producing and consuming units, the "firms" and "households" of conventional economic theory. Household heads may make decisions concerning communal fields, while other individuals make them for their private plots.

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For one recent study of Hausa agriculture in Zinder Department, Collion selected village residential compounds as her sampling frame, regardless of whether compound residents farmed together. She argues that this is still the most practical way to avoid a long pre-study of production and consumption patterns: the units marked off by compound walls are readily visible, while patterns of economic interaction are not (1982:488). This approach would be less satisfactory in larger towns, however: in Mirria some 19 percent of the residential units in one neighborhood in 1974 were headed by single elderly women who were usually economically dependent on other households (Saunders 1978:137-138).

E. Women and Agriculture. The data concerning women's roles in agricultural production are scanty. Indications are, however, that women are playing an increasingly important role in production, particularly in regions of intensive male migration (Rupp 1976; Lina Brock, personal communication) and market crop production (Raynaut 1976). Survey data show that women's aspirations concerning agricultural development are both different from those of men, and vary between communities (Henderson 1983). At the same time, there is a clear and consistent record of unequal access of women to productive agricultural inputs from the early days of Animation Feminine (Barres et al. 1976), to the contemporary Maradi Rural Development project (African News April 4, 1983:10). While it may be argued that women constitute secondary farming units, it is worth gathering some of the scanty details concerning women's role in agriculture together. The following sketches are drawn from Arnould and Henderson's (1982) working paper on women in Niger.

> Agricultural production is secondary to domestic tasks among rural Zarma women; they do not have automatic access to land as do men. In Ouallam, some women garden, and in a large part of the Boboye area, women cultivate rice and ground nuts for commercialization. Most women cultivate kitchen gardens of okra, sesame, squash, sweet peas, and gourds for home use or exchange within the village (Stier 1980; Goldmark 1977).
>
> Women receive livestock from their maternal family when they marry. With luck, holdings of goats and sheep can be transformed into significant cattle herds. Some animals are sent to the steppes...during the rainy season and return to the village during the dry season. Women also own chickens and guinea fowl and construct adobe hen houses (Diarra 1971).
>
> Among the Wogo River dwellers, men are generally the proprietors of the land, although some women also own fields which they may rent to men. Other women use parcels of land owned by their husbands. They cultivate gardens and small plots of okra, the latter near men's millet fields. Garden crops include tobacco, a specialty product of the Wogo. It is mainly older women who cultivate; younger women reject this activity. Women work alone and their gardens

are a source of personal income. Some women have lost an important source of income in rice threshing and sales with the creation of irrigation projects and industrial threshing mills.

Although the Sorkawa are the great Nigerien fishing group, Wogo women fish as well. Fishing occurs after the harvest in October. Women fish with a kind of cylindrical trap, zaga.

The Wogo keep livestock; cattle are particularly prized and formerly figured prominently in bride wealth transactions. Today women keep goats and sheep, many of which are picketed in the village (Olivier de Sardan 1969).

In areas of the Air mountains where settled vassal Tuareg engaged in irrigated agriculture, women helped in the preparation of the fields, but there is no indication they themselves gardened (Nicolaisen 1963:191). However, during the 1968-1972 drought, some noble women, disregarding previous patterns, began to help their equally novice husbands in digging irrigation ditches and vegetable gardens (Rupp 1976:32).

Women's role in agricultural production in the Hausa-speaking regions varies from place to place. In Mawri country, Madaoua canton, the valley of Maradi, Magaria county, and many parts of Matameye and Mirria counties women cultivate on household (gandu) fields of millet, sorghum and cowpeas. However, in Kantche and in Mirria canton, women do not in general participate in this activity, except perhaps at harvest time (Nicolas 1956:10; Piault 1965:45ff; Raynaut 1976; Chefou 1976:6; Faulkingham 1976:2; Saunders 1978, 1980).

Around Dogondoutchi, aside from participating in household productive activities (summarized in Table 9), women and girls cultivate on their own account. Women cultivate Bambara ground nuts and other crops. But land belongs to the husband so that a woman's field changes yearly as women's crops are rotated with cereals. Women have a right to dispose of their produce throughout this region. They employ an archaic short-handled hoe (Kursa-Kursa) as well as other tools, but not modern ones. Older women claim that women's role in agriculture was once more extensive (Piault 1965).

Around Madaoua, women, like men, cultivate [domestic] crops, though not the highly profitable irrigated onion plots. With increasing male migration, they are assuming more of the burden of cereals cultivation (Faulkingham 1976).

There has been a rapid transformation of the role of women in agriculture in the valley of Maradi over the past several decades. Intensification of commercial garden crop production by men, division of crop lands into small parcels, a decline in the range of conjugal

TABLE 9

TABLE INDICATING THE SEXUAL DIVISION OF AGRICULTURAL TASKS FOR PRINCIPAL CROPS AMONGST THE MAWRI

Crops	Hausa Name	Sow	Weed	Harvest	Transport	Sold
Maize	masaraa	M	M & F	M & F	M & F	F
Millet	haSii	M & F	M	M & Ch	M & F	M[a]
Okra	KuBèewaa	F	F	F	F	F
Fermented locust bean cakes	yaakùwaa	M	M	M	M	F
Bambara ground nuts	gujjiyaa	F	F	F	F	F
Sorghum	daawàa	M & F	M	M	M	M[a]
Gourds	dumaa	M	M	M	M	M & F
Beans	waakee	M	M	M, F & Ch	M	M
Cassava	Roogòo	M	M	M & F	M & F	M & F
Ground nuts	k^{w}alanšee	M	M	M	M	M
"Cocoa"	?ayaa	F	F	F	F	F
Cotton	kàaDaa	M	M	M	M	M & F
Sesame		M	M	M	M	M & F
Red pepper	conkaa t^{w}ankaa	M	M	M	M	M & F
Onions	?àlbasàa	M	M	M	M	M
Tobacco	taabàa	M	M	M	M	M

[a] Men are responsible for the sale of sheaves (of sorghum) and of grains in large quantities; women can be responsible for the sale of small quantities of grain, selling it either for their husband's profit or for their own, if their husband has given them the millet. They can also dispose of the harvest coming from a field inherited (or given) by their own family. The cultivation of this field can then be done conjointly by the woman's husband and herself or by one of her children.

(Piault 1965)

family units pooling land and labor from collective (garden) production, have placed about one-third of cereal production in women's hands.

Data show that the conjugal family unit has become the most effective unit of subsistence production; production per person falls as the number of economically active persons in the household increases much beyond the size of the nuclear family. Thus women are substituting for the labor of dependent males who farmed for the household heads a generation ago as part of the gandu system. However, in Maradi it appears that women practicing dune cultivation of cereals achieve yields inferior to those achieved by men on garden plots. Women are not receiving extension and credit services provided to men through the agricultural cooperatives, although they are providing much of the subsistence production.

Changes in production strategies have been accompanied by changes in concepts of property. Women are sometimes said to possess gandu, which has come to mean any piece of ground over which an individual has exclusive rights. A quarter of dune land parcels are now cultivated by women, of which 22 percent have been received through inheritance. Matrilineal inheritance of land, once non-existent is becoming more common. Nonetheless, 77 percent of women's parcels are still considered gamana, individual plots granted by the household head to members of the household. Women exercise only usufructory rights over gamana (Raynaut 1976).

In Zinder province, the situation is considerably different; the commercialization of the economy, and emergence of economic individualism has not proceeded as far as in Maradi. In a recently formed village north of the official limit of cultivation, women farm with their husbands to obtain the cereals ration. In a village populated by descendents of Tuareg vassals, south of the limit of cultivation, women do not farm gandu lands, and some do not farm at all due to post-marital seclusion (auran kulle) (Henderson 1983). In a pottery producing village near Mirria they also do not farm at all. Men displaced them from their traditional cultivation rights a generation ago. In addition, they had found it more remunerative to specialize in pottery production.

A Kanuri-Hausa village in southern Mirria was typical of many villages south of the 400 mm isohyet. There women help to sow and harvest the gandu fields, although they do not clear or weed them. With the sporadic help of their male relatives, they also cultivate individual plots allocated them by their husbands. Some husbands help them to sow. Some women are wealthy enough to hire agricultural laborers to weed for them. In this village mean gamana size was 1.84 ha, but ranged from 0.1 to 2.69 ha. In addition, women had small plots of groundnuts which averaged 0.1 ha in area (Arnould 1982a:444). In Matameye county, mean gamana size was 0.1 ha and in Magaria county it was 0.25 ha in the early 1970s. In Kantche, where women do not

participate much in cereals cultivation, they do garden, particularly in polygynous households (Nicolas 1956:10).

Women use fungicide when they can obtain it, respect officially recommended planting densities (primarily because their fields are so small), apply some organic fertilizer (although it formally belongs to their husbands), or picket goats on their fields, but are generally less active in the fields because of their other responsibilities (Belloncle 1976: Appendices VI and VII).

In three of the villages studied in Zinder Department (Henderson 1983), it was found that village women did not consult the extension services. Only 29 percent of the women compared to 84 percent of the men desired new agricultural machinery; most women put groundnut seed by for future planting, and over 80 percent obtain cereals seed from their own granaries or from relatives.

A final point to note is that the non-inclusion of women in agricultural development schemes has meant that they have adopted some modern techniques and a market production orientation without however having become indebted to government organizations. Since they are in general not formally responsible for household subsistence, this sometimes means they have a better liquidity position than men. Women's smart money in many instances is invested in livestock.

Summary

Each of the above classifications focuses on different subsets of the many criteria by which farming units could conceivably be distinguished: dominant technology, agronomic regime, primary versus secondary, gandu types, gandu versus gamana, men versus women, size of farming unit, etc. Which is most useful depends to a large degree on the problems under consideration and the data at hand. Each suggests different questions about the organization of farming units and the allocation and consumption of land, labor and capital. A combination of vantage points is most likely to improve development planning to meet both short- and long-term goals for the country.

ACCESS TO LAND

Law and Custom on Land Tenure

No general overview of the land tenure situation in Niger is available. A recent report on land ownership and taxation covers land legislation (Ramirez 1981a, 1981b), but gives little attention to the customary land tenure practices under which most rural lands are held. Some of the published information is now out of date, especially in view of the increasing demographic pressure on the land. Customary land rights in Niger evolved

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in a situation in which land was plentiful relative to the availability of labor for bringing it into production. Unused arable land is now becoming scarce in most of the nation, putting pressure on customary law to adapt to the current situation.

The rapid monetization of the rural Nigerien economy during the colonial and post-colonial periods contributed to the current land scarcity. Individual producers responded to their growing needs for cash by increasing the area planted in market crops. As long as land was available, competition between export crops and domestic crops could be resolved by clearing new fields. Land under cultivation could also be increased by reducing the area left fallow or bringing fields out of fallow sooner. As we have seen, however, this process has been pushed to the limit in the densely populated southern agricultural zone and the entire system is now at risk from soil exhaustion. Already by the 1950s, some observers expressed concern about the expansion of groundnuts at the expense of staple grains (Nicolas 1960; Franke and Chasin 1980:9). With yields declining on overworked fields, farmers are today pressed to keep as much land as possible under cultivation to feed their families.

A. Customary Land Rights. Customary law in Niger is an amalgam of Muslim sharia and traditional practices which vary from group to group. (The use of risala in customary tribunals is examined in Annex II to the Chapter on Islam and Customary Law above.) The Muslim legal code in use in most of West Africa, including Niger, is Malikite, one of the four schools of orthodox Sunni Islam. Law number 61-30 of July 19, 1961, confirmed customary rights on lands not governed by the rules of the Civil Code or the registration system, and called for "just compensation" when land is taken for public use (Salacuse 1969:207-208). Although traditional chiefs are legally empowered "to allot vacant land to persons who request it," (Law 62-7, March 12, 1962) (Ibid.:208), the government has tried to restrict the ability of chiefs to derive financial profits from the customary land rights associated with their offices (ibid.). Ultimate rights over land are held by the national government, however, and land "improved" by the government—such as irrigated perimeters—become state property unless or until the government carries out a redistribution.

In the Hausa-speaking areas of Niger, use rights over land were traditionally established by the act of clearing a field. While ultimately all land was claimed by rulers such as Sarkin Damagaram, the Sultan located at Zinder, newcomers who wished to settle in a community requested permission to clear land from the village chief, who was usually a descendent of the first settlers in the area. The individual who cleared a field could use it indefinitely, and pass it on to his heirs, so long as the land was kept in use. Fields could be allowed a fallow period without loss of rights, but if the previous user then permitted someone else to clear the field, rights passed to the new farmer (see Viellard 1929:142-150). Women's access to land has always been a function of their marital status. Married women were given plots by their husbands to cultivate each year, usually

those of poorer quality. Should divorce occur during the growing season, a woman lost her right to cultivate the plot or to claim its harvest. Under conditions of population pressure or Islamization, women may lose their rights to cultivate. Thus there were basically three ways to acquire land: through inheritance, by clearing new fields and unclaimed bush, or by marriage.

Cohen (1967:79-80) offers a similar description of land ownership among the Kanuri of the Bornu area in northern Nigeria, who are related to the Manga and other Kanuric-speakers in Niger. Based on field research carried out in 1956-1957, 1964 and 1965, Cohen reported:

> Land for agriculture is not scarce in Bornu and all settlements except the capital city have plenty of free or unused land within their boundaries...
>
> Anyone can clear new land or land that has been unclaimed for many years. He should report this to his local political leader whose permission is always granted if there are no known claims on the property. Again a man may go to the local political leader and ask where he can farm; he is then directed to available plots on the advice of the leader. Or land may be inherited, usually in the male line, or acquired as a gift from a friend, or it can even be sold....
>
> In summary, from the point of view of the people themselves, there are four different kinds of land around a Kanuri village. First, there is land owned outright by the household head over which he has complete authority. Secondly, there is land that has been cleared by a household head or that he was given the right to use by his local leader and which may become totally his or that of his heirs after long years of use and/or inheritance. Thirdly there is resting land, which is a farm plot that has been in use but whose depleted soil the owner will likely use again. If he moves away without trying to dispense with any of these plots then they revert to free land. Finally, there is free unused land around the settlement that can be used for newcomers or those trying to expand their holdings.

Horowitz notes that the Manga peoples of southeastern Niger also recognize the rights of four paramount chiefs in land distribution (1974:372). Elsewhere (1975:399) he adds that

> In Mangari too there is sufficient land for those who wish to cultivate. The amount of land worked by an adult male among the Manga stands in close relationship to the number of persons who regularly work with him, the adult and adolescent members of his household.

This area of Niger still has a relatively low population density in comparison with western and central Niger (see Map IV, "Population Density," Introduction, p. 26), and land is still available for clearing in many communities, in the southeast of Zinder Department and in Diffa. However uncleared bush is also

in demand for grazing the herds of pastoral FulBe (Horowitz 1975). Note that Horowitz is describing the region in the late 1960s, prior to the great drought.

The Songhay and Zarma peoples of western Niger also had a traditional land tenure system in which initial use rights were obtained by clearing new land. Once cleared, the family of the initial clearer retains some claim over a piece of land even if it is left fallow for extended periods. However, strangers, slaves and captives were not allowed to claim land (Goldmark 1977; Raulin 1965).

As long as land was plentiful, it had little value as property. Describing Hausa customs in the Zinder area in the early 1930s, Vieillard wrote (1933: 144):

> Les capitaux n'ont pas la même valeur dans le régime économique indigène. Par exemple, les champs et les maisons, étant donné l'abondance des terres et la simplicité des constructions, sont à piene comptés parmi les richesses. Le vrai capital, c'était l'homme...ensuite le bétail a pris quelque importance, même chez les agriculteurs, parce que c'est la meilleure valeur d'échange... Le propriétaire foncier n'a pas son équivalent ici.

A few pages later, the same theme appears again:

> En fait, étant donné la faible densité de la population et l'abondance des terres, la question foncière ne présente pas aux yeux des Noirs un grand intérêt, sauf pour certaines terres exceptionnelement riches, ou placées dans des conditions favorables: proximité du village, ce qui facilite le ravitaillement des travailleurs et permet de profiter des ordures ménagères (djibji), du fumier des parcs à bétail (taki), ou proximité d'un point d'eau, ce qui permet de créer des jardins à legumes (garka) et des palmeraies (debino). Sur ces terrains, les familles propriétaires veillent jalousement à la conservation de leurs droits et à leur transmission aux héritiers; mais, même pour ces précieux jardins, il n'y a pas propriété du fonds; c'est un droit d'usage qui est transmis (Ibid.:150).

Raulin (1965) concurs with this view. Of the rights of the traditional ruler in land matters, Vieillard noted "c'est parce qu'il est maître des hommes qu'il est maître de la terre; il ne se mêle aucunement de la distribution des champs et des transactions dont ils sont l'objet" (Ibid.:144). While the Sultan of Damagaram may not have intervened in land distribution, the nearby Sarkin Mirria did allocate land. Recognizing the principle that all land belongs to the ruler, informants in Mirria as recently as 1974 explained that an individual who wanted to clear either a field or a garden plot took a small gift to the Sarki and asked for permission. The Sarki then sent an official to measure out an area which the individual could clear.

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By 1974, however, little uncleared land was actually available near Mirria.

Hypothetically, then, human labor created use rights over land. The uncleared bush could be used by all; anyone was free to gather its products, hunt wild game, or pasture animals there. Women continue to exercise their rights to gather wild products, natron, wood, and water in the bush. But in practice local village chiefs or FulBe arDo usually had some say in who might use resources in their vicinity, and many local leaders still exercise these rights. Even access to land by hunters, such as the Aza in eastern Niger, was regulated (Nicolas 1969). Only over the distant, unclaimed bush was there fully open access. Where access to water was concerned, it depended on whether the source was natural or constructed. In the Zinder area, a seasonal lake (French mare, Hausa tapki) was viewed as a natural good similar to the bush. Hence it too was open to the use of all local people, although vilalgers could restrict usage by outsiders. In contrast, most wells were privately owned by the individual who had it dug and who could charge a fee for use of its water (Vieillard 1939:147).

Numerous changes in local land use practices followed the colonial conquest. Some stemmed from direct intervention, such as the exercise of eminent domain to set aside land for uses ranging from military bases to forest reserves to farmland for freed slaves or settled nomads. Some villages lost large amounts of land to such interventions (Nicolas 1960).

Other changes resulted indirectly from the colonial presence. Population shifts occurred in some areas: new villages were established in places previously unsafe for settlement, as in the Maradi area (Raynaut 1980), and FulBe herders moved into eastern Niger which they had not visited in earlier years (Horowitz 1975; Baier 1980). The Niger-Nigeria borderlands in the southeast filled as warfare ended. The abolitoin of slavery led to changes in land use as well as labor relationships, particularly among the Zarma and Songhay of western Niger (Raulin 1965). As their integration into a money economy increased under the stimulus of colonial taxation, small farmers brought ever more land under cultivation to provide space for export crops as well as for food staples.

The colonial administration typically viewed land not currently under cultivation as vacant and unowned, hence available for allocaiton to freed slaves or other new settlers. Land in fallow might not be distinguished from land which had not previously been claimed. According to Henri Raulin, Songhay and Zarma of western Niger responded differently to this threat than did the Hausa. In his view, Songhay and Zarma made greater use of slave labor in the precolonial era. With the liberation of slaves undermining economic relationships, Songhay and Zarma were determined to prevent former slaves from being granted land. Hence, large areas were cleared within a few years time, far in excess of the amount needed for household subsistence production. In Songhay/Zarma practice, this initial clearing established claim to the land, which could then be allowed either to return to fallow or rented out to others who needed land. Raulin found some 5,000 rented parcels in Niamey cercle alone in

1960. In Raulin's view, land accumulation on such a large scale did not occur in the Hausa areas of central and eastern Niger. In effect, the family group that first cleared the land acquired definitive rights in the Songhay/Zarma area (Raulin 1965). Norman, Simmons and Hays (1982:102) propose a general principle relating access to land with population pressure:

> Population density and demand for land determine the area of land available per farm and the ability to fallow; status within the community structure, income, and the degree of commercialization of land determine a [household's] ability to claim more.

B. Land Law.[3] According to a summary published in 1969, Nigerien law distinguishes three categories of land:

> State-owned lands or domaine which are subject to special statutes; registered lands which are governed by the Civil Code; and land governed by customary law (Salacuse 1969:207).

Law number 61-30 of July 19, 1961 affirmed customary rights on lands not falling under the Civil Code or the registration system (Ibid.).

This law also called for "just compensation" when land is taken for public use. In practice, however, the compensation may well appear unsatisfactory to prior users. This issue has been of particular concern in urban areas, where efforts to improve traffic circulation, reduce fire hazards, and improve health conditions such as sewage evacuation, have resulted in destruction of compounds and relocation of familes to other sites. In these cases the compensation offered to displaced households has usually been limited to a new building site, most often in a newly surveyed housing area (lotissement) on the outskirts of the community. In some cases, relocated households have been able to salvage building materials for reuse and funds for new construction are not provided.[4] Even this limited compensation has not been provided in cases where

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[3] Basic legislation concerning Nigerien land rights dates from 1959, 1960, and 1961. Full texts are found in the Journal Officiel de la République du Niger. Texts of some laws relating to land are reprinted in other sources (FAO/UNDP 1970:159-176; Ramirez 1981a, Vol. II). In addition a 1969 summary of the Nigerien legal system includes a discussion of land rights (Salacuse 1969). Legislation cited by these sources includes ordinances 59-113/PCN, 59-115/PCN, of July 11, 1959; Laws 60-28 and 60-29 of July 1, 1960; and Law 61-30 of July 19, 1961. Another source reports that the legal basis for irrigated perimeters stems from Law 60-28 of 26 August 1962, supplementary decrees from 1968, and revisions made in 1972 (Laucoin 1973).

[4] See discussion of this issue in the Shelter Project report entitled Les Conditions d'Habitat au Niger, 1981, published by the Direction de l'Urbanisme in the Ministère des Travaux Publics, des Transports et de l'Urbanisme.

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farmlands are claimed by the government. For example, no compensation was provided to farm owners in Zinder when new lotissements for urban expansion were created in the late 1970s.

Salacuse reports (1969:208) that Law 61-30

> also institutes procedures whereby persons and groups in possession of customary rights in land can establish them to the satisfaction of the authorities and then officially record them.

Reyna argues that such government land policies are a contributing factor in the current scarcity situation. Without citing the precise laws in question, he states (1979:26):

> In 1960 and 1961, certain national laws altered Niger's pre-colonial land tenure regulation. Henceforth, if an individual worked a piece of land for 10 years that land became his individual property... Recently, the law has been altered so that only three years of farming on a field are required to acquire ownership.

By implication, the reasonable farmer will bring as much land under cultivation as he possibly can, in order to establish a claim and prevent anyone else from acquiring permanent ownership. In Reyna's view, a farmer is motivated to put fallow land back into production to preclude others from gaining ownership through cultivation; and wealthy individuals can obtain land titles by using wage labor to bring new plots under cultivation.

The rarity with which individuals actually register land ownership suggests that the impact of the law is modest. As of May 1981, less than 10,000 definitive land titles (titres fonciers définitifs) had been registered for the entire nation (Ramirez 1981b:3); most of these presumably are titles to urban lots. These latter are initially recorded with the provisional title (titre provisoire), which can be converted to a definitive title if the land is put to use (by building on it, in the case of urban lots) within two years. But many individuals obtain provisional titles without ever converting them to permanent titles; more than 15,000 provisional titles had been granted for Niamey alone (ibid.). In Niamey, Zinder and the smaller arrondissement capitals, many successful merchants convert their profits into landholdings to capitalize on the rapid pace of urban sprawl. Land speculation helps accounts for the minimal level of productive private investment in Niger.

In addition, the text of Law 61-30 sets some upper limits, varying with family size, on the amount of land which can be claimed (FAO/UNDP 1970:173). In principle, therefore, the law does not allow for unlimited land accumulation.

The Nigerien government has intervened in matters related to land in other ways. Informants at Mirria in the early 1970s, for example, indicated that land disputes could not be taken to court during the rainy season, from

a date set by the national government (such as April 1), to the following dry season. In cases not settled by this date, the person who had farmed the field in question during the previous season was allowed to cultivate it during the current season. The dispute could again be brought up during the dry season.

The extent to which the current administration has implemented changes in land law is unclear. About a year after the coup d'état, the following notice appeared on the front page of the government-sponsored daily newspaper (Le Sahel, 19 avril 1975:1):

> Il est rappelé à population que depuis la déclaration du chef de l'Etat de 14 avril 1975 et, en attendant la reforme agraire annoncée, tout champ déjà exploité à un titre ou à un autre par un exploitant donné, reste et demeure à la disposition permanent du dit exploitant, quel que soit le titre initial qui avait permis à ce dernier de l'acquerir.
>
> De ce fait des instructions ont été données aux personnels de commandement pour suspendre tout reglement du litige de champs. Toute personne qui ne respectera pas ces dispositions sera poursuivie en justice.

The impact of this declaration on local land use cannot be determined without local-level data which are not available. Ramirez (1981a, 1981b) does not report any major reforms concerning agricultural land. If enforced, this proclamation could have major repercussions on land rights in Zarma areas, where large numbers of rented fields have been reported (Raulin 1965).

Government interventions are said to have discouraged fallowing in the Zinder area in the late 1970s:

> Local interpretation of a recent government decree has had a deleterious effect upon current fallowing practices, and has contributed to the rate at which the soil is being exhausted. Authorities have declared that no land should sit idle if there are those willing to cultivate it. This has led to disputes in Maidoki between squatters, particularly semi-sedentary [FulBe], and villagers. The former have tried to claim fallow lands belonging to the latter. There is little the villagers can do to oust the squatters, but one response has been to bring under cultivation more land than can be effectively tended. Clearing excess land promotes aeolian erosion, and disrupting the fallow system promotes soil exhaustion (Arnould 1982a:413).

In this instance the net effect seems counter-productive to government long run objectives.

With taxes in Niger based on population rather than on land, no nationwide land-registration system has yet been established. The government is interested in developing a cadastre or land registration system, especially with regard to urban property, and an office of cadastre has been established. One major concern is the need for tax revenues to fund improvements in urban infrastructures such as water supplies and sewage disposal systems. Although some urban property is currently subject to taxation, incomplete land registration effectively precludes general application of tax laws. Sales records exist for surveyed housing lots in the lotissements created around larger towns, but subsequent transactions concerning the lots go unrecorded; land ownership in older urban districts may be entirely unrecorded. Recommendations concerning land registration and property taxes are included in the Ramirez reports (1981a, 1981b).

Land Holding Today

A. Distribution of Farmland. One of the contributing factors to the differentiation of rural farmers is the uneven access of farming units to land. Although there are few truly landless rural households, many households do not hold enough land to meet either food or cash needs from their farming activities alone.

Table 10 presents data from a "3M" project report on land-holding in Mirria Arrondissement. In the 1979 farming season, only five percent of farming units held ten hectares or more; these large holdings accounted for one-fourth of the cultivated area. At the other end of the scale, eleven percent of the farming units held less than one hectare of land, together making up just 1.59 percent of the area under cultivation. The majority of farming units held between one and 4.99 hectares: these made up 64 percent of farming units, with 39 percent of the land. Finally about 21 percent of the farming units held between five and 9.99 hectares, accounting for one-third of the cultivated land (Projet 3M 1980:15, 1976).

Survey data on land-holding in Niamey, Ouallam, and Filingue Arrondissements in the Niamey Department Productivity Project zone are presented in Table 11. These data, also for 1979, resemble those for Mirria arrondissement with large numbers of farms in the one to 4.99 hectare range and only four to six percent holding ten hectares or more. However, Ouallam Arrondissement shows an unusually high proportion of very small holdings: 36 percent of farming units held less than one hectare (Stier 1980:12a). In all likelihood, competition among households for farms of viable size (somewhere around 5-6 hectares) leads to the relatively narrow range in farm sizes overall, particularly in higher population density zones (Norman, Simmons and Hays 1982:103). It is important to note that large farm size is not a reliable measure of wealth, as larger farms are required on marginal soils to generate required yields.

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TABLE 10

SIZE OF HOLDINGS OF FARMING UNITS.
MIRRIA ARRONDISSEMENT (1979/80)

Size of holding	Number of Farming Units	Percent	Total Area (ha)	Percent of Total Cultivated Area
less than 100 ares	5,270	10.59	3,420	1.59
100 - 499 ares	31,640	63.53	84,880	39.49
500 - 999 ares	10,260	20.59	71,640	33.37
1000 areas or more	2,640	5.29	54,740	25.55
Totals	49,810*	100.00	214,680	100.00

100 ares equal one hectare.

Few exploitations have less than one ha (10.59 percent with 1.59 percent of the area cultivated)

The majority of farming units have from one to 4.99 ha (63.53 percent of farming units, with 39.49 percent of the area cultivated)

The 5.25 percent of exploitations which have 10 ha or more control one-fourth of all land currently in use (25.55 percent).

(République du Niger 1980a:15, 176).

* Another table in this report (mars 1980, p. 11), gives a total of 61,706 exploitations (farming units) for Mirria Arrondissement in 1979/80, but only 193,140 ha under cultivation. A second table on p. 11 gives the figures of:

2.97 "actifs agricoles" per exploitation
3.13 ha average size per exploitation
1.05 ha average area cultivated per "actif agricole".

TABLE 11

CULTIVATED AREA PER EXPLOITATION (FARMING UNIT)
IN THE NIAMEY DEPARTMENT PRODUCTIVITY PROJECT ZONE (1979)

Area	Niamey - Percent of Farming Units	Ouallam - Percent of Farming Units	Filingue - Percent of Farming Units
Less than 1 ha	11.6	35.9	15.7
1-4.99 ha	62.9	49.6	63.5
5-9.99 ha	21.5	10.7	14.8
10 or more ha	4.1	3.9	5.8
	n = 121	n = 131	n = 134
AVERAGE	3.69 ha	2.56 ha	3.45 ha
Av. per male worker	2.29 ha	1.40 ha	2.16 ha

Source: Stier 1980:12a, based on data from a survey carried out for the NDD by the Section Statistiques Agricoles, Direction du Service de l'Agriculture, Ministère du Développement Rural.

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Figure 3 visually displays the unequal distribution of farmland for three villages studied by the University of Bordeaux researchers in Maradi Department. In each of the three villages, about 50 percent of the farming units control only about 25 percent of the farmland, while another quarter of the farmland is held by at most 10 percent of the farming units. About half of the land is held by the remaining "medium-sized" farming units (Raynaut 1980:40).

Both village studies and survey data demonstrate, then, that a large proportion of farming units hold only small amounts of land. The survey data suggest that as many as three-fourths of all farming units hold less than five hectares of land.

Data concerning both landholding and farming practices raise serious doubts about widespread adoption of animal traction by Nigerien smallholders. The authors of one recent review of animal traction in the Sahel concluded that profitable adoption of animal traction requires a minimum "threshhold" farm size of roughly four hectares for donkey traction and six hectares for ox traction (Sargent et al 1981). By these standards only a minority of Nigerien farming units hold enough land to justify an investment in animal traction, particularly in the case of ox-drawn equipment. (For further discussion of the many technical, economic and other issues related to animal traction see Barrett et al 1982 and Eicher and Baker 1982:139-146.) There is a need, therefore, for greater research and extension emphasis on practices which can be combined with actual cultivation techniques to benefit a larger proportion of Nigerien farmers.

B. Other Trends. The development of commercial land transactions is one of the significant changes in Nigerien land tenure practices. While traditionally bush land had little value because so much was readily available for the clearing, and only human labor could give it value (Raulin 1965), today land in rural areas as well as cities can be bought and sold, rented, or pledged for cash. The growth of land transactions suggests that land is more and more viewed as private property over which households and in some cases individuals can acquire not only use rights but also definitive ownership.

The prevalence of land transactions is still variable, however, as is their form. Raulin's observations on rented farmland among Zarma have been noted above. Sale and pledging of land seem to be more common among Hausa farmers than elsewhere, although this may merely reflect a lack of recent data for other areas. Sutter found that nearly half of the families in his sample for a village in the densely-populated southern farming zone had either gained or lost land through sale or pledging. Land sales were undertaken to meet a pressing need for money for such purposes as paying taxes, meeting marriage expenses, or purchasing food (Sutter 1979:69). In the bush village studied by Arnould (1982a) land was sometimes loaned, but in the densely populated village of pottery producers near Mirria, pledging and sales were common. Fields had been bought near

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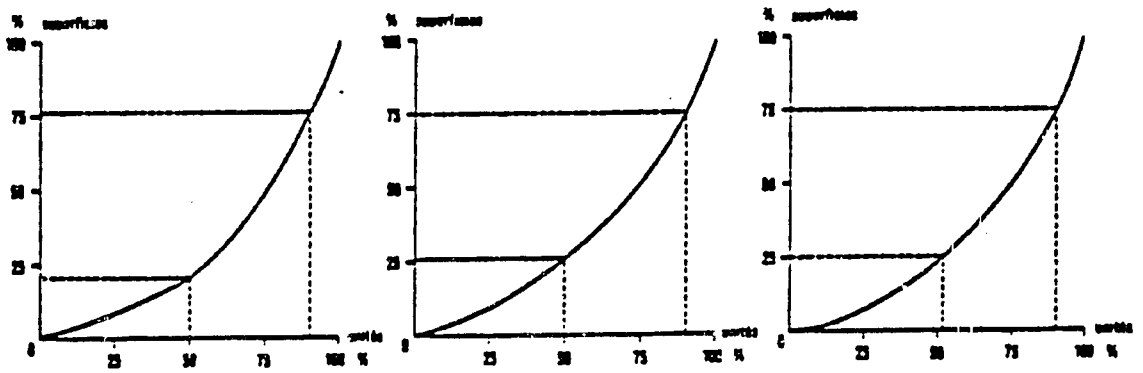
FIGURE 3

DISTRIBUTION OF LAND-HOLDINGS AMONG FARMING UNITS
FOR THREE VILLAGES IN MARADI DEPARTMENT



GURJAE SHARKEN HAWSA MAGAMI

(Raynaut 1980:40)

another village some 5 km away. Land prices vary with location. Raynaut reported that a large field might bring as much as 30,000 CFA in a village near Maradi (1972:41), while Sutter found that a large field in his study village in Matameye arrondissement brought only 14,000 CFA in 1979 (1979:69). It was said that gardens in the Matameye cuvette might bring twice to three times this amount in 1977.

One of the traditional means of acquiring land, the clearing of new fields in unclaimed bush, has virtually disappeared in some areas of Niger. In these areas land acquired through inheritance becomes less likely to be sufficient for household needs with each generation. A farmer then turns to other strategies to add to his holdings through purchase, rental, holding land pledged by others, or land received through loans or gifts. Some of the recent Niger government policies discussed above have discouraged lending of land where authorities are likely to hear about it, thus reducing the possibility of borrowing fields. Permanent migration to an area where land is still available for the clearing--such as the area along the "northern limit of cultures"--is another possible strategy. Other farmers remain in the village struggling to supplement their crop production with cash income from agricultural labor, seasonal migration, or nonfarm occupations, although the opportunities for doing so are very limited.

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PASTORALISM

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THE IMPORTANCE OF PASTORALISM TO THE NATIONAL ECONOMY

Livestock—especially large and small ruminants—are critical components of the Nigerien national economy, and the segment of that economy that was most severely affected by the drought of 1968-1974:

> Livestock production was the economic sector hardest hit by the great drought, which destroyed nearly half of the cattle herds, more than a fifth of the sheep, and a significant portion of the goat herd. By 1981, the GON had met its herd reconstitution goals of 80 percent of the pre-drought level of cattle (3.4 million head), and 100 percent of the stock of other species (10-11 million head). In 1982, however, there may have been a net reduction in herd levels, in face of the inadequate rainfall in the pastoral zones (USAID 1983:36).

Claims about livestock figures for the country as a whole must be considered with caution, and taken as indicative rather than definitive.[1] According to the CILSS (OCDE/CILSS 1980:16, 19, 21, 22), herd sizes for Niger at the beginning of the drought and a few years after it were as follows:

Number of Animals and Value, 1968 and 1977

	1968		1977	
	No. (x 10^3)	Value CFA (x 10^6)	No. (x 10^3)	Value CFA (x 10^6)
cattle	4,100	68,470	2,900	87,000
sheep	2,500	7,000	2,560	10,240
goats	5,870	16,436	6,200	24,800
camels	380	7,638	265	8,480
horses	160	2,960	210	6,300
donkeys	330	1,551	370	2,775
swine	21	120	28	308
fowl	6,250	406	7,400	1,110

Within the specifically pastoral zone—approximately 23.5 million hectares with an average annual rainfall of between 200-400 mm—the cattle population, according

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[1] Stephen Sandford (nd:1) takes perhaps an extreme but not unreasonable position regarding quantitative information about pastoral production in dry areas: "Existing data, about the present and past, are almost totally useless. Unless some (prior) attempt is made to consider the relative importance and incidence of trend, cycle, seasonality and random variation, the knowledge that the cattle population was X thousand on 1/1/1930 and 3X thousand on 6/6/1960 should lead to absolutely no conclusion at all. The same is true for grass cover. Superimposed on this problem is the fact that techniques, for counting and measuring, change between different surveys, as do the background conditions of public security and efficiency of administration."

to the Service de l'Elevage in 1978, was estimated at 2,979 million head (Milligan 1981:3). The Livestock Service projects an annual increase of five percent, thus:

Year	Number of Cattle in Pastoral Zone
1979	3,128,000
1980	3,284,000
1981	3,449,000
1982	3,621,000
1983	3,802,000.

The constancy of a specific growth rate for cattle in the Sahel cannot be claimed with any degree of assurance, however, because the numbers of animals found in the zone at any given time are affected by a variety of factors, including the quantity, quality and availability of pasture, water, and labor; disease; market conditions; political conditions; the relative ease of crossing the frontier into Nigeria; and so on. If the data and growth rates presented above are accurate, the number of cattle in the agricultural zone, that is, south of the "northern limit of cultivation," is very small, about two percent of the total herd:

(1) 1977 Total Cattle x Growth Rate = 1978 Total Cattle

2,900,000 1.05 3,045,000

(2) 1978 Total Cattle - Cattle in Pastoral Zone = Cattle in Agricultural Zone

3,045,000 2,979,000 66,000

Thus, while cattle are not negligible in the agricultural zone (and surely the figure of 66,000 is a gross underestimation), the vast bulk of the herd is found in the pastoral zone. Hence, in this section of the Niger Socio-Institutional Profile, we shall focus on pastoral production systems rather than on animal husbandry in general, and refer the reader interested in mixed farming to the section on Dryland Agriculture.

The importance of the pastoral production system to the national economy is patent:

(1) Pastoral herding of ruminant animals is the subsistence basis of a substantial fraction of the Nigerien population, perhaps 750,000 or more persons. Niger is one of the countries in which there is a close (though imperfect) association between ethnicity and ecologic specialization (Horowitz 1968, 1972, 1973, 1975); the exploitation of semi-arid rangelands through livestock herding is associated in Niger with various FulBe, Tuareg, Tubu, and Arab groups, who comprise approximately 17 percent of the total Nigerien population. While not all of their members are directly involved in livestock herding, and while a few persons from other ethnic groups are pastoral specialists[2], in local parlance the four identified peoples are

[2] The Kanuric-speaking Jetko in southeastern Niger are active in herding. Buduma people specialize in herding the huge horned Kowri cattle on islands in Lake Chad.

known as "tribus nomades", despite the fact that many FulBe and Tuareg groups derive more of their sustenance from agricultural than from pastoral produce.

(2) Pastoral herding of ruminant animals makes productive large areas of the country for which there currently exists no economically feasible alternative use. As noted in the ILCA report above, Milligan (1983) calculates the pastoral zone as approximately 23.5 million hectares. According to USAID (1983a:35):

> About 24 percent of the total land area in Niger is considered potentially useful for agriculture or livestock production. According to available estimates, 12 percent is considered suitable for agriculture; the remaining 12 percent is more suitable for raising livestock.

Unlike grain-fed livestock in the developed countries, Nigerien animals do not compete with people for the produce of crop lands. On the contrary, by grazing crop stubble after the harvest they contribute to maintaining the productivity of these lands.

(3) Livestock constitute major components of the gross domestic product and contribute importantly to exports, accounting

> for slightly more than 15 percent of GDP in 1981 (and about 36 percent of output from the rural sector). It was Niger's second major source of foreign exchange earnings after uranium in 1981; it currently represents approximately 10 to 16 percent of export earnings (Ibid.:36).

It is difficult to specify the true value of animals exported from Niger, because a substantial--though inherently unmeasurable number--are exported illegally, to avoid payment of export taxes:

> The decision by the GON to restrict trade in Nigeria has also limited the potentials for privatization. At present, a limited number of cattle trading licenses is available at a relatively high fee (about 420,000 CFA francs per license) and only 200 head of cattle can be exported under each license. There is also a head tax of about 2,000 CFA francs per head at the border. However, because Niger shares a long border with Nigeria, it is practically impossible or prohibitively costly to control the border; consequently, the trade restrictions are less effective than they appear (Ibid.:40).

Livestock smuggling is an old, if not honorable, trade in Niger. Horowitz, who attended periodic auctions of cattle seized by customs officers in Maine-Soroa in 1968, witnessed the following sales in one ten week period:

23 September	5 cattle
25 September	32 cattle
30 September	220 goats, 67 sheep
8 October	89 goats, 16 sheep
16 October	32 goats, 29 sheep
26 October	43 cattle
9 December	90 cattle

The customs guards noted that these animals represented a small fraction of the total herd exported illegally.

To summarize, the pastoral production system sustains large numbers of persons directly on the produce of the herd; it renders productive large areas of the country in which rainfall is inadequate for cultivation; it contributes importantly to the gross domestic product and to foreign exchange earnings. Anthropologists might add that the pastoral production systems contribute to the cultural complexity and ethnic vitality of the country, providing not merely sustenance but also intensely meaningful ways of life to their practitioners. While there is a frequent movement from pastoralism into sedentary cultivation and town life, it is rare that those who make the move do so without regret, and it is rarer still that one finds a productive herder who does not value his or her way of life as more satisfactory than those of settled peoples.

THE PASTORAL PRODUCTION SYSTEM

A pastoral production system involves periodic movement of ruminant livestock to natural pastures and crop residues, responding, in part, to seasonal variations in rainfall and, in temperate and arctic rangelands, temperature. It differs from farming and feedlotting where forage is brought to the animals, often from crops specifically cultivated for that use. It differs from ranching, where "particular livestock are associated with a particular piece of land and normally stay on it for at least several months; and where the ownership and management rights over land, water and livestock are unified" (Sandford 1981:71). The principal elements of the system are people, who manage the movements of the animals and who subsist, to a greater or lesser extent, directly on the produce of the herd (that is on dairy produce and on meat), and who exchange some of that produce—either directly or for cash— to satisfy the remainder of their subsistence requirements; animals, in the form of ruminant livestock; and land, including terrestrial and arboreal pasture (i.e., "graze" and "browse"), water, shade, and minerals. Yet despite many attempts to establish unambiguous relationships among these elements, to generate a model of the pastoral production system, it is now recognized that there is a large number of ways in which these elements may be combined, and these combinations are dynamic, changing through time. The early efforts to classify pastoralists as "true nomads," "semi-nomads," "transhumants," "semi-sedentary stockmen," etc., have proved to be sterile, since the single emphasis on movement does not define a class that points to any other clearly associated behavior or characteristic. Furthermore, movement is a function of the strategy of pastoral exploitation, and strategies change with varying perceptions of the external situation. Finally, within any particular group, different herd managers may elect quite different strategies, depending on their individual production objectives and perceptions of the situation.

Studies of pastoralism in Niger have drawn on two intellectual positions or traditions, both well established in pastoral investigations on other parts of Africa and the Near East. The one emphasizes social structure and ideology, viewing

pastoral societies as a special class of kinship analysis; within the idiom of kinship all other social relationships—economic and political—were consumed. The other tradition, ecological, emphasizes the biological and physical environment within which herders operate: ecologists specify the quantity, frequency, and distribution of rainfall; the distribution and quality of pasture (annual, perennial, terrestrial, arboreal); the geomorphology of the pastoral range; the demography and species mix of the herd; and so on.

While the social structuralists focus on the people and the ecologists focus on the animals and the land, both tend to treat pastoral societies as if they were closed systems, in isolation from the rest of the world. Both tend to ignore the larger political and economic milieu within which the pastoral production system operates. While clearly sympathetic to the ecological approach—having co-authored a classic in the ecology of pastoral societies (Dahl and Hjort 1976)—Anders Hjort (1981:172) faults ecologists for "identifying symptoms (such as overgrazing) while avoiding the more controversial issues of real causes, such as regional inequalities in political control over land rights." Since economic development is par excellence a political event, development efforts among Nigerien pastoral peoples should be supported by analyses of the pastoral production system that properly situate the systems within their political economic contexts.

The notion of "overgrazing," so central to much of the livestock sector development literature requires some discussion, for it assumes there is some maximum weight of animals that can be sustained on a given range more or less indefinitely. If that weight is exceeded, one of two things is supposed to happen. Either a number of animals is removed from the range—through starvation, forced migration, or sale—and the "proper" ratio between charge and carrying capacity restored; or, the capacity of the range to sustain that weight is permanently impaired. The first notion, that assumes a fluctuating number of animals about a fixed carrying capacity, may be illustrated by an equilibrium model. The second notion, in which the carrying capacity of the range deteriorates, is illustrated by a degradation model. A third alternative, which sees both stocking rate and carrying capacity in some kind of association, such that temporary increases in load cause short-term declines in the carrying capacity, but that capacity is restored over time as the pressure of the charge is reduced, is illustrated by the resiliency model. A great deal of discussion in the Sahel and in other arid- and semi-arid pastoral regions involves which model is most appropriate. While anthropologists were historically associated with the equilibrium model, and range scientists with the degradation model, increasing attention is being paid to the resiliency model, which seems more nearly to accord with the empirical situation, and allows for a variety of exploitative strategies, both "opportunistic" and "conservative" (Sandford 1982: 62) over time.

> An opportunistic pastoral strategy is defined as one which varies the number of livestock in accordance with the current availability of forage. Such a strategy enables the extra forage available in good years to be converted directly into economic output (milk, meat) or into productive capital in the form of a bigger breeding herd. The economic output may be immediately consumed or it may be exchanged for easily storable wealth, such as money or jewelry, that can be re-exchanged for consumables when needed. In bad

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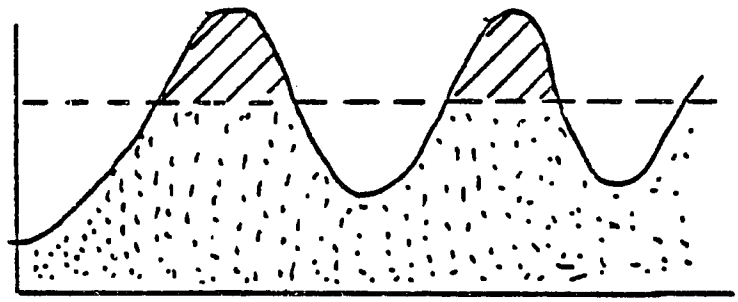
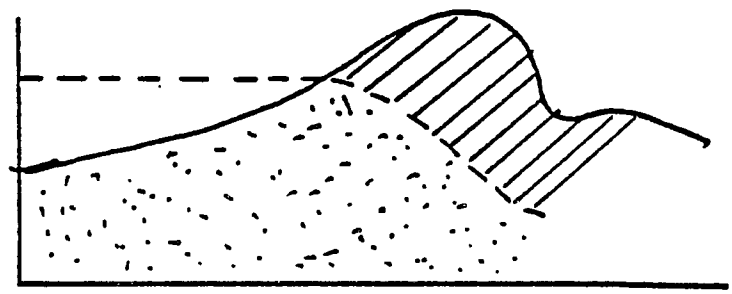
GRAZING MODELS (after Hjort 1981:173-174)



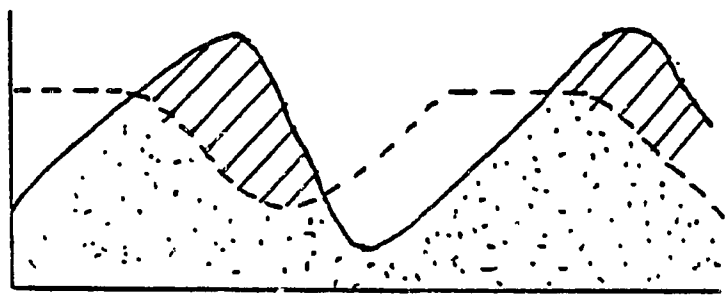
1. Equilibrium Model

(Constant carrying capacity regulating stock numbers)



2. Degradation Model

(Declining carrying capacity as function of overstocking)



3. Resilient Model

(Carrying capacity fluctuates as function of stocking rate)

carrying capacity

overgrazing (excess of charge over capacity)

livestock charge (ie herd size as measured in weight)

understocking (excess of capacity over charge)

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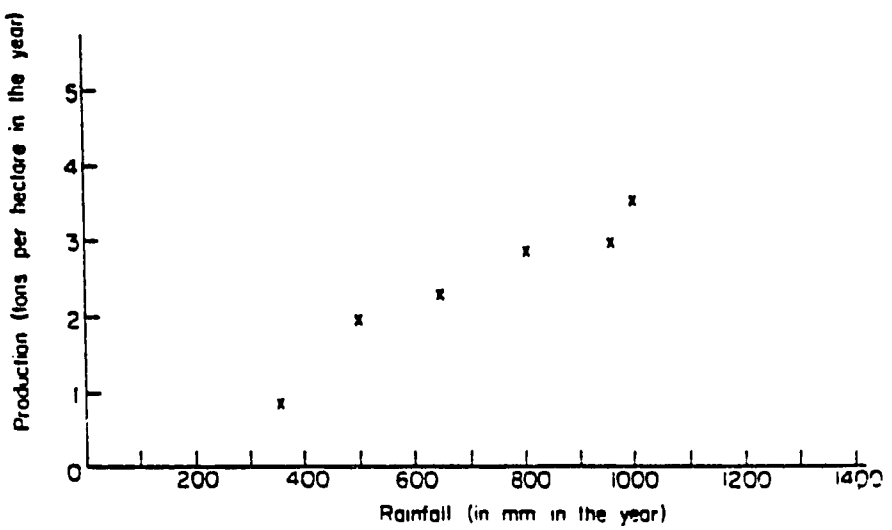
years livestock numbers are reduced. In most cases where an opportunistic strategy is actually attempted livestock numbers in bad times are reduced too little and too late and as a consequence ecological degradation may occur. One can, therefore, distinguish an efficient opportunistic strategy as one where livestock numbers are varied at the appropriate time. If one thinks in terms of a "proper use factor" (a range management term for the proportion of forage produced which can safely be consumed by livestock...), then an efficient opportunistic strategy is one which ensures that the proper use is adhered to.

A conservative strategy is defined as one which maintains a population of grazing animals at a relatively constant level, without overgrazing, through good and bad years alike. A conservative strategy implies that during good years livestock numbers are not allowed to increase to utilize all the additional forage available.

The notion of "carrying capacity" is appealing, because it provides a quantifiable index, and development planners and range scientists tend understandably to favor conservative pastoral strategies. But how is the "carrying capacity" to be calculated? We recognize that a salient feature of the Nigerien pastoral zone is the enormous and unpredictable variation in the quantity, frequency, and distribution of rainfall and therefore of terrestrial graze. Given the nutrient profile of the soil, forage production varies almost linearly with rainfall. Diarra and Breman (1975, cited in Sandford 1982:65) demonstrate that relationship from sites in Mali:



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Since the amount of forage is as unpredictable as the amount of rainfall, and in some years will be reduced to near zero, the selection of a conservative figure for carrying capacity will inevitably mean that in most years the range could sustain far more animals than actually utilize it. Sandford refers to this as "understocking" and asks the question: over the long run, which strategy is economically sounder; one which habitually overstocks or one which habitually understocks? Livestock development rhetoric tends to favor the latter strategy, rendering it on a collision course with the more opportunistic use of rangelands practices by Tuareg and FulBe herders in Niger. (It is relevant to point out that Sahelian ranges are dominated by annual grasses, on which unconsumed forage cannot be saved for another year nor is the quantity of the next year's herbage influenced by the amount of standing grass at the end of the current year.)

Development Efforts

The first generation of external interventions in Niger's pastoral sector was only minimally concerned with ecological issues, perhaps because the French domestic approach to livestock was exclusively veterinary (Doutressouile 1947). In the British colonial possessions in Africa, Canadian, Australian, and New Zealand experiences in ranching and open-range grazing informed the livestock services, but in the French colonial possessions, like Niger, the major interest was in animal health with a subordinate involvement in marketing. The Service de l'Elevage could have been called the "Service de la Santé Animale," and French assistance basically involved personnel training in veterinary medicine, both in country and in France, and the creation of a network of veterinary health stations, carrying out vaccinations and certifying the sanitary conditions of animals slaughtered for local markets. Vaccination campaigns were scattered and rudimentary until the massive multistate rinderpest eradication campaign of the mid-1960s. Today, the Common Market (FED) supports the annual "contra la peste bovine" campaign, and during that period vehicles and fuel become available to veterinary officers and their staffs to bring vaccine to the herders. At the end of the campaign, the vehicles return to their garages, and many veterinary posts find themselves without transportation or fuel for the remainder of time until the next campaign. (In Francophone African countries with a greater fraction of their territory in higher rainfall zones, the French also supported genetic research programs, especially the search for trypanotolerant cattle. Very little of Niger, however, is affected by tsetse flies, and almost all are of zebu types.)

Other than veterinary interventions, the French provided some well-digging and maintenance in the pastoral zone, including diesel-powered and artesian bore holes, and built slaughter-houses. There was little awareness or concern for environmental issues (a prominent exception being a work by Harroy 1949), and little interest in substantially modifying traditional pastoral practice.

The second generation of external interventions, the replication of Western commercial livestock production systems, was represented in Niger by a single effort that was almost immediately seen as an unmitigated failure: the FAO

managed ranch near Goure in the late 1960s. The lack of historical memory about this venture is remarkable, for there is almost no recollection of the attempt to place a huge ranch under fence smack across the transhumant orbits of a number of pastoral peoples in that region. In a review of World Bank efforts in West Africa, Horowitz (1979:15-16) concluded that they have been, almost without exception,

> financial catastrophes, achieving nowhere near the rates of return anticipated from the initial cost/benefit analyses. Managerial costs are too high, and the prices received from production—which cannot exceed world market prices for beef without heavy subsidies—are too low. Production itself often falls far below expected levels.

A third generation of livestock interventions in the Sahel and in other parts of pastoral Africa are those which propose innovations in organizational systems. This currently popular approach to intervention shares with the first generation of activities the notion of working directly with pastoral herders (and small farmers), and shares with the second generation the introduction of technological "solutions" derived from commercial operations in developed countries. A major component of these programs, such as the AID supported Mali Livestock I Project and the World Bank's Eastern Senegal and Mali Livestock Project is a range management that is abruptly discrepant from traditional practice. Specific pieces of the landscape are allocated to specific individuals and/or groups. The power of the state is invoked to prevent incursions on the land from persons and animals not included in the scheme, and to control the movements and numbers of animals of those who are. In order to participate—and this participation is not invariably voluntary —the herder gives up control over his major adaptive strategy: mobility. He also gives up the right to decide how many animals he will maintain and how many he will cull at any given time, and in return for these constraints herders are supposed to receive improved pasture (a consequence of reduced charge, rotation and, in some projects, pasture seeding), veterinary services, wells, credit, rationalized slaughter, market services, and such intangibles as functional literacy. Stephen Sandford, who is now Head of the Livestock Policy Unit at the International Livestock Centre for Africa, Addis Ababa, wrote of such projects (1981:59-60):

> It is right that the Bank should support proposals to introduce technical or managerial innovations which have not yet been formally proved, provided that such unproved innovations are introduced with due caution about their effects on human welfare and the environment. Full- or pilot-scale operations may be able to bypass time-consuming research, and even research-proved innovations may be proved inapplicable under operational conditions on a larger scale. What is not sensible is that projects should disregard the experience which existing pastoralists have of using the rangelands of the area, that they should try to <u>force</u> pastoralists to implement untried innovations, and that so little research is funded to increase our knowledge for the future. I cannot recall any study...in which the major feature was an attempt to find out what pastoralists believe about the dynamics of vegetational change and the role that livestock/vegetation interaction plays in this... Most researchers in range science have, at best, a most cursory and

> casual contact with pastoralists other than ranchers. In the [World Bank's] ... East Senegal... [and] Mali projects, it was proposed that traditional pastoralists on their own land should be pressurized into entering agreements, leases or contracts to compel them to take the advice of government technicians about range management (stocking rate, rotation, etc.) issues on pain of losing their rights to their land... Where pastoralists are compelled to accept ill-founded government advice, for example on stocking rates, they will suffer a substantial loss of income. Instead of talking about socio-economic obstacles to improved productivity, one needs to ask why on earth pastoralists should have agreed to proposals which there was so little reason to believe would do them any good.

Two livestock sector projects in Niger today (there is also a small French-financed project in the western portion of the pastoral zone) evidence how far we have come. The World Bank's Centre-Est project was appraised in 1978, and sought to define "pastoral units based on traditional land use patterns" and to recognize formally "associations of pastoralists based on traditional social groups." Rather than attempting to impose some organization alien to existing pastoral practice, the Centre-Est project seeks to identify groupings which have shown themselves, by their durability, to be well-adapted to the exigencies of the physical and socio-political environment. The approach claims to build on existing strengths and capacities of local populations, and to disrupt as little as possible those social arrangements which give substance and meaning to pastoral life. The social analyst on the appraisal mission felt, however, that while pastoral associations might be readily identifiable, the attempt to define geographically delimitable areas—"pastoral units"—for the relatively unique exploitation by a specific social group, was discrepant with reality. Persuaded that a system that had been appraised in Chad was applicable in Niger, the Bank sought a second opinion (Clanet 1978), who prepared a document partitioning the project zone into "unités pastorales". Recent discussions with persons responsible for project management, in the field and in Washington, indicate that the notion of pastoral units has been "shelved" and the project is operating more nearly along lines suggested by the original social analyst.

The joint efforts of USAID and the Government of Niger in the pastoral sector pioneered an entirely new approach to livestock development. the first pastoral zone project in all of tropical Africa that anticipated providing adequate time, personnel and resources to the understanding of the social economics and ecology of the pastoral production system, and the first genuinely to involve the herding peoples in the zone in the definition of an action program. The Integrated Livestock Production project to be implemented in 1983 by a team organized by Tufts University will base its interventions—especially the creation of pastoral associations, plus various range and veterinary actions—on first rate studies in a number of areas. The reports from the socio-economic section of the Niger Range and Livestock project, focusing on household level economics, are models of their kind, and the project's findings will be much explored for years to come.

The Drought

One of the consequences of the great Sahelian drought of 1968-1974 was to focus attention on the land, the second element in the pastoral production system. There was fear that the semi-arid range environment was fragile, subject to secular degradation or the permanent decline in the ability to produce useful crops. Whereas pre-drought interventions in the zone normally sought to increase the size of national herds--through veterinary/sanitary actions and through the implantation of new watering points to open up new grazing lands--post-drought interventions were informed by the assumption that not only is the rangland deteriorating, but that the cause of that deterioration is the pastoral herders, whose management strategy is to maximize short-term gain through unrestrained increases in herd size. The assertion of pastoral responsibility for some assumed environmental degradation quickly took on the attributes or status of fundamental truth; few claimants felt the need to marshall persuasive evidence in its support. A "general agreement" was all that seemed to be required, for example:

> It is generally agreed that overstocking and the lack of managed grazing patterns in the Sahel are the most important causes of desertification in the region and that desertification is a symptom of more fundamental problems of rapid population growth and the inability of individuals and communities to adopt known land management and conservation technologies. If current desertification trends cannot be reversed quickly, the countries of the region may permanently lose the capacity to feed themselves and the ability to support a growing population at even current subsistence levels. For these reasons, the mastering of the critical problems of overstocking is one of the keys to the medium- and long-term economic development of the Sahelian Region (Ferguson 1977).

Almost identical wording—"It is generally agreed that overstocking and the lack of managed grazing patterns are important causes of environmental degradation..." —was incorporated in the livestock strategy position paper for the Sahel Development Program Agricultural Synthesis Seminar (AID 1977).

The accusation that herders were the cause of their own misfortunes was buttressed by the notion that animals were "individually" owned whereas the range was "communally" owned. Borrowing from Garrett Hardin's (1968) observations, planners referred to the declining capacity of the Sahel to support the pre-drought human and animal population as a "tragedy of the commons" (Picardi and Seifert 1976), as individual herd owners destroyed the common range through rapaciously increasing the size of their individual herds. The handfull of scientists who had actually lived with pastoral groups argued that this image of pastoral peoples hell-bent on their own destruction was false. In an important series of papers, Edmond Bernus (1979a, 1979b) demonstrates the environmental concerns of pastoral Tuareg in Niger, clearly falsifying the stereotype of nomads nomadic practice as the cause of Sahelian degradation; his studies confirm the emerging sense that pastoralists are more likely the victims of a degradation whose causes are to be found, in part, in the natural oscillations of rainfall and, in part, to the rapid contraction of the pastoral zone as more and more land is claimed for other purposes and these claims are supported by the force of the state.

The Objectives of Development in the Pastoral Zone

Each of the elements in the pastoral production system is the focus of current development actions, creating a situation in which the various objectives are not invariably harmonious. Development efforts seek simultaneously (1) to improve productivity; (2) to increase producer income, well-being, and "quality of life"; (3) to retard or reverse environmental degradation, and, for the World Bank at least; (4) to generate a favorable return on investment. The first objective is most problematic because it is rarely described with much precision. What is the definition of increased productivity in the livestock sector? Is it increased productivity per unit labor, or per unit animal, or per unit land?

Increasing the productivity of labor would seem to mean increasing the weight of animals per active herder, either by reducing the number of herders while retaining the size of the herd or by increasing herd size while holding the number of laborers constant. Ranching, for example, is less labor intensive than pastoral herding. But is increasing the productivity of labor a useful objective? Can herding be made less labor intensive? If it can, either the range must sustain an increased charge or some alternative employment must be found for new redundant herders. The former runs into the question of environmental stability and the latter into the Niger government's interest in reducing the rural exodus.

Increasing the productivity of the herd is also problematic. If the increase is per unit animal but not per unit herd, this would imply fewer but heavier or more productive animals in terms of milk yields, calving rates, reduced mortality and morbidity, etc. Assuming that the total weight remains stable, is a herd composed of ten 500kg animals preferable to one composed of 20 250kg animals? There is no a priori answer. The nutritional requirements, that is, the charge, is the same. From a management point of view, fewer but heavier animals would seem more efficient. Herding strategies, however, especially in times of drought or low botanical production on the land, may require division of the herd into smaller units, taking advantage of available labor to move the animals to widely dispersed pockets of pasture. That division is facilitated by having a larger number of lighter animals. Furthermore, the need periodically to sell or slaughter an animal creates a less difficult situation if only five rather than ten percent of the capital stock is thereby consumed. "In conditions of high risk and relatively plentiful labor, one cow yielding 1,000 liters of milk is not better than two cows yielding 500 each if the one cow eats twice as much feed or more than each of the two" (Sandford 1981:54). Most livestock development projects in the Sahel, as elsewhere in tropical Africa, imply that the proposed interventions will increase animal productivity. The proposed USAID-financed Integrated Livestock Project envisages projects impacts on herd productivity (1983b:138):

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Demographic Characteristics of Ruminant Species			Anticipated Project Impacts
Cattle:	Net Reproductive Rate -	0.50	0.55
	Mortality Rate 0 - 1 yrs -	0.20	0.15
	1 - 4 yrs -	0.04	0.04
	4 - 9 yrs -	0.05	0.05
Annual Milk Production for Human Consumption (liters)		200	220
Camels:	Net Reproductive Rate -	0.43	0.43
	Mortality Rate 0 - 1 yrs -	0.15	0.13
	1 - 5 yrs -	0.07	0.06
	5 -17 yrs -	0.04	0.03
Annual Milk Production for Human Consumption (liters)		250	250
Sheep:	Net Reproductive Rate -	1.00	1.00
	Mortality Rate 0 - 6 mos -	0.30	0.25
	6 -15 mos -	0.08	0.06
	15 -60 mos -	0.08	0.07
Goats:	Net Reproductive Rate -	1.15	1.25
	Mortality Rate 0 - 6 mos -	0.35	0.25
	6 -15 mos -	0.07	0.06
	15 -60 mos -	0.07	0.06

A reasonable case can be made that productivity per unit animal can be improved through nutritional and veterinary interventions. The same cannot be said for what should be the more critical innovation, improving productivity per unit land. Sandford (1981:55-56) makes the point baldly in his review of World Bank livestock projects in tropical Africa:

> I believe that claims that the knowhow already exists to improve range and pasture productivity in areas with annual rainfall less than 600 mm have mostly been unjustified although extremely commonly made. Such claims tend to be based on under estimates of the productivity of the existing pastoral range-use systems and on the belief that techniques of range management developed in the USA and Australia are applicable to Africa. Productivity comparisons between traditional African pastoral systems and other systems...are often made in terms of yield (or technical coefficients) per animal and not per hectare, often without allowance for differences in rainfall and soil quality..., and often expressing output in terms of yields of meat, ignoring the fact that ranches are normally run to produce meat and pastoral systems to produce milk. Quite often "commercial" farms in Africa are believed to practice "modern" range management systems when, in fact, they do not, so that not only are they credited with bogus productivity differentials but these differentials are then ascribed to non-existent causes.

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Measures to improve the productivity of land usually involve one or more of the following elements: limiting the charge to some defined "carrying capacity" of the range; outright banning or restrictions on the use of range fires; rotational grazing; forage species seeding and improvement of arboreal pasture (Horowitz and Badi 1981). "...the most remarkable thing was how little reference there was in appraisal reports to any evidence that these measures improved land productivity" (Sandford 1981:57).

It has become slowly but persuasively clear that, apart from veterinary and animal nutritional interventions, and apart from opening-up remote pastures through well-digging, which itself has perhaps caused more problems than it has solved, a "technical package" designed to improve the productivity of semi-arid rangelands does not yet exist. A great deal more research is needed, precisely of the kind being undertaken by USAID and the Niger Government in their project zone.

NIGERIEN PASTORALISM

Pastoral production in Niger is based on extensive herding of cattle, goats, sheep, and camels, in an area of low rainfall characterized by considerable discontinuities in time and space in the availability of water and pasture. This production was traditionally oriented primarily toward milk for domestic consumption, and to the breeding and sale of male animals to exchange for cereal grains and other externally produced necessities of pastoral life. Prior to the great drought there were some inequalities in the distribution of livestock among various classes of pastoralists (v. Baier and Lovejoy 1977; Bourgeot 1979), a major objective of pastoral producers was the providing of subsistence for the maximum possible number or individuals consistent with the available milk production and grain purchase potential from surplus livestock sales, as balanced against the necessity of assuring the welfare and reproduction of capital in livestock.

Pastoralists in Niger developed a wide variety of rational exploitation strategies of their pastoral milieu that take into account the temporal and spatial discontinuities of water and pasture. The principal feature of this discontinuity in Niger is the existence of extremely rich rainy season herbacious pastures composed primarily of annual grass and arboreal species in the vicinity of temporary pools of standing water and surface aquifers that can supply shallow wells. Such temporary rainy season resources are found in the northern regions of the pastoral zone, in the Eghazer of Agades, a runoff basin west of the Aïr Mountains. During the two month (July and August) rainy season and for two to three months thereafter depending on the extent of the summer rains, these pastures are available for livestock grazing. They yield from 2,000 to 4,000 kg of dry matter per hectare, surpassing the livestock carrying capacity of more southerly pastures by a factor ranging from eight to thirty (Rippstein and Peyre de Fabrègues 1972).

By mid-November this rich but temporary pasture zone becomes unusable, and the herders disperse towards zones exploitable for pastoral production in all seasons because of the availability of less rich but more enduring resources

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in water and pasture. As they return to their home areas, they pasture their animals in the vicinity of remaining temporary pools of water and as the last of these pools dry up they complete the dry season in the vicinity of deep wells, some privately owned and others provided by the government of Niger. At the onset of the next year's rains, the cycle begins again.

Pastoral production in Niger involves a finely tuned and rational exploitation of these fluctuating resources. By controlling the relative mix of livestock in camels, goats, sheep, and cattle, and by timing the phases of their reproduction and seasonal movements, the pastoralists of Niger are in effect managing an "investment portfolio." This portfolio involves balancing high risk and high yield investments (cattle and sheep) with low risk moderate yielding investments (camels and goats), with the dual aims of optimizing milk and sale male stock and assuring reproduction and protection from loss.

Decisions in the management (although not necessarily ultimate ownership) of livestock by pastoralists of Niger is and has always been highly decentralized. The individuals who stand to lose or gain as a result of their strategies are in direct control of the important decisions that affect the welfare of the animals. Aided by a precise knowledge of pastoral technology and the varying potential of their territories and, by an efficient information gathering system, on pasture conditions, Niger herders exploit a region practically unsuitable to any other use given the current state of the available technology and investment capital. In so doing they provide themselves with a satisfying life and an independent livelihood. The overall pastoral strategy involves balancing the subsistence of a very large number of individuals in the pastoral zone consistent while assuring the welfare and reproduction of capital in livestock, and the reproduction of the social relations of the community.

A most significant aspect of pastoral production strategies in Niger is the extreme decentralization of decision-making in the management of pastoral production units. This is as true of FulfulDe-speaking pastoralists as it is among Tamasheq- and Arabic-speaking pastoralists, although there are fundamental differences in their social and political organizations. The FulfulDe-speaking WoDaaBe (also known as Bororo in the western pastoral zone and Anagomba in the east), were organized into segmentary lineages without any centralized hierarchical system of political authority. Arab and Tuareg pastoralists, historically camel herders in the northern pastoral zone, on the other hand, were organized into hierarchically-stratified confederations involving a considerable centralization of political authority. This social differentiation is reflected today in the existence of a variety of stratified social classes among Tuareg and Arab pastoralists; that is, classes with differential access to strategic resources (labor, animals, other capital, and land). That the basic decision-making units of pastoral production are highly decentralized among groups of pastoralists with fundamentally differing political systems implies that this decentralization is of some considerable adaptive significance to the functioning and continued survival of pastoralism as a form of subsistence and production.

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Tuareg

A. The Eghiwan Camping Group. The basic Tuareg social and pastoral production unit is the camping group, or ǵghiwan (pl. ichawnan), which in the Agadez region usually consists of from three to eight tent household units, or inan (sg. ehan). Bernus reports a much higher figure, ranging up to twenty-nine tents, for the Illabakan who graze a more southerly zone (1981:38). An ǵghiwan is normally an extended family group consisting of a senior couple, their unmarried children, and some of their married children. While the Tuareg express a preference for virilocal residence (married sons living in their father's ǵghiwan) and this is to some extent the dominant practice, there is no hard and fast rule and it is not uncommon to find married daughters and their families living in their father's ǵghiwan.

Additionally, the ǵghiwan may include the inan of elderly collateral kin such as, for example, the widowed sisters of the senior male's wife, as well as the ehan of one of the senior male's former wives and their children. If the ǵghiwan camping unit is wealthy in livestock, it may also include the inan of one or more families of Iklan hereditary servants and Inadan artisans as well as the inan of poor dependents who may not be related to the senior family in any demonstrable way. Supporting dependent Inadan and impoverished pastoralists brings prestige to the core extended family of an ǵghiwan.

While Tuareg livestock are owned individually and can be alienated at will by both male and female members of an ǵghiwan, the largest share is owned by the senior couple. Their children are to some extent dependents living partially off of milk animals loaned to them by the senior couple and awaiting their share of the inheritance distribution at their parents' death. The existence of these ties of economic dependency among the core family members of an ǵghiwan leads to some centralization of decision-making authority in the senior male and female. One should note in passing that as women both own and control all varieties of livestock among the Tuareg and are therefore in a position to initiate loans and gifts of livestock, they are able to command considerable respect and authority. This area of women's control and ownership of livestock among the Tuareg is one that has been insufficiently researched and which should therefore be accorded priority in future studies.

Resident collaterals may be, in part, economically dependent on livestock owned by members of the core family, while resident Iklan, Inadan, and impoverished pastoralists are usually largely dependent on the ǵghiwan's herds. Reflecting the relative dependency of the members of an ǵghiwan on the livestock herds of the senior couple, they are known collectively as chǵllakawen.[3]

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[3] Derived from chǵilek, literally 'louse", a term that can be glossed in English as either 'poor' or 'dependent'. Thus one of the common polite greetings for a senior Tuareg male is "Mani chǵllakawen?" ("How are your dependents?').

The senior male is often referred to politely as amghar (literally 'old man'), although this term is most properly used in reference to the formal head of a Tuareg tawshit or clan. It is however impolite to call a senior woman tamghart, which is the feminine of amghar and means 'old woman'; she is respectfully referred to as tenéslémt ('holy woman').

The Tuareg éghiwan is in a very important sense the basic unit of social organization and pastoral production. Its core members are bound to one another through ties of kinship and economic dependence. The éghiwan is often the unit that contracts the construction of dry season wells and thus controls the pastures surrounding these wells. These wells are then reserved for their own use, although dependent pastoralists and Inadan artisans will be allowed certain use rights and if there is sufficient excess capacity, water rights may be sold to outsiders (both Tuareg and WoDaaBe) on a seasonal basis.

An éghiwan's livestock, although individually owned, are usually organized into common herds separated by type, with camels and cattle making up separate herds while sheep and goats are usually combined into one mixed flock.

Through control over permanent traditional wells ighawnan also control the dry season pasture surrounding these wells. Thus in the fossil valley known as Tchin Sakan, which runs from east to west about 80 km south of In Gall, there are a large number of traditional wells, each about 5 km from the other and each owned by an éghiwan camping group. The pastures between these wells form the dry season grazing reserves of numerous Tuareg ighawnan primarily although not exclusively of the Kel Fadey Confederation.

Decisions concerning the movement of livestock during the seasonal cycle are made by the members of an éghiwan. Additionally, in the Aïr the labor used in herding and in watering the livestock from deep wells during the dry season is provided by the men of the éghiwan including the éghiwan's Iklan. According to Bernus, Tuareg of the Tahoua region commonly contract impoverished Tuareg to act as livestock herders (1974:81), but this practice is less common in the Aïr, perhaps because the Tuareg of the Agadez region are not as wealthy in livestock as those of the Tahoua region and are therefore able to supervise adequately their herds with the labor of éghiwan members. Resident Iklan are also more common among Tuareg pastoralists of the Tahoua region than in the region of Agadez, again probably implying a reduced production surplus and a reduced need for labor among the Kel Aïr Tuareg.

B. The Ehan Household Group. Because access to pasture and water in the dry season, the organization of pastoral movement in space and time, the devolution of property through inheritance, and the support of mendicants is the province of the éghiwan, we have referred to it as the basic social and production unit of Tuareg society. Yet the ehan tent or household group is also an important social and production unit with functions complementary to those of the éghiwan.

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Livestock are owned individually and the milk from the livestock owned by the members of an ehan is primarily for their use; if they have a sufficient production surplus they may also provide milk for Inadan clients and dependent impoverished inan family units. The enan unit shares at least a part of the proceeds from the sale of surplus livestock individually owned by members of an ghiwan, to be used in purchasing the necessities of pastoral life including sorghum or millet, cloth, tea, tobacco, sugar and the like. The ehan keeps its own supply of water in abiogh skin containers, replenished by the women and children of the ehan, and it maintains its own supply of cereal grains and other food products.

It should be noted that information on the control and use of income obtained from the sale of processed milk products such as cheese and butter has not been readily available and it is hoped that this gap in our understanding of household economics is being filled by socio-economic studies on the Niger Range and Livestock project. Milk is shared by the members of an ehan, but as cheese and butter are made by women it is possible the proceeds from the sale of cheese and butter become the personal property of the woman who did the processing. If so this might be an important means by which women obtain the money to acquire their own livestock.

C. Stratification and Political Organization. Tuareg social institutions were characterized by gradations of status. At one end of the scale were slaves with little freedom, and at the other, a class of aristocratic leaders with nearly exclusive control of wealth and power. In the Central Sudan...the Tuareg were primarily pastoral nomads, but their economy straddled the ecological frontier at the southern edge of the Sahara, and they invested in many aspects of trade and production throughout the region (Baier and Lovejoy 1977:391).

A knowledge of Tuareg political organization and social stratification is important to an understanding of their pastoral production system. In pre-colonial times, Tuareg society was politically centralized and hierarchically stratified into a number of social classes with ownership and control of large livestock, particularly camels, being vested in the dominant groups, known as imajghan (s. amajer). Today the imajghan retain only vestiges of these rights to their follower's livestock, but the source of current inequalities in the distribution of livestock among Tuareg pastoralists has its roots in the pre-colonial situation, as politically dominant persons were often able to continue in possession of large herdes of livestock.

Tuareg society is composed of the following social classes: Imajghan nobles, Ineslemen religious specialists, Imghad vassals, Izelitan or Idarfan degraded vassals, Iklan hereditary servants (recruited through captives), Ighawellan descendants of iklan, and Inadan artisans. The major unit of centralized political authority among the Tuareg is the confederation or tobal which is subdivided into a number of subsidiary groups (often ten to twelve) known as tawshiten. A confederation consists of small number of noble imajaghan tawshiten and a larger number of vassal or client imghad tawshiten along with affiliated ighawellan pastoralists, iklan household servants, and inadan artisans. The leader of a confederation, known as the ettebel or 'drum chief' is always a member of the dominant imajaghan

tawshit. There are broad regional differences in the particular forms of Tuareg confederations, but a detailed description of these is beyond the scope of this discussion of pastoral production systems.

The tawshit is a political group that consists of a number of iqhawnan among whom there is an assumed kin relationship. A tawshit is a bilateral group, with no definite internal groupings organized along kinship principles. A tawshit is also preferentially endogamous and is not related through any ideology of descent from a common ancestor to any of the other tawshiten of the confederation to which it belongs. This is in contrast with the WoDaaBe and many other nomadic pastoral groups in other parts of the world among whom the dominant organizational feature is a belief that the various political units are related through common descent from some ancestor. The ties that relate the various tawshiten of a particular Tuareg confederation to one another are thus strictly political and it is this fact that led Nicolaisen to refer quaintly to tawshiten as "tribes" (1963: 152-154).

In pre-colonial and early colonial days, the imajaghan nobles specialized in warfare, raiding, and especially in trade and transport, leaving much of the herd management to their imghad clients.

> Desert and savanna were bound together by commerce... Although their mobility and skill in warfare enabled them to dominate the relatively fertile areas of the Sahel, they also relied on trade in their relations with both Sahel and savanna. For the Tuareg of the Aïr Massif, Adar, Azaouak, and Damergou, this meant the areas centering on the Hausa states... The concentration of Tuareg along the southern fringes of the desert placed most of them in close proximity to farming villages and savanna markets, where they bought millet, clothing, other manufactuers, kola nuts, and tobacco. The income needed to purchase grain and manufactures was largely derived from the sale of animals..., through the provision of services dependent on livestock production, and through involvement in the grain, date, and salt trade... (Baier and Lovejoy 1977:394).

With their camel caravans, Tuareg nobles dominated the trade routes from the large towns of the Hausa states in Nigeria to the salt and date-producing oases of Bilma and Fachi, deep in the Sahara. Constituting less than ten percent of the Tuareg population, imajaghan invested in farms worked by slave laborers who supplied much of the grain consumed by the pastoralists; these nobles, "Individually and as corporations, controlled large networks of resources and people in varying degrees of servility and dependence" (Ibid.:399), and managed what were essentially large commercial firms. According to Baier and Lovejoy (Ibid.:397-398), influence was derived from wealth rather than from political position, and the drum chiefs had little formal authority over the members of his confederation.

Livestock owned by clients was subject to particular levies as, for example at a client's marriage half of the camels constituting the bride wealth exchange became the property of the imajaghan and there were similar levies on clients' inheritance of livestock. Imajaghan also distributed herds among their imghad.

who then had rights to the milk production, but the herds were subject to recall by imajaghan at any time through an institution known as tarkept (Bernus 1981:80). This right by imajaghan over livestock in the possession of imghad was finally suspended by the French colonial administration in 1918 (Ibid.:108). Today only vestiges of these noble rights over the livestock of clients remain in practice. For example, the ettebel of the Kel Fadey Tuareg confederation, which nomadizes in the area of In Gall, can still demand sheep or goats from his clients on the occasion of a feast required for the entertainment of important visitors to his camp.

Today, except for minimal residual rights possessed by imajaghan, the ownership of livestock among the Tuareg is vested in the groups primarily responsible for the day-to-day decisions of pastoral production. The change from centralized ownership in pre-colonial times to decentralized private ownership seems to have caused few problems for pastoral production, probably because the most important factor to the success of this form of production--the decentralization of decision-making--was not affected by the change. The inequities in the distribution of animals is great, and were exacerbated by the drought and its aftermath.

Seasonal Herd Movements

A fundamental issue in the implementation of economic development policies in the pastoral zone is the degree to which pastoralists can be restricted by government fiat in their access to range and water without seriously reducing their strategic options for responding to annual rainfall fluctuations. The most radical position, traditionally associated with the Food and Agricultural Organization (1962; 1973),[4] favors almost complete sedentarization. Pastoralists would be settled

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[4] Pastoralists have been viewed with disfavor by governments and development planners for a very long time. Of the multilateral organizations, the FAO had been the most consistent advocate of changing pastoral practice. In 1962 they noted two ways of ameliorating the conditions of arid zone grazing:

> The first is to introduce measures of improved management in the semi-arid grazing lands themselves which still make it possible to utilize this resource on the basis of conservation and to produce the livestock products characteristic of the environment. The second is to start actions which will make it possible if not essential for the free-range grazier and their livestock gradually to rely less and less on the semi-arid grazing resource, and to become more sedentary than they were before. This trend is desirable from a social, medical, and educational point of view (FAO 1962:363, emphasis added).

Ten years later, during the Sahelian drought, FAO's accusation was even fiercer: Quant aux nomades,

> ces populations constituent maintenant une lourde charge sociale, économique et politique pour leur pays... Il ne prennent soin de rien, se refusent à tout

(continued on next page)

favors almost complete sedentarization. Pastoralists would be settled in delimited areas to which they would have exclusive rights, and seasonal variations in the availability of pasture would be made up by using agricultural byproducts to feed the herd. The disadvantages of such complete sedentarization schemes have been analyzed by Horowitz (1979:38-39), who describes the disastrous effects such programs have had on both herders and the range in Kenya.

In good rainfall years, Nigerien pastoralists follow transhumance patterns that are highly predictable and these might seem to lend themselves to some scheme for assigning areas and routes to particular groups on some rationalized and permanent basis (cf. 1981). Edmund Bernus has excellent maps delineating horne grazing areas and transhumance itineraries for herders from the regions of Agadez, Tchintabaraden, Tanout, and Dakoro (1974:52-64, Cartes 1, 2; 1981:315-383; Cartes 1, 2, 3, 4). The itineraries described in these studies are normative patterns followed in good and average years, but in years when the annual rains are either below average or else poorly distributed pastoralists deviate radically from these patterns and employ fallback strategies that even include reversions to practices normally associated with hunters and gatherers.

A. The Annual Transhumance Cycle in the Eghazer. Exploitation of the incredibly rich but short-lived pastures of the Eghazer of Agadez is a crucial but poorly understood element in the transhumance strategies of pastoralists whose dry season bases are in reasonable proximity to them. Some studies seem to attribute that movement, and the intense congregation of animals there in the late rainy season, to the availability of terrestrial salts. Bernus (1974b:34-36; 1979:68-71; 1981:293-300) provides the most complete description and analysis of the contribution of the Eghazer valley to pastoral production in the region. The valley is a cornucopia of nutritious annual grasses capable of supporting as much as two tropical livestock units (UBT, the weight equivalent of a camel) per hectare, compared with a ration of one UBT to 15 hectares in the relatively well-water southern reaches of the pastoral zone (Ibid. 1974b:35). Fed by runoff from seasonal water courses flowing westward out of the Aïr Massif, enriched by minerals leached from the mountain's volcanic soil, the Eghazer valley is transformed within a few days of the first rains from a barren arid zone to one waist-high with lush annual grasses.

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4 (continued)

travail manuel, rechignent à payer l'impôt, se résignent difficilement à vendre leurs bêtes et, de ce fait, ils n'apportent pas à la vie économique des pays toute la contribution qu'ils seraient en droit d'attendre d'eux... Leur alimentation est un luxe et un gaspillage, du fait qu'ils assurent plus de 50% de leurs besoins énergétiques avec des produits animaux. Consommer aujourd'hui plus de fromage et de lait que de céréales est un luxe...et payer les céréales plus cher que la viande qu'ils vendent est un absurdité économique qui les éloigne de toute intégration possible à une économie de marché (FAO 1973:14).

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The high clay content of the soil, a result of the Eghazer being an evaporation basin with no external drainage system, chemically binds moisture except when the area is flooded by the annual rains. Thus the rich pasture dries quickly and has practically no nutritive value during the dry season. Given this limiting situation the plausible strategy for exploiting this generous but fugitive pasture zone is for as many animals as possible to congregate there to consume all the grasses while they are still green and therefore possess high nutritive value. Any forage not consumed while green and nutritious cannot be carried over the following year.

While animals are grazing in this zone during the June and July rains and for about a month or two thereafter, the other pastures of Niger, both north and south of the Eghazer valley are in a sense being reserved for the remainder of the year, at which time they are then exploited through a variety of strategies. When the rains in the Aïr Massif fail and the Eghazer zone is not flooded, alternative "fallback" strategies are followed.

The following outline of the transhumance is based on Bernus' detailed group-by-group description of normative transhumance itineraries (1981:315-383) and his camp-by-camp description of these itineraries for the Illabakkan group (1974: 52-54), and is supplemented by unpublished field research reports of Candelario Saenz. Saenz spent 22 months of extensive research in pastoral camps throughout the Agadez region, from Tadarast south of Marandet, up to the plains of Talaq near Arlit. These transhumance patterns vary according to the pastoral groups' home well grazing areas in relation to the Eghazer valley. Basically, pastoralists living to the north, south, east, and west of the Eghazer valley approach the pastures of the Eghazer from the direction in which their home wells are located. The particular timing of their approach, their subsequent movements after leaving the Eghazer valley around November and their fallback strategies in the event of the failure of pasture in the Eghazer zone depend on the ecological features of the region in which their home wells are located and therefore on the type, quality and distribution of the resources that will be available to them for the remaining nine months of the year after the three month transhumance period in the Eghazer valley.

Pastoralists living north of the Eghazer and the 150 mm isohyet exploit a desert ecosystem that depends in part on pastures in the valleys of seasonal water courses flowing out of the Aïr Mountains, as well as on the the occurrence of chance winter rains in the far northern valleys of the Aïr Massif and the winter growth of nutritious desert vegetation, such as alwat (Schouwia thebaica), in the dunes around In Abangharit. Herders from the southern Tahoua, Tanout and Dakoro regions exploit more reliable ground and arboreal pastures in zones with more readily available surface water for several months after the annual summer rains. These ecological differences play an important role in determining the strategies employed by pastoralists in their transhumance patterns.

The pastoralists of the driest zones in the northern areas of the region of Agadez include Tuareg of the Kel Tadele, Kel Gharus, Ikaskazan, and Kel Ahaggar as well as a number of Kunta Arab camps. These pastoralists descend into the

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northern areas of the Eghazer valley during the rainy season, after which they exploit the pastures in the valleys of seasonal streams flowing westward out of the Aïr Massif, such as Anu Maqaren and Seqiret. During the cold months of December and January alwat pasture grows from residual moisture in the dunes around In Abangarit and these pastures are exploited during that period.

At times, winter rains fall in northern valleys of the Aïr Massif. When Saenz passed through the area of Termit north of Iferwan in February 1977, rain had recently fallen and there was an abundance of both ground and arboreal pasture in the area. The Kel Tedele and Kel Gharus exploit pastures in both the northern valleys of the Aïr Massif and in the dunes around In Abangharit, and as these zones are found at the opposite extremities of the far north of the region of Agadez their exploitation dictates a broad pattern of east-west movements during the dry season in that northern zone.

The region north of the 150 mm isohyet is not the most hospitable, and is suited only to the hardier types of livestock, but it is an exaggeration to refer to it as practically uninhabitable desert (Arizona 1980:3). One of Saenz' Kunta informants called it, with some hyperbole, a "land of plenty." In 1977, when pastures failed in the Eghazer, members of the Kel Fadey confederation saved their herds by making the long trek north into Talaq.

The pastoralists of the Aïr Massif proper, who consist mostly of Tuareg of the Kel Awey confederation, practice a form of mixed irrigation gardening and pastoralism which they supplement by engaging in the winter caravan trade between the salt evaporation works of Bilma and Fachi and the market towns of northern Nigeria. Many of the Kel Awey live an almost sedentary existence in the mountain villages of Timia, Audaras, Tabelot and Assawas, but they send their animals accompanied by herdsmen to graze on the eastern margin of the Eghazer area near Teggida n-Taggait. During the dry season those animals that are not being used in the caravan trade graze in the upper valleys of seasonal watercourses such as the Telewa, Anu Maqaren and Sequiret where, in certain privileged locations where ground water is retained close to the surface, one finds densely wooded and grassy hollows providing pasture through most of the dry season.

It is almost a certainty that the population of the Aïr Massif proper is greater than could be supported purely through the practice of pastoralism, but through a judicious exploitation of the varied resources of the area, including ground-water resources that permit irrigation gardening and a privileged access to the salt-works of Bilma, the Kel Awey manage to survive there. In earlier times, the ancestors of the Kel Awey were reported to be pure pastoralists who nomadized the desert valleys of the far northern Aïr Massif (Urvoy 1936:139, 165) and so their adoption of mixed irrigation gardening is an illustration of the receptivity of pastoralists in Niger to beneficial change.

Immediately east of the Eghazer, in the valleys of rainy-season watercourses in the foothills of the Aïr Massif, south of the Eghazer in the zone of high plains known as the Tadarast, and west of the Eghazer in the area of In Gall, lie the dry season pastures of two important Tuareg confederations. the Kel Ferwan and the Kel Fadey. The area of the Tadarast south of Marandet is also the dry

season grazing area of a substantial number of WoDaaBe, who have been moving northward for some time (Bonté 1977; Maliki 1982).

The Kel Fadey and the Kel Ferwan rely almost completely on pastoral production for their subsistence and are not involved to any significant degree in either irrigation agriculture or the caravan trade. Additionally, these two groups are among the last remaining major "traditional" confederations in the pastoral zone, in the sense that their constituent tawshiten are substantially the same ones that constituted the groups in pre-colonial times. The other major political groupings of Tuareg in Niger are largely ad-hoc collections of tawshiten created by the former French administration by breaking up existing confederations and reorganizing their constituent tawshiten into smaller units to destroy the power base of traditional pastoral elites.

The Kel Ferwan home-well areas range from the valleys of seasonal watercourses in the southern foothills of the Aïr Massif, and down along the central and eastern Tadarast to Tchin Teborak and Aderbissinat. At the beginning of the rainy season, the northernmost tawshiten of the Kel Ferwan move into the western area of the Eghazer near Tegidda n-Tageyt while the southern groups move upward into the Eghazer around the area of Assawas.

The Kel Fadey who live to the west of the Kel Ferwan follow a more complex pattern of movement at the beginning of the annual rains. The Kel Fadey whose home wells are located in the western Tadarast south of In Gall, move northward at the beginning of the rains and enter the Eghazer along a path that takes them east of In Gall. The Kel Fadey whose home wells are located to the northwest of In Gall either move southward in a great arc before turning northward again and entering the Eghazer in the area east of In Gall, or else they move in a northward arc that eventually leads into the western Eghazer in the area of Fagoshia.

The point of these peregrinations at the beginning of the rains for both the Kel Fadey and the Kel Ferwan is to allow their herds to take the pick of the newly regenerated pastures surrounding the area of the Eghazer, before the arrival of herds from Tanout, Tchin Tabaraden, and Dakoro. By the time of the first rains, pature around the home wells is usually exhausted and the animals are in need of fresh grass. By moving into areas near seasonal pools the pastoralists are relieved of the exhausting task of watering their animals from deep hand-drawn wells.

By around mid-July, as many of the Kel Fadey are still grazing their animals in the pastues to the west and south-west of the Eghazer, the herds from Tchin Tabarden, Tanout, and Dakoro begin to move through the area on their trek into the Eghazer. Throughout the rainy season these pastoralists, including Tuareg, Arab, WoDaaBe, and some FulBe Farfaru mixed-agriculturalists graze their livestock on the rich pastures in and around the Eghazer of Agadez.

By late August and early September these pastures are substantially exhausted or in the process of drying up. At this time the herders begin a slow movement in the direction of their home well areas, grazing their animals on pastures lying

in the vicinity of seasonal pools which provide water for both humans and livestock. The longer this period can be extended the better, as it shortens the period of use in the home-well pasture areas with the consequent greater chance that these will not be totally exhausted before the beginning of the next rainy season. It also reduces the exhausting work of drawing water for animals from deep wells.

A limiting factor in the use of the post-rainy season pastures is the length of time that it takes for the seasonal pools to dry up. Pastoralists attempt to extend this period as long as possible, to the point that they are often forced to use the water of pools that are mere puddles, fouled beyond belief by animal excrement and putrifying vegetation. In the best years of high rainfall some of the larger seasonal pools, such as Amalawlew 30 km south of In Gall, last until February, while in years of poor rainfall they may all be dried up by December.

In the best years, pastoralists remain in the Eghazer until late November, thus preserving the pastures of the peripheral zones, which they then use through February, and as the seasonal pools dry up they return to their home-well areas, which must carry the livestock over into the beginning of the next rainy season. In years of poor rainfall, the use-time of the first two resources is shortened, thus placing a greater load on the home-well pastures. In these drier years, pasttoralists who take up residence in their home well areas in January are often forced by lack of sufficient pasture to leave these zones in March or April to seek pasture in the home well areas of other pastoralists (with their permission, or in the vicinity of public wells.

Thus in mid-March of 1977 the WoDaaBe ardo whose home wells pastures at the In Jaggaran in the Tadarast southwest of Marandet were totally exhausted, left the area with his followers to search for pasture in the vicinity of the public wells near Tchin Tabaradin. The lack of sufficient pasture near his home well was due in part to the failure of the pastures in the Eghazer valley during the previous rainy season. This had led to an overuse of the pastures of the Tadarast during the season of rain-fed pools by herders returning to the south and in part to the fact that the ardo had to return to his home well earlier than usual at the beginning of the hot dry season.

B. Fallback Strategies: In the event that one of the major seasonl resources in the pastoral zone fails, pastoralists are forced into following exceptional strategies in the attempt to save their livestock. In 1976, two years after the end of the drought, the official cure salée transhumance period was delayed by government officials throughout the month of July due to a failure of the rains in the Aïr Massif and Tadarast watershed areas with a consequent lack of pasture in the Eghazer valley. Saenz accompanied a camping group of Kel Fadey Izelitan vassals from their dry season wells near Amalawlew south of In Gall, up to the edge of the Eghazer valley west of In Gall. After spending a few days attempting to graze their herds on the sparse pastures, the Izelitan decided to change their usual itinerary and to return to the Amalawlew area south of In Gall where there was better pasture and more water.

Rainfall in the region of Tchin Tabaraden was sufficient that year and the southern pastures were good, but the pastoralists observed that without the grasses of the Egnazer these southern pastures would be severely taxed. Many of the pastoralists from the southern zones contented themselves with a brief swing through a region of salt-water wells near Teggida n-Tescumt, after which they returned to the area south of In Gall to make use of the pastures surrounding the seasonal pools on their way back to their home-wells.

Pastoralists whose home-wells were in the Tadarast zone south of Marandet complained that the grass surrounding their home wells was largely consumed by herders from the south as a result of the shortfall created. It was this situation that forced the WoDaaBe ardo of In Jaggharan to leave his home-well in mid-March, 1977. At the beginning of the 1977 rainy season, Saenz found the whole In Jaggharan area deserted except for a few Inadan smiths who had suffered a substantial loss of small livestock as a result of staying in the area.

Returning to the time of the aborted cure salée of 1976, by mid-August the pastoralists of the Kel Fadey confederation were in a mild panic, when a brilliant display of lightning illuminated the far northern sky for several evenings in succession. Scouts reported that heavy rains had fallen in the plains of Talaq west of Arlit and that excellent pasture would certainly be found in the area. The Kel Fadey quickly organized themselves into a nomadic expeditionary formation in which the drum chief and the Iralgnawan tawshit moved northward behind a protective vanguard composed of the most powerful imghad vassal group—the Ikherkheren—who traditionally take this role. They arrived in Talaq and joined groups of Kel Gahrus and Kel Tedele pasturing the herds.

Thus, in 1976 the normally sparse desert pastures of Talaq served the purpose of a reserve grazing area for the Kel Fadey, whose own pastures were inadequate due to a localized failure of the rains. There was never any question of the Kel Fadey's right to use these pastures, which are normally the dry-season grazing areas of the Kel Gahrus and the Kel Tedele. The system of open access to these pastures protects them from potentially disastrous animal losses in the event of localized resource failures.

The Kel Fadey remained in the northern pastures until well into the beginning of the hot dry season in mid-March. They described their strategy as attempting to stay as long as possible in the north so that their animals would not completely use up the sparse pasture surrounding their home wells before the next year's rains. It was a very poor year for the Kel Fadey, and livestock mortality was reportedly high. Had the rains failed in 1977, there might have been a real disaster. As it happened, the 1977 rains in the region of Agadez were exceptionally good (although this was not recorded by the rain guage in Agadez, which indicated instead a mediocre year), the Egnazer pastures were exceptional and the dry season pastures of the Tadarast and the area surrounding In Gall were substantially regenerated.

WoDaaBe

As Edmond Bernus dominates the study of Nigerien Tuareg, Marguerite Dupire is the dean of students of Nigerien FulBe, and the many citations to her work (1961, 1962a, 1962b, 1970, 1972, 1975) in this text evidence the high esteem she enjoys. This brief section of the Niger Social and Institutional Profile is indebted to her work, and readers interested in pursuing the issues raised here are warmly encouraged to consult her studies.

Some 6 million Africans speak a group of closely related languages collectively called Fulfulde or Fula. From their linguistic origins in Senegal, these FulBe (called "Fulani," in English literature, after the Hausa term; "Peul" in French, from Pullo, the singular of FulBe; and "Fellata" in Arabic) are widely dispersed across the sudano-sahelian zone, extending from the Atlantic Ocean to Lake Chad and beyond, with pockets of FulBe in Chad, Sudan, and even Ethiopia. Dupire (1970) divides them into three principal geographic regions: a Western area of Senegal, Mauritania, Gambia, and Guinea (although some scholars distinguish a separate Fouta Djallon and eastern Senegal region); a Central area, of Mali (focused about the state of Macina) and Upper Volta; and an Eastern are of Niger, northern Nigeria, and the Adamawa region of Cameroon.

In the Eastern area, two major types of FulBe have been distinguished: FulBe nai'i ("cattle FulBe"), who are pastoral specialists; and FulBe farfaru, semi-sedentary mixed farmer-herders. There are also the Fulanian gida ("house FulBe," using the Hausa term), a village and town-based group, and the TorooBe, a chiefly, maraboutic group. In addition to regional and occupational/ecological distinctions, it is often useful to distinguish groups of free status from those of captive descent.

In Niger, the nomadic FulBe are members of acephalous groupings generically called Bororo by outsiders in the region from Tanout west, and Anagomba east of Tanout. Most of these identify themselves as members of one of two "tribes" or maximal patrilineages: WoDaaBe Alijam and WoDaaBe Degereji. Among themselves, the largest unit of organization tends to be the major lineage, but leadership, minimal as it is, appears only at the level of the fraction, the small group of agnatically related families that habitually travels as a unit.

It is important not to overstate the significance of boundaries between nomadic and semi-sedentary FulBe, for there is often a movement in and out of a full commitment to pastoralism as ecological conditions permit. Thus the following typology is not cast in concrete, but should facilitate negotiating a sometimes confusing terminology:

I. Speakers of Fulfulde: FulBe

A. Pastoral FulBe in Niger: WoDaaBe (Bororo, Anagomba)

1. Maximal Lineage : WoDaaBe Alijam

a. Major Lineage: bi-Ute'en
b. Major Lineage: bi-beDenke
c. Major Lineage b—Koro'en, etc.

2. Maximal Lineage: WoDaaBe Degereji

a. Major Lineage: Njapto'en
b. Major Lineage: Suudusuka'el
c. Major Lineage: Jijiru, etc.

B. Semi-Sedentary FulBe in Niger: FulBe Farfaru

a. Tribe: Tuntunmanko'en
b. Tribe: Bornanko'en
c. Tribe: Uda'en, etc.

II. Non-Fulfulde speakers: KaaDo

WoDaaBe stand in stark contrast to the Tuareg. Whereas the latter have elaborated a complex stratified political organization, a pyramidic structure in which a small minority at the top—the imajaghen or "noble" class—controlled resource access of an enormous number of dependent persons ("free" Tuareg, artisans, captives or slaves), and invested not only in livestock raising, but also in agricultural production, trade, and transport, and periodically conducted military operations for booty and captives, the former are classic egalitarian herders, traditionally eschewing all other forms of economic activity, relating to others not through a class system but through a ramifying network of acephalous segmentary lineages. The Tuareg were equestrian nomads, for whom camels were not merely means of production of milk and meat but also means of reproduction of political control. Mounted on their camels, Tuareg were able to raid and withdraw swiftly; camels provided them with pack animals for long commercial caravans moving from saharan oases with their salt and dates to sudanic towns. The WoDaaBe were mainly pedestrian nomads, whose cattled produced meat and milk but were neither ridden nor generally used for transport. The material culture of the Tuareg was elaborate; that of the WoDaaBe remarkable for its utter simplicity, lightness, and durability. Where Tuareg live in leather and mat tents, WoDaaBe content themselves with windbreaks of brush and simple open-air lean-tos. Where Tuareg are also deeply involved in Islam that they have developed specialized maraboutic groups, WoDaaBe are, at most, indifferent. All WoDaaBe claim membership in a single patrilineage; that is, in principle, WoDaaBe stipulate descent through men from a common ancestor. The patrilineage is not a unitary structure, however, for it is subject to continuous fissioning, forming the structure known as segmentary opposition. This form of organization is frequently associated with an extreme decentralization of authority, such that enduring corporate linkages among the members occur only at the least level of segmentation, referred to in the French literature on Nigerien herders as the "fraction". Thus, in the Department of Diffa, a number of WoDaaBe major lineages are found, such as the Suudusuka'el, the bi-BeDenke, the bi-Ute'en, and the Sobankoye. To outsiders, the BoDaaDo may communicate his identity at that level. But these primary lineages have

few corporate functions. Their members might share a set of cattle brands;[5] they might find each other at annual assemblages (worso) following the rainy season; they recognize each other as having closer putative kin ties than they have with WoDaaBe of other primary lineages. They do not form tightly-structured pastoral groups which control access to water and pasture. That control, such as it is, is vested in the fraction, the small group of closely and patrilineally related nuclear and extended families that normally coordinate their daily and seasonal movements. Lineage fissioning keeps the fraction to a manageable size:

> Les segmentations du lignage primaire sont motivées par des raisons d'interêt surtout économique. Lorsque les campements deviennent trop nombreux, le chef ne peut plus assurer le contrôle et les rassemblements deviennent extrêment difficiles étant donné les conditions de la vie pastorale. C'est pourquoi au Niger la fraction est numériquement peu importante (Ibid.:282).

It is likely that the fissioning of lineage segments among the WoDaaBe serves a major ecological function: to maintain the decentralization of decision-making regarding the management of any given herd. The herd manager—who may be a single adult male—decides where the animals pasture, how long they remain there, how often they are watered, which animals are castrated, which are culled, etc. These decisions are made on the basis of locally available and processed information. The herd manager monitors the quality of pasture, largely through milk production, and moves his animals when he decides that a better quality pasture is available elsewhere. Rainfall is highly variable in time and place. Given the great disparity of pasture quality within what appears to be very close areas, it would clearly be dysfunctional to have herd management decisions made by persons who are not privy to local micro-ecological data. Fragmentation of lineages keeps authority very close to the physical and socio-political conditions to which the herd must react.

The WoDaaBe fraction, led by an ardo, is the basic unit of seasonal movement. The largest fraction censused by Dupire in western Niger reached some 50 campments; the average fraction there numbered some 218 persons. Research in Diffa indicates a considerably smaller unit. The ardo is not a chief in the conventional sense of the word. There is no hierarchy of chieftanship, no lamidat among the WoDaaBe, as there is among Muslim FulBe, whose chiefs are ranked in terms of their descent from persons installed by Usuman dan Fodio following the jihad of the early 19th century. The ardo has the prestige to attempt to persuade but not the authority to command, even among the few members of the fraction, who are necessarily close patrilineal kin. The ardo is more likely to give voice to decisions reached by the community of adult men, rather than to impose or attempt to impose his own will.

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[5] "Mais cette communauté de marque n'a plus aujourd'hui aucun rapport avec une structure collective de la propriété" (Dupire 1972:287).

Since the suspension by the central government of both the head tax and the livestock tax, the authority of the WoDaaBe ardo has been even further eroded. No longer is the ardo the focal point of tax collection, potentially capable of invoking the physical sanctions of the state on a recalcitrant—at least as far as being reluctant to pay annual taxes—follower.

In short, the WoDaaBe have not elaborated any system of chieftanship in which persons other than the herd owner/manager stand in a privileged relationship to decision-making regarding the nature, movement, and well-being of the herds.

East of Tanout WoDaaBe do not commission dug wells although they may rent a season's watering rights from well owners. Among the more sedentarized FulBe Farfaru dug wells are contracted for by a single family, group of related families, or, at the largest, the fraction. Ownership of these shallow wells, with their very low output, effectively controls the charge on the immediately surrounding pasture. East of Tanout where WoDaaBe are quite recent migrants (their movement into the area began during this century), without jural rights to pasture and water, they have quickly taken advantage of the expanding network of cement wells and artesian forages. During the long dry season they come together in large numbers around these watering points with substantial yields. During the 1978 dry season, Horowitz observed members of the Suudusuka'el lineage at Sayam, Mitimi, N'gortogol, Adjiri, Kinzayde, with some members in the village of Diffa, and still others in Maine-Soroa, a dispersal across an overall linear distance of more than 200 km. At some of these watering points were found members of other major lineages also (including Sobankoye and bi-Ute), FulBe Fartaru and Tubu. Individual Suudusuka'el members interviewed at a single well reported quite different itineraries since the last rainy season, including some who recently returned from Nigeria, and others whose range extends across northern Cameroon into Chad. These findings affirm the conclusion that the adult BoDaaDo male or very small group of close agnates makes his/their own decisions about how and where herds are managed.

In summary, the ecological system of which the WoDaaBe form a part, with its uncertain and frequently deficit rainfall, encourages a fragmentation of lineage structures into small groups which can most efficiently exploit the terrain. Associated with this fragmentation of lineage structure and the opportunistic use of pasture, is a decentralized organization of leadership in which the "chiefs" have little actual power to enforce decisions. Recent migrants to the region, east of Tanout, the WoDaaBe have been unable to establish exclusive rights of access to terrain, but have responded to opportunities provided by public wells and public bore holes. Unlike the FulBe Fartaru, WoDaaBe do not contract to have shallow wells dug for their exclusive use. This results in an extremely broad use of the environment, but one, however, which is not exclusive, and is shared with other peoples, including members of other fractions of the same major lineage, members of other WoDaaBe lineages, non-WoDaaBe FulBe, and non-FulBe.

A number of recent studies (Maliki 1981; Scott and Gormley 1978; Sutter 1978, 1982; White 1982) consider the effects of drought-caused stock losses on WoDaaBe social and economic organization. Loss of animals from drought, disease,

and predation were recurrent realities that all Sahelian herders had to deal with. The stratified Tuareg used the institution of clientship, whereby impoverished families could attach themselves in a relation of dependence to a wealthy family, and, by providing labor and other services, have access to their patron's herd. If the relationship endured, it was possible for the client to rebuild his own stock. Among the egalitarian WoDaaBe, clientship was not available, but various forms of redistribution—known as nanga nai'i and haBBa nai'i—in which animals were loaned or given to persons in need, served to rebuild herds without the stigma of assuming a servile status. The losses attendant on the recent drought were so great, however, that a stock sufficient to redistribute does not exist. It has become increasingly necessary therefore for some WoDaaBe to seek other forms of subsistence than the management of their own herds. Whether this movement out of independent pastoralism to shepherding animals belonging to other persons, for wages or merely for milk, and into other kinds of wage labor presages a full transformation of WoDaaBe society is not yet clear. Cindy White (1982:6) who has carried out superb field work as part of the Niger Range and Livestock Project, feels that this transformation from an egalitarian society of independent herd managers into a stratified society with differential access to scarce resources. has not occurred:

> Rapidly increasing cash needs and changed consumption patterns have played a role in this process but have not fundamentally modified the economy of the WoDaaBe or broken down group cohesion...

White (Ibid.:7-11) contrasts the preferred or ideal herding model with that practiced after substantial losses:

> The WoDaaBe describe their ideal economy as one based entirely on livestock-raising. There has always been an inter-dependence between the WoDaaBe and agricultural groups, but it is possible for a herd under Sahelian conditions to provide sufficient milk products and animals for a family to procure those things it does not produce through exchange or sale of livestock and their products.
>
> The basic subsistence strategy of the WoDaaBe requires a herd size balanced with the number of consumers and workers in the family unit dependent on it, and a certain age/sex distribution within the herd to insure reproduction. If these conditions are met, the WoDaaBe subsist almost entirely on fresh milk during the rainy season. During the first part of the dry season, when they are closer to markets and villages, and when the quantity of milk production begins to diminish and milk sours more quickly, they supplement their diet with cereals obtained through exchange of curdled milk and butter. During the latter part of the dry season, further diminished milk production limits possibilities for exchange and consumption. Animals are sold at this time in order to buy cereals. Animals are also sold (particularly at the end of the rainy season and in March and April) to maintain the desired herd structure (for example, an old non-productive female will be sold to buy a heifer) and species composition, and to obtain cash to purchase items like tea, sugar, mats, cooking utensils and clothing.

If this system is to continue, however, animal sales (or losses due to disease or drought) can not go beyond a certain threshold. A minimum number of animals with a particular age/sex distribution is necessary for the herd to reproduce itself. If this minimum is not maintained, animal births will not keep up with sales and deaths, milk supplies will be insufficient for consumption needs, necessitating greater dependence on cereal purchases. This means selling off more animals, and the vicious circle is completed.

To avoid this happening, or as a consequence of its occurrence, the WoDaaBe have different strategies depending on whether losses are concentrated at the family or group level. In the case of the loss of an individual family's herd, animals from the group are loaned or given to enable the family to remain within the pastoral economy. The traditional system consists of loans of female animals (haBBanaaji) whose offspring are the property of the borrower. Milk cows are also loaned to cover short-term subsistence needs. By these mechanisms the family is gradually able to become an economically self-sufficient unit....

In the case of large-scale loss (for example the rinderpest epidemic of 1890 or the 1969-73 drought) of the entire group's basic capital beyond the point where its resources are sufficient for individual families to rebuild viable herds, the WoDaaBe are obliged to resort to economic activities outside the pastoral economy.

The three main activities in the past were the gathering of wild foods, handiwork for sedentary people (in particular mending calebashes), and cultivation.

The surplus earned from these activities was re-invested in livestock (first in small ruminants and then cattle) and groups were able to rebuild herds adequate for their subsistence. In the space of ten to fifteen years after the rinderpest epidemic they had again become fully pastoral.

After the last drought (1968-1973) herds were again decimated beyond the point at which mechanisms within WoDaaBe society could provide animals for families whose herds had dropped below subsistence levels. Research in the pastoral zone over the past two years has shown that WoDaaBe unable to maintain subsistence based on pastoralism resorted to three main economic activities after 1973: migrant labour, cultivation, and guardianship of herds belonging to non-WoDaaBe (jokkere). The first two are activities outside the pastoral economy. Guardiansnip allows the WoDaaBe to continue herding in the pastoral zone but involves a dependence upon outside groups (either sedentary people or Twareg herders).

Estimations are difficult to make but it seems likely that the WoDaaBe presently in Niger suffered even greater animal losses during the rinderpest epidemic at the end of the last century than they did during the 1968-1974 drought. However changes resulting in different alternatives available to deal with these situations have meant that the WoDaaBe have found it far more difficult to

> rebuild viable herds since 1974. Agriculture, migrant labour and guardianship of other peoples' herds have provided subsistence for herders with insufficient herds, but these activities have not made it possible for WoDaaBe families to rebuild their herds to self-sustaining levels. Rather than being temporary activities leading back into the pastoral economy, a more permanent situation is being established whereby supplementary income from non-pastoral economic activities is essential to the economic viability of WoDaaBe production units....

Despite the observed attempt to maintain the domestic mode of production among WoDaaBe pastoralists, by continuing to loan what animals are available, we are less persuaded that the egalitarian structure will survive in its pre-drought form. Little by little, WoDaaBe will learn those skills which will allow them to survive--at least allow for physical reproduction of their households--in a capitalized economy where both cattle and labor take on added values as items of exchange, not merely items of domestic consumption.

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IRRIGATED AGRICULTURE

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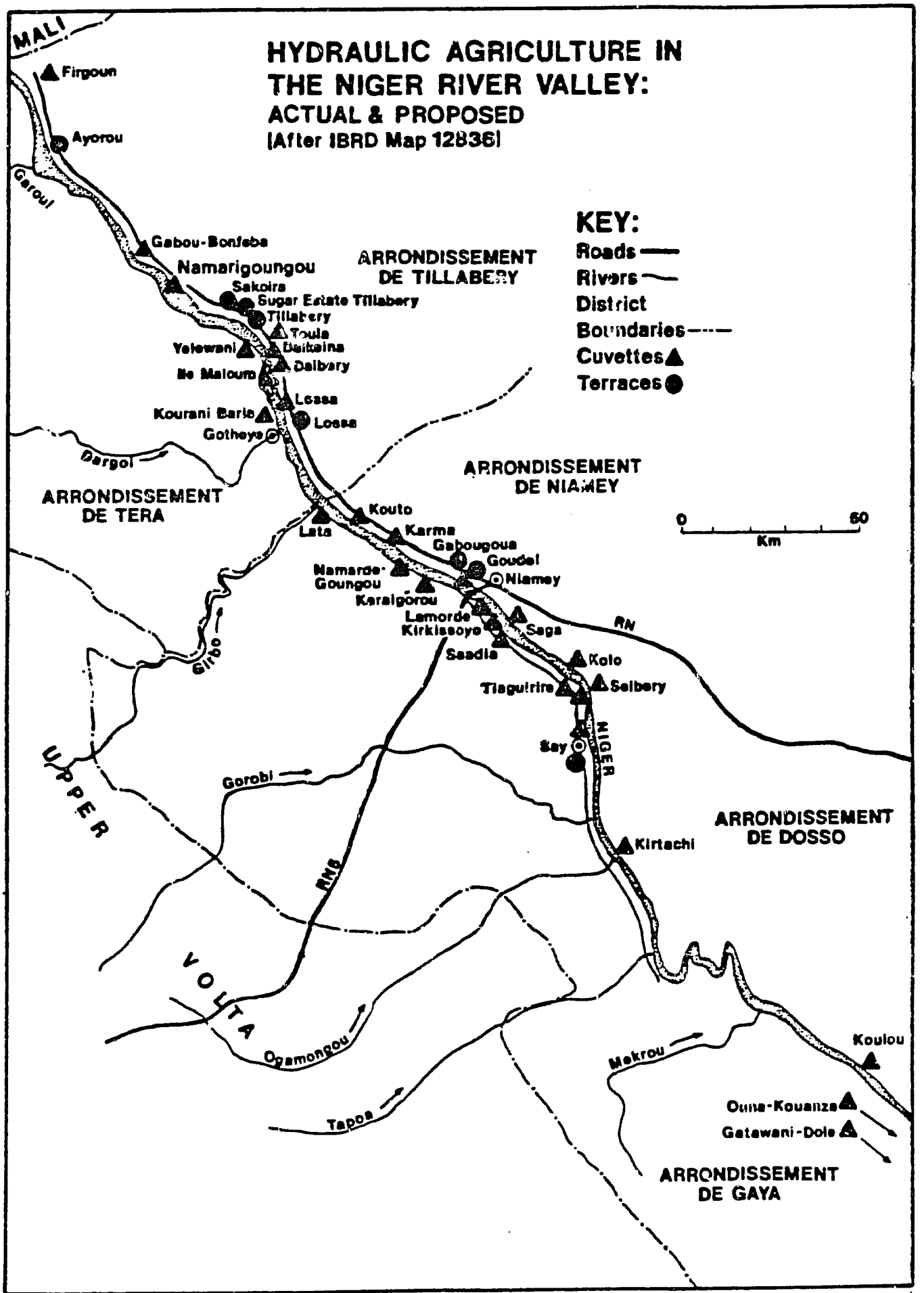
HYDRAULIC AGRICULTURE IN
THE NIGER RIVER VALLEY:
ACTUAL & PROPOSED
(After IBRD Map 12836)
KEY:
Roads
Rivers
District Boundaries
Cuvettes
Terraces
MALI
Firgoun
Ayorou
Garoul
Gabou-Bonfeba
Namarigoungou
Sakoira
Sugar Estate Tillabery
Tillabery
Toula
Yelewani
Daikaina
Dalbary
Ile Maloum
Lossa
Kourani Baria
Gotheye
Dargol
ARRONDISSEMENT DE TILLABERY
ARRONDISSEMENT DE NIAMEY
ARRONDISSEMENT DE TERA
Kouto
Lata
Karma
Gaboungoua
Goudel
Niamey
Namarde-Goungou
Karaigorou
Lamorde
Kirkiasoye
Saga
Saadia
Kolo
Tiaguirire
Selbery
Say
Gibo
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NIGER
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VOLTA
Ogamongou
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INTRODUCTION

The potential contribution to economic development of irrigated agriculture schemes is among the most hotly debated arenas of discussion in Niger today. The Government of Niger sees in the Niger River, in its long shore of Lake Chad, and in its minor rivers and seasonally-flooded fossil river beds, the central resources for achieving food self-sufficiency and for substantially limiting the vulnerability of food production to the viscissitudes of drought. From time to time, segments of the donor community share that enthusiasm. But donor optimism about the benefits of irrigation is tempered by assessments of large-scale schemes in Niger and in other Sahelian countries, which evidence a gamut of dysfunctional characteristics: they are enormously costly to prepare, approximating in excess of $20,000 per hectare in 1983; they seem to engender costly and unproductive parastatal management corporations; they require abrupt and often poorly understood changes in cultural practices, capital investments, and labor mobilization on the part of the (usually tenant) farmers; they are associated with negative health and environmental impacts; and, they rarely achieve the production objectives and producer income claimed during the identification and design phases of the project cycle. Furthermore, although the schemes often are advocated in terms of their contribution to domestic food production, there is a recurrent temptation to recoup the costs of their operation either through the production of industrial crops for export (such as groundnuts and cotton) or through the production of import-substitution crops (such as rice) targeted mainly at the urban population. The World Bank is firm on this point:

> [The Niger] Government's wish to grow substantial amounts of low value cereals under irrigation as a further means of drought protection should be discouraged since (a) there will be a considerable shift away from coarse grains towards rice in urban areas and (b) Niger will for a long time be able to make up for drought-induced shorages by commercial imports. In the irrigation schemes in the center and east of the country (Lake Chad in particular), cash crops like cotton should be considered (IBRD 1981:19).

The Bank's authors were, of course, assuming the continued receipt of substantial revenues from the mining sector.

Recently development planners have begun to explore the potential contribution of small schemes, operated by independent farmers using appropriate or capital savings technology. They have begun to consider also the various traditional approaches to hydraulic agriculture along rivers, lakes, wadis, basins, and oases, and are finding in these small-scale and on-going irrigated farms the possibility of cost-effective, environmentally sound practices that might be more widely diffused.

Nothing like a consensus has been achieved, and the situation remains much like that in the 1970s when, within six months of each other, articles supporting opposed positions on the issue appeared in the same journal. Maton (1974) favored construction of large dams and schemes while Balbo (1975) argued that irrigation be "put in the hands of peasant farmers" working perimeters of 25 hectares or less. Nelson and Tileston (1977) note that irrigation is "a paradox for Sahelian development." Eicher and Baker (1982:138), reviewing agricultural development throughout sub-Saharan Africa, list three main areas that need to be addressed by researchers in the 1980s: (1) the economics of rainfed agriculture versus irrigated agriculture at specific locations; (2) the relative advantages and disadvantages of large schemes—in excess of 500 hectares—and smaller ones; and (3) the appropriate management roles of small farmers, farmer associations, and government or parastatal organizations on irrigation works.

Within Niger, much of the discussion of irrigation hinges on the feasibility of a large hydropower and irrigation dam to be constructed on the Niger River. The Government of Niger remains committed not only to the idea of the dam but also to its specific site at Kandaji, near the Malian border. The site initially was selected in favor of alternative power-generating locales further downstream "precisely for its supposed contribution to regulating the flow of the Niger and hence increasing overall irrigation development potential" (IBRD 1981b:21). The donors appear increasingly skeptical, however, and sufficient financial commitments to begin construction have not been forthcoming. Hough and Elliott (1982:63), writing for USAID/Niamey, share the growing doubt in the viability of the project:

> Big irrigation projects such as the Kandadji Dam seem highly questionable from an economic point of view, even when their likely adverse effects on Niger's ecology are ignored.

They suggest that "small scale irrigation is likely to prove more economically viable, or less economically unviable, than large scale projects." Eicher takes a similar point of view for sub-Saharan Africa as a whole:

> Although research on the economics of irrigation is fragmentary, the limited results provide support for a smallholder irrigation strategy in the 1980s, with priority given to: ground water development with small pumps; land reclamation through drainage and water control; and an increase in small-scale projects which are developed and maintained by groups of farmers with their own family labor. A small-scale irrigation strategy is advocated because the cost of bringing more rainfed land under cultivation is substantially less than the cost of leveling and preparing land for large-scale irrigation. For example, World Bank data show that recent irrigation projects in Niger, Mauritania and northern Nigeria each had costs of more than $10,000 per hectare at 1980 prices. On the other hand, farmers in Senegal have cleared and prepared their own land for irrigation, expending several hundred hours of family

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> labor per hectare... Although irrigation will not be a panacea for the recovery of the Sahel, nor for feeding Africa in the 1980s and 1990s, a long-term research program on the human, technical and institutional dimensions of irrigation should be initiated in the immediate future (1982:169).

While the evidence is by no means complete, comparative material from Tunisia (Attiya 1981), Senegal (Adams 1977; Waldstein 1978), and elsewhere (Sparling 1981) are making an increasingly persuasive case for the economic, ecological, and social preferability of small-scale farmer-managed perimeters over large-scale corporation-run schemes.

According to estimates made in 1977, less than one percent of all Nigerien cropland was under irrigation, 31,000 irrigated hectares of a total cultivated area of about 3,129,000 hectares. Of the 31,000 irrigated hectares, 26,000 hectares are under "traditional" management and only about 5,000 hectares are in modern irrigated schemes (Ferguson 1979:2). The World Bank (IBRD 1981b:18) lists an additional 4,500 hectares under construction, of which 2,400 hectares are in Bank-financed projects. These figures somewhat overstate the actual situation, since more than a third of the 3,200 hectares in modern sector schemes in the Niger Valley were no longer in cultivation in 1980, "a result of deteriorating infrastructure, lack of maintenance, and improper operation" (Ibid.). The Government of Niger estimates that about 270,000 hectares are potentially irrigable (République du Niger 1980), of which about half, some 130,000 hectares is dependent on construction of the Kandadji Dam. As noted above, as of May 1983, financing for that dam had not been obtained.

As can be seen from the bibliography to this chapter, there is considerable literature touching on irrigation in Niger, but there is no satisfactory overall review that examines both the traditional and the modern sectors from a social institutional perspective. Perhaps because of the diffuseness of the literature, irrigation received scant attention in the 1979 AID Niger Agricultural Assessment (Enger 1979:2-3). The 1981 IBRD memorandum referred to above and the 1979 Club du Sahel CILSS study deal exclusively with the modern sector, and then only with aggregate economic material. The latter report provides useful information on the 25 schemes that were then in operation, the ten more that were either under construction or at advanced stages of planning, and another dozen or so in various stages of project preparation. (These various schemes are listed in Annex 1 to this chapter.) Unfortunately, little social or farm-level economic data is included. The report does not discuss farm incomes nor how farming units combine both irrigated and rainfed productive activities. We do not even know the number of farming units on each scheme. The World Bank currently is supporting farm-level studies that should fill some of the lacunae in our knowledge, but preliminary reports are not yet available. We have not had access to the annual reports of the Office National des Aménagements Hydroagricoles (ONAHA). Several examinations of specific locales have yielded useful information. The World Bank appraisal of the Namarigoungou Scheme (IBRD

1978) contains helpful background information on some other schemes as well. Diarra (1982) has discussed the impacts on women of the Ibohamane Scheme and Laya (1973) carried out in 1965 a FED-funded socio-economic study of two Niger flood plain cuvettes that had been identified for development. Laya presented material on land tenure, the agricultural calendar, ethnic factors, and their relevance to the proposed program. Painter (1979) provided a very perceptive discussion of the likely effects of a proposed World Bank agricultural development project involving hydraulic farming on land tenure, labor availability, nomadic-sedentary relationships, and women. While the project focuses on the Dosso region, Painter's observations have far broader relevance.

From January 1977 to September 1978 a Peace Corps topographer inventoried mares and cuvettes in the Department of Zinder (USAID 1978). The primary focus of the study is on the topographic and hydrologic characteristics of the marshes, but there are also a few observations on plot size, water distribution, crops, and access to markets.

NIGER GOVERNMENT IRRIGATION POLICY

The GCN has encouraged national and donor agency support for a range of projects in irrigated agriculture. Its official policy has sought to maximize the efficient utilization of existing works and use the experience so acquired to plan new irrigation schemes; develop new perimeters, assigning priority to those projects offering the greatest potential or yielding immediate financial returns; and to renew efforts to develop small-scale agriculture throughout the nation through dam construction, surface water retention, and pumping from underground wells. The GCN regards irrigation as a vital means of protecting itself against future drought years, and it expects that irrigation will increase the nation's production of staple cereals such as rice and sorghum, vegetable crops, sugar cane, cotton, and fodder for livestock (République du Niger: passim).

Although official policy does call for placing emphasis on small-scale irrigation projects which currently account for most of Niger's irrigated agriculture, there are indications that the GCN regards large, modern irrigation schemes with full water control as the preferable means of solving the nation's water security and food production problems. As a matter of GCN policy, all new schemes along the Niger River call for full water control to allow two crops per year (CILSS 1979:44; IBRD 1978:72). Major renovations of a number of older schemes have also been undertaken during the current Five Year Plan with World Bank and FED funding. Several older perimeters on the Niger are being converted from partial to full water control systems (Ibid.:72). Unfortunately, such schemes have been beset by technical and financial problems, which, combined with the tendency they have demonstrated of exacerbating inequities in wealth distribution, leave their ultimate success in doubt.

IRRIGATION POTENTIAL AND CONSTRAINTS

Estimates of the amount of potentially irrigable land in Niger vary widely, from 150,000 hectares (Enger 1979:2) to 217,000 hectares (IBRD 1978:26), to a high of 270,000 hectares (République du Niger 1980:142). The latter figure represents about nine percent of the total land area under cultivation in the country (Enger 1979:2). Some of this land presently supports rainfed agriculture, while other areas support small-scale flood-recession vegetable gardening. Most of the land can sustain double cropping with year-round irrigation only with major dam construction to regulate the flow of river water so as to control rainy season flooding and assure an adequate water supply during the dry season. For example, of the more than 100,000 hectares of potentially irrigable land in the Niger River Valley, only between twelve and sixteen thousand hectares can be irrigated in the absence of a major dam such as the Kandadji (Club du Sahel/CILSS 1979:41; IBRD 1978:27). Table One illustrates the distribution of lands regarded as potentially irrigable throughout Niger.

Of the total potentially irrigable area, about 31,000 hectares currently are under irrigation, with 26,000 hectares considered to be under traditional management and something in excess of 5000 hectares under modern management (Ferguson 1979:2; see also Stier 1980:passim). The 5,000 hectares under modern management are divided among the Niger River Valley (3,472 hectares), the Ader-Doutchi-Maggia (ADM) area (1,217 hectares), and the Komadougou Valley (410 hectares) (Enger 1979:2).[1] Table Two summarizes the distribution of irrigated lands in Niamey and Tahoua Departments as of January 1979.

Additional areas are being brought under irrigated production. The World Bank reports about 8,000 hectares of land under development, of which 3,700 hectares are in the Niger River Valley, 3,000 hectares are in the Kanni scheme, and the rest are scattered throughout the country (IBRD 1978:26). As of 1979, work on 4,017 additional hectares was reportedly in progress (République du Niger 1980:141). In particular, the Namarigoungou and Say irrigation schemes have made substantial progress. The 207 hectares completed in the first phase of the Namarigoungou scheme were allocated among 515 farmers in April 1981. The project is expected to cover 1550 hectares along the Niger River in Tillabery Arrondissement upon completion (Aman 1981:2). The first phase of the Say irrigation project began operations in August 1981, with 300 hectares of land allocated among 135 farming units. At that time, completion of the second phase was expected in January 1982 (T. Keita 1982:16).

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[1] The figures for the amount of land under cultivation are inaccurate and contradictory. The numbers cited herein should be regarded as indicators of relative magnitude, not precise measurements.

TABLE 1 - ESTIMATES OF IRRIGATION POTENTIAL IN THE NIGER REPUBLIC

Location	A	B	C
Niger River Valley			
Flood Plain		22,000 ha	140,000 ha
Terraces		80,000 ha	
Maggia			
Valley		5,000 ha	20,000 ha
Retaining Basins		5,000 ha	
Komadougou River		5,000 ha	50,000 ha
Lake Chad Borders		35,000 ha	
Dry Valleys			
Goulbis (seasonal streams)		50,000 ha	10,000 ha
Dallols (fossil river valleys)			30,000 ha
Irhazer Valley		15,000 ha (with Talak)	10,000 ha
Other Valleys			10,000 ha
TOTALS	150,000 ha	217,000 ha	270,000 ha

A: Enger 1979:2 (1975 estimate)
B: World Bank 1978:26
C: République du Niger, Ministère du Plan (1980:142) (about 1978 data)

TABLE 2 - STATUS OF IRRIGATION SCHEMES AS OF JANUARY 1979

Location	Type	Area Developed (hectares)	Year of Implementation	Area Cultivated in 1978 Rainy Season	Dry Season	Average Yield (ha/yr)
Department of Niamey (Valley of the Niger River)						
Firgoun	C1	300	1953	200	-	?
Koutoukale	C1	410	1966	210		2.24
Dalkena	C	120	1964	120	120	(seeds)
Toula	C	260	1974/1975	240	240	9.723
Sona et Kokomani	C	212	1974/1975	154	152	7.900
Lossa	C	190	1974/1976	137	106	7.330
Karma	C	150	1972/1978	126	123	8.900
Karegourou	C	145	1970/1976	133	82	7.74
Kourtere	C	10	1970	10	10	7.17
Kirkissoye	C	100	1965+1977	90	80	6.500
Saadia	C	115	1973	93	[illegible]	8.355
Saga	C	385	1966+1976	385	346	8.77
Liborne	C	259	1966+1976	192	216	9.92
N'Dounga I	C	280	1966	221	210	7.50
N'Dounga II	C	290	1966+1978	271	260	9.90
Sabolra	T	42	1966	29	44	onions and
Tillabeina(1)	T	100(1)	1967	45	60	melons
Sona II (2)	T	71	1975+1976			
Lossa II (2)	T	91	1975/1976			
Total		3530			INRAN	
Tahoua						
Ibohamane	RC	750				
Guidanmagagi	RC	132		dam under repair		
Moulela +	RC	65				
Kawara and Touffani		80		cotton and food farming		
+ 3 reservoirs to		132				
rehabilitate		1159				
Total						

(1) One part 24 ha to the INRAN
(2) INRAN perimeters (cereal project and GERDAT) III BIRNI NIKONNI RC 600 + DOSSO (+MARA) = 130 + DIFFA = 90.
(3) UNCC Data.

(Club du Sahel/CILSS 1979:4).

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However, the 747 hectares of land brought under irrigated production between 1975 and 1978 represented only 21 percent of the 3,600 hectare goal set by the GON for that period. In addition, the listing of an area "under irrigation" does not mean that it is in fact producing. Maintenance problems have rendered large areas of some irrigation schemes unusable. For example, at the Ibohamane project in 1982, only 580 of the 750 hectares developed were operating. Despite its ambitiou plans, the lack of information regarding exactly how much land is potentially irrigable; the emphasis on large schemes with full water control without a clear understanding of the technical feasibility or of the social costs associated with the inequitable wealth distribution they often promote; and the apparent inability to maintain areas that had already been developed made it unfeasible for the GON to achieve its goal of increasing the area under irrigation by an average of 1,000 hectares per year between 1979 and 1983.

Irrigation development is constrained by the cost of installing and operating irrigation works, the limited availability of water resources upon which to build, and scarce human resources (Enger 1979:2). The costs of irrigation works frequently are underestimated in Niger. For example, Hecht (1982:9) estimated the cost of developing new perimeters along the Niger River to be about $12,500 per hectare; however, Enger's earlier estimate (1979:3) of $15,000-$20,000 per hectare has proven more accurate. The cost of irrigation is even higher for interior projects because the greater distance from Niamey adds considerably to transportation costs (Enger 1979:3; IBRD 1978:92).

The GON proposed 31,057 million francs CFA for the 1979-83 irrigation budget (see Table 3); but at the time its plan for irrigation development was prepared only a third of that amount had been funded. Because of the high costs associated with construction by private contractors, GON has proposed increasing the ability of Genie Rural to undertake irrigation construction under the supervision of ONAHA (IBRD 1978:92).

In order for increased irrigation to have the desired effect on agricultural production and provide security against drought, it must permit producers to realize two harvests annually on fields that are irrigated year round. As noted above, however, without a large amount of dam construction this is an achievable goal only on 12,000-16,000 of the claimed 100,000 potentially irrigable hectares along the Niger River. Allowing for loss due to soil infiltration and evaporation, about 16,700 cubic meters of water per hectare must be provided during the dry season, while about 7,000 cubic meters of water per hectare are needed for supplemental irrigation during the rainy season (République du Niger 1980:51).

Because the traditional irrigation systems that have evolved in the area permit only single harvests with irrigation part of the year, producers are involved in other activities during the off-season, such as pasturing livestock along the river and migrating elsewhere in search of wage labor. If the constraint on water availability is overcome, modern irrigated agriculture may compete with these activities for land and labor (de Ravignan 1977). It is not clear that producers

TABLE 3 - IRRIGATION BUDGET PROPOSED BY THE GON FOR 1979 - 1983

(In millions of F CFA)

Category	Total Cost	Funded	Funding Needed	1979	1980	1981	1982	1983
a) Travaux à entrep.	22.000	9.641	12.359	3.351	3.381	4.154	5.107	6.007
b) Infrastructure GR	600	51	549	11	40	200	200	149
c) Equipment GR	197	14	183	120	14	17	17	
d) Infrs. et Bat. ONAH	910,0	65	845	40	25	400	400	245
e) Matériel terrass. ONAHA	1.500	-	1.500		1.500			
f) Tvs. de réha. pér. f	1.000	-	1.000			400	300	300
g) Reprise AHA	1.600	365	1.235	377	68	400	400	355
h) Etudes techniques	3,250	-	3.250			1.000	1.000	1.250
TOTAL	31.057	10.136	20.921	3.899	5.028	6.400	7.424	8.306

a) works to be undertaken
b) Infrastructure, Genie Rural
c) equipment, Genie Rural
d) Infrastructure and building, ONAHA (Office National des Amenagements Hydro-Agricoles)
e) materials, ONAHA
f) rehabilitation of existing perimeters (Niger River valley)
g) completion of works begun under three-year plan 1975-78
h) technical studies

(République du Niger 1980:164)

will choose to give up their off-season activities in favor of year-round agriculture. Nor is it clear that, if they are forced to do so, their living standards will be any better than they are now. The cost of the damming of the Niger River will require a burdensome repayment schedule to international donor agencies, which will create pressures on other irrigation schemes to keep prices paid to producers down. While the constraint of water availability can be overcome, the cost of doing so may be great enough to preclude successful development.

Human resources also constrain the GCN's plans for developing modern irrigation systems. Irrigation works with full water control require the employment of well-trained engineers to design and oversee construction of the perimeters. Additional personnel are needed to maintain and repair the relatively elaborate equipment necessary to regulate river flow for full water control (Enger 1979:3; République du Niger 1980:141). In particular, the need for qualified maintenance and repair personnel has been underestimated, with the result that cases such as Ibohamane, cited above, where nearly a quarter of the scheme is out of operation because of maintenance problems, are common. The lack of human resources also is noted in a study of the Namarigoungou scheme:

> The models of land allocation, organization of farmers, extension techniques and training activities presently applied on the schemes along the Niger River were first designed in 1970 for the schemes of the Adder Douchi Maggia. The system was supposed to rely on a low ratio of agricultural technicians being assisted in extension work by farmer leaders. Because of the limited number of technicians and of their poor qualifications, and because there were no programs for the training of farmer leaders, extension services on the schemes lagged considerably. In 1975 "Projet Fleuve," financed by USAID, started training farmer leaders for the Toula scheme (IBRD 1978:33).

MANAGEMENT OF MODERN IRRIGATION SCHEMES

Prior to 1967, once construction was completed responsibility for the operation of irrigation schemes was held by the Service de l'Agriculture or occasionally by agencies concerned either with specific crops or research. However, perimeters completed after 1967 were placed under UNCC management (Laucoin 1973:25), and by 1977, most schemes were under the UNCC (IBRD 1978:32). Despite delays in appointing staff and defining its sphere of action, CNAHA came into operation in 1979 as a unified agency responsible for all aspects of irrigation schemes (Club du Sahel/CILSS 1979:34-35). Like the Service de l'Agriculture and the UNCC, CNAHA falls under the umbrella of the Ministry of Rural Development (MCR).

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Law Number 60-28 of May 25, 1960 and/or August 26, 1962 (sources disagree), Decree Number 69-149 MER/CGD of October 19, 1969, and additional regulations from 1968 and 1972 set the basic conditions for the management of irrigation schemes. They stipulate that land improved for irrigation belongs to the state, although the schemes are to be organized as cooperates with self-management as the ultimate goal. The government is to become involved in the operation of a scheme only in case of failure by the cooperative. In addition, land is to be allocated among family units, although agroindustries may be established in the cases of industrial cash crops (IBRD 1978:32; Laucoin 1973:22).

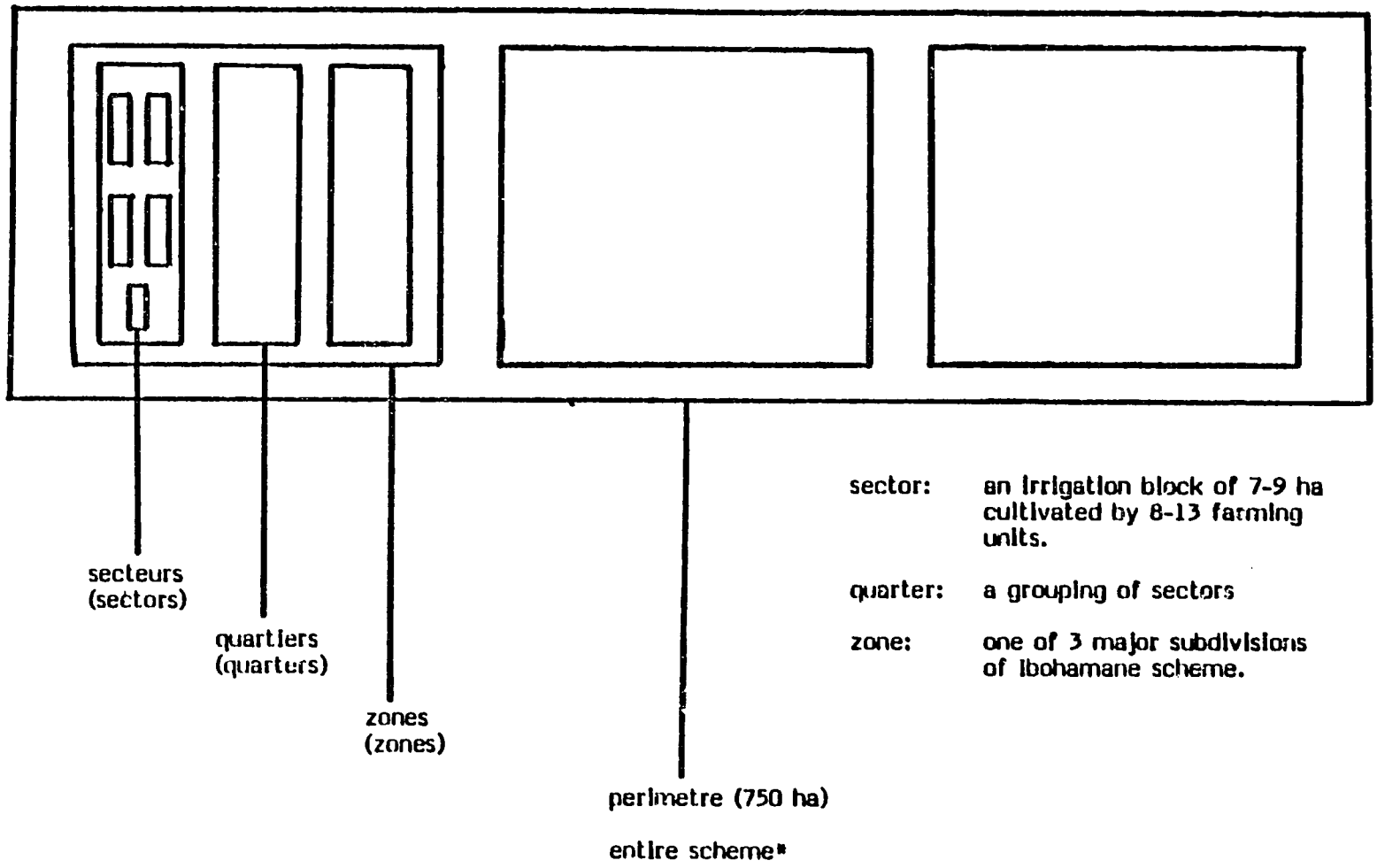
A World Bank study notes that "these legal instruments have not been translated into any formal procedures: land registration, management contract for the scheme, or individual contract for the farmers." For the large Namarigoungou scheme (1550 hectares when completed), individual leases for the farmers were proposed to provide those cultivating on the perimeter with greater security of land tenure (Ibid.:32). A brief newspaper account of the distribution of the first parcels on the scheme does not report whether this was implemented (Amani 1981).

Although government management of irrigation cooperatives is supposed to be replaced by self-management as rapidly as possible, no schemes had achieved complete self-management by 1973 (Laucoin 1971; 1973). Some recent schemes may have come closer to this goal. See discussion of Toula, below. Plantation agriculture using wage labor has been envisaged for a few schemes such as the 3,500 hectare sugar perimeter proposed for Tillabery (Club du Sahel/CILSS 1979:31). This approach has also been tried as a last resort on schemes where smallholder cultivation has failed, as at Tillakaina in the early 1970s (M. Keita 1975 and Raulin 1976:41-42).

The Ibohamane scheme in Tahoua Department was brought under cultivation in 1969. With a total area of 750 hectares, it was the largest irrigation project completed in Niger as of that time. As such, it was selected as a prototype case in the development of a cooperative self-management structure that would be utilized on the large irrigation schemes being planned (Laucoin 1971; 1973). Figure 4 schematically represents the organizational structure of the Ibohamane scheme.

In 1979, farmer organization on irrigation schemes along the Niger River resembled that of the marketing cooperatives in the peanut producing zone of the county. Individual farmers belong to Groupements Mutualistes de Production (GMFs), which are formed by dividing irrigation schemes into 50 hectare blocks and assigning all the farming units on a single block to the same GMP. Since the maximum size of the farming units is about .5 hectares, and since only the head of the farming unit can be a member, a GMP usually has 100-120 members. Each GMP, in principle, is supposed to have an extension agent assigned to it. General assemblies of all GMF members are held periodically, most cooperative business is conducted by committees. Groupements

TABLE 4 - FARMER ORGANIZATION ON IBOHAMANE PERIMETER IN ABOUT 1970



sector: an irrigation block of 7-9 ha cultivated by 8-13 farming units.

quarter: a grouping of sectors

zone: one of 3 major subdivisions of Ibohamane scheme.

* The Ibohamane scheme forms a section of larger cooperative

icoln 1971:60-61)

Mutualistes (GMs), each composed of a number of GMPs, are the next highest administrative unit. Agricultural planning, including corp selection and equipment repair, is the responsibility of the Comité de Direction (CD), which is composed of seven members elected by the GMPs, while actual implementation of an agricultural program is conducted by a three-member Comité de Gestion (CG). Finally, financial records are kept for each cooperative by three commisaires au compte (Club du Sahel/CILSS 1979:53-54; Keita 1982:10-11).

Accounts of how well the cooperative management structures function vary. For example, Hecht (1982:9) found the cooperative management of the Toula irrigation scheme to be functioning well. Among other things, he notes that the farmers had become sufficiently adept at maintaining the sophisticated pumping station and the 240 acres of collectively irrigated land that, by 1981-82, foreign technicians had been phased out. The farmers were organized into six cooperative groups of 90 members each, which were responsible for maintaining the irrigation works for 100 hectares of land and tending a common nursery for rice shoots. A seven-member committee composed of farmers administered a fund to pay irrigation costs, which, at the time of Hecht's study totaled about $32,000. The fund was supported by contributions of about $60 from each of the 540 farmers. The irrigation fund committee also managed a successful program to provide farmers with inputs such as equipment, seeds, and fertilizer on credit, with the farmers repaying their debts after the harvest. Technical information on topics such as planting densities and the use of fertilizers and insecticides was disseminated by "demonstrators" who met regularly with the project director. Hecht also reported a high degree of interest in adult literacy programs that help the farmers learn the skills they need to assume full control of the cooperative, and he noted that one man was sent to Niamey to study accounting, while another was learning pump maintenance from the national electric company.

In contrast, the World Bank (IBRD 1978:33-34) found that the Toula cooperative had become overly bureaucratized, ceasing to represent the interests of the farmers and becoming vulnerable to having control taken over by traditional chieftains. The World Bank report concluded:

> To draw from the Toula experience:
> (1) priority should be given to the in-depth training of as many farmers as possible, with training taking place in the field prior to the first cultivation season;
> (2) paid farmer leaders should be avoided;
> (3) the cooperative structure should be kept as simple as possible
> ...
> (4) joint financial responsibility should be introduced at the GMP level or even within smaller groups where farmers have chosen to cooperate on the basis of inter-individual affinities; and lastly
> (5) the management of a scheme should conduct a constant analysis of the sociological problems on the schemes. (Ibid.:34).

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Given these contradictory reports, it is difficult to assess the success of the cooperative management structure. However, drawing upon what is known about the problems faced by large irrigation schemes elsewhere, it appears probable that Hecht's evaluation of Toula is overly felicitous.

Among the recommendations emerging from the Seminaire national sur la stratégie d'intervention en milieu rural, held in Zinder in November 1982, are several which deal with irrigation management and cooperatives. One recommendation calls for transferring a number of functions on irrigation schemes to the cooperatives "immediately":

> No. 3. b) En zones des aménagements hydro-agricoles:
> - que les opérations ci-dessous soient immédiatement et reellement transferées aux organismes paysans après sensibilisation et concertation;
> - gestion des intrants agricoles (engrais, semences, gaz-oil), etc...;
> - le labour à l'unité de culture attelée;
> - ouvertures et gestion de la ligne de crédit devant financer les charges de cultures et autres activités liées à l'exploitation, sauf pour les coopératives disposant d'un fonds de roulement propre;
> - les opérations culturales autres que le labour;
> - la gestion du tour d'eau;
> - l'entretien primaire de l'infrastructure;
> - le calcul et le recouvrement des redevances;
> - la commercialisation de leur récolte;
> - que chaque coopérative crée un fonds de solidarité coopérative pour la prise en charge de l'exonération à accorder par l'assemblée générale en cas de mauvaise récolte liée à une calamité (Anon 1982).

Another recommendation urges ONAHA to "accelerate the process of self-management of the cultivation of irrigation schemes" (Ibid.:18). The Zinder Seminar also suggested that the chef du perimètre on each scheme, who is now an ONAHA employee, should instead be employed by the cooperative itself, responsible thereby to the farmers.

In general cooperative structures have been imposed on the participants in irrigation schemes with little regard to the necessities of water control on any individual scheme. There have been few, if any, efforts to capitalize on the mutual interdependence of those individuals irrigating from the same canal to create a more effective basis for farmer cooperation than the frequently unwieldy GMPs (see Coward 1977). Indigenous bases for forming social groups also have been ignored. For example, systematic efforts to respect kin and neighborhood ties below the village level in the allocation of irrigated plots seem to be rare. Adapting the cooperative structure in these ways to allow local structures to better fit local conditions would contribute to more effective farmer self-management.

EXPERIENCE WITH IRRIGATION SCHEMES

An evaluation of modern-sector irrigation in Niger would show mixed results. The Ibohamane scheme in Tahoua Department and the Tillakaina scheme on the Niger River near Tillabery illustrate some of the difficulties that have plagued hydraulic agricultural efforts, while the Toula scheme, also near Tillabery, has been described as a success. We will not discuss the engineering and agronomic problems of irrigation for these are well known and there has certainly been a more sophisticated appreciation of them during the past few years. There even is beginning to be an awareness of the need for an appropriate balance between on- and off-scheme productive activities. There are, nonetheless, a number of social and ecological issues of prime importance that remain unresolved, especially those dealing with equity, levels of management, labor and its mobilization, and income. Tillakaina is especially instructive in this regard.

Tillakaina was a 100 hectare terrace perimeter with a network of canals distributing water from a pumping station. Construction was completed in 1967, and parcels ranging from a quarter- to a half-hectare in size were allocated to the peasants, who were required to plant cotton with the expectation of two harvests annually. Animal traction was used for tillage, and the various costs of chemical fertilizer, water, insecticide, extension, and management were deducted from sale of the crop. Extension agents supervised the sectors or blocks into which the farmers were organized, each containing some seven to twelve parcels (M. Keita 1975:179). Both Michel Keita and Henri Raulin characterize the scheme as a failure, despite adequate technical structure. (It should be noted that Raulin (1976) does not actually identify the scheme he discusses, but internal evidence points to Tillakaina.) In 1971, just four years after its inception, the GON displaced the tenancies and introduced hired laborers. What caused the abandonment of the peasant/tenancy form of production?

The first problem was that of absenteeism during the rainy season. When the rains came, many of the farmers devoted themselves primarily to off-scheme cultivation of millet, their staple food crop. Cases from other parts of Africa reveal that unless staple food crops are part of the on-scheme production cycle, farmers pay scant attention to industrial crop production when it becomes possible to grow cereals on rainfed lands (cf. Salem-Murdock 1979). Thus, on-scheme yields declined markedly precisely during the season when water was at less of a premium and, ostensibly, cotton could be produced at lower costs.. The reduced yields made it more difficult for the tenants to sustain themselves on the scheme, since fees for water, fertilizer, etc. were assessed not on the basis of actual consumption but in terms of an estimated yeild of 800 kilograms per hectare, which in fact few farmers attained. Therefore, the fees absorbed from a third to half the gross income from cotton sales. Additionally, government subsidies were to be reduced each year, further increasing producer costs (Raulin 1976:42).

Expropriation and allocation of plots on the scheme was supposed to take into account the pre-scheme distribution of land-holdings, but in fact:

> lands were distributed as if they had been virgin soil belonging to no one. This supposedly egalitarian division dispossessed some farmers, most of whose fields were on the terrace part of the valley. They were then obliged to look elsewhere, quite far from the village, for fields where they could cultivate millet for their families. One the other hand, others benefited from the redistribution (Ibid.).

The major sociological error leading to underproduction on the tenancies was the assumption that the forms of labor mobilization which characterized the domestic mode of production on rainfed millet fields would be maintained on the scheme. In the rainfed sector, the head of the household normally retained the labor of its other members, including that of his unmarried sons. The number of laborers in the household was taken into account when tenancies of different sizes were distributed. Yet, persons who provided labor at no cost in the rainfed sector proved unwilling to do so on a cash crop like cotton where the household head had exclusive control over revenues from its sale. Thus, even men with a number of resident sons suffered serious labor shortages when their sons refused to work in the cotton fields. This further contributed to the general inability to meet target yields of 800 kilograms per hectare (Raulin 1976:42; M. Keita 1975:180-181). These same young men enrolled as wage laborers on the cotton fields when the state terminated the tenancies, and scheme management then hoped to achieve yields of 1,500 to 1,600 kolograms per hectare.

According to the CILSS report, smallholder cultivation was resumed at least on part of the perimeter, with 24 hectares allocated to INRAN, the agronomic research institute. The World Bank (IBRD 1978:60) noted 124 farming units cultivating 36 hectares during the 1975 dry season, which approximates the original size of the tenancies. CILSS (Club du Sahel/CILSS 1979:4) recorded production of melons and onions in 1978 on 45 hectares in the rainy season and on 60 hectares in the dry season. Sugar is also noted as being produced at Tillakaina.

The lesson to be learned from this is that labor has cognitive and structural as well as energetic components. The Songhai population perceived labor on millet fields in terms quite different from those of labor on cotton fields, because their access to the products—grain and cash—is quite different. Grain represents a common purse from which the various persons who contributed to its production may draw. The bulging granaries of a prominent farmer symbolize not just his personal wealth but also the well-being of his dependents. Cash, however, is privatized; it does not represent an element in a joint estate. Thus, when labor on the scheme became available on a wage basis, the very young men who previously refused signed up, since control over their wages rested with themselves. John Lewis (1979) has described a

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parallel situation among Bambara farmers in neighboring Mali. There he discovered that, contrary to planners' expectations, large "affluent" farmers were less able to assume the risks involved in cash crop—in this instance, groundnuts—production than were smallholders, because they were more dependent on external labor. In Bambara villages, labor beyond what the household can mobilize, is provided by the ton, the young people's age grade, who assist farmers in field preparation, cultivation, and harvesting. But that labor is voluntary, and can be withheld. A man who elects to grow cash crops rather than consumption crops risks both his reputation and his extra-household labor supply, for the ton will refuse to aid an anti-social individual, one who maximizes private rather than communal values.

The key to successful irrigated cultivation is the level of dry-season production. As noted above, rainy season yields on the Tillakaina scheme were depressed in part because of competition for labor on the millet fields. Dry season cultivation competes with wage labor migration, especially to the countries of the West African coast. While the expulsion of foreign labor from Nigeria in January 1983 has clouded the picture for the short run, one can anticipate that as the world economy improves and there is increased demand for oil, Nigeria will once again bid for labor on the international market, as will Cameroon, Gabon, Ivory Coast, and perhaps others.

> Seasonal migrations from the Dosso department to the coastal countries reflect the increasingly limited potential for remunerative production activities in the Dosso region during much of the year and the relatively greater potential of the coast. We see the development of a situation in which the region's families are more and more dependent upon participation in two interlinked economic systems. The linkage is a monetary one, and one of trade, but it is also one of labor power. In this case, the domestic production unit in the Dosso region reproduces and maintains labor power which is used "ready-made" in a variety of coastal economic sectors (Painter 1979:9).

Painter is describing the situation in the Dallol Bosso, in which the World Bank was planning to develop more intensive cultivation systems based on flood water and recession (fadama) controls. Such systems are exceptionally demanding of labor, and Painter is pointing out that the labor may not be available unless the new situation is perceived as providing greater net rewards than migration. Again and again planners design projects on the assumption that labor availability is not problematic, and again and again subsequent evaluation falsifies the assumption. In no sector is this more likely to be the case than in hydraulic agriculture.

The Ibohamane scheme, completed in 1969 with 750 irrigated hectares, remained the largest perimeter in Niger ten years later (Club du Sahel/CILSS 1979:4). Ibohamane is irrigated from hillside retaining basins (retenue collinaire), and has experienced a marked reduction in its water storage capacity due to siltation of the reservoir behind the dam. The World Bank is currently

"rehabilitating" this scheme, among others, and in 1982, only 582 hectares were available for hydraulic agriculture. The high rates of "down time" on many of these schemes and the high cost of their rehabilitation, combined with their often low rate of return, would seem to indicate some fundamental problems both in design and in management.

> A high percentage (1,200 ha out of 3,200 ha in the Niger Valley) of these investments was no longer cultivated in 1980 as a result of deteriorating infrastructure, lack of maintenance, and improper operation. This is an unacceptable waste factor leading to costly "rehabilitation" needs and low unit returns (IBRD 1981b:18).

The Ibohamane scheme showed a good deal of conflict between the peasant tenants and management, in this case the UNCC. Despite efforts by UNCC to improve farmer organization (Lavoin 1971; 1973), some 400 tenant families were evicted either for failure to apply the required package of inputs and cultural practices, or because of an unwillingness or inability to pay the assessed fees (redevances). While the agricultural extension system in Niger operated typically on a top-down directive basis, nowhere was this truer than on the irrigated schemes. Little if any provision was made for tenant participation in any aspect of scheme management, nor were the tenants asked to invest other than their labor in production. The World Bank has pointed out that Niger is unusually directive in controlling production in hydraulic agriculture:

> Existing Nigerien systems are designed to deliver water right down to lots of 0.5 ha or less, whereas elsewhere in the world farmers are responsible for (joint) water management at least at the 5 ha command level, if not larger units. Failure to motivate and organize would-be participants, and later to define and fulfill maintenance obligations (the responsibility of UNCC or Genie Rural until 1979), promoted a vicious circle of inadequate water delivery and user apathy contributing to cultivated areas well below potential commands. Determined attention to land rights, village structure and the complex "rights and responsibilities" links between user groups and the managing authories, will ultimately do more to salvage irrigation investment of the 1960s and early 1970s than the physical repairs they also urgently need (IBRD 1981b: 18).

A second set of issues having to do with the distribution of tenancies on the Ibohamane scheme involved local perception of inequities. While the typical tenant plot was 0.25 hectares, the traditional paramount chief (chef du canton) received twelve times that amount. Since the paramount chief normally cultivated considerably more land than his villagers, and often with their contributed labor, it might have been reasonable to maintain a similar distribution on the scheme. Why should the peasants complain about inequities on the scheme when they accepted them in the traditional production sector? The explanation parallels that of the varying definitions of

labor which we noted in discussing causes of low production on the Tillakaina scheme. In the traditional or pre-capitalist economy, the villagers had certain claims on the bulging granaries of their chiefs. In times of shortage, those who helped produce the chief's surplus might participate in its consumption. But, a capitalist mode of production obtains on the irrigated schemes, in which such benefits as might be gained are privately rather than communally enjoyed. Thus, the substantially larger plots accorded to the chiefs served to differentiate them even further from their people, and engendered a rising resentment. This was aggravated by the fact that many families who lost fields when land was expropriated for the scheme were unable to replace them.

As the scheme exacerbated social differentiation between commoners and their chiefs, it also exacerbated differences between men and women, to the disadvantage of the latter. Women who previously held farmland found themsleves dispossessed by the scheme, since allocation of tenancies went to male heads of households. Diarra (1982) has documented how some women, suffering a loss of income (mainly from their former production of okra for sale), and probably a loss of status and autonomy, attempted to recoup by various craft and small-scale entrepreneurial activities, and by investing in livestock. There seems little doubt, however, that at least for the medium-term, their economic positions have been marginalized substantially by their eviction from their farms and their exclusion from tenancies on the scheme. One hopes that the current socio-economic studies at Ibohamane being carried out by Diarra, A. Hochet and A. Monnier, will be taken into account and that scheme management as well as physical infrastructure will be rehabilitated and restructured on sounder and more equitable bases.

Thérèse Keita (1982) has discussed the impact of irrigation on women on the Saga and Say schemes. Saga came into production in 1967 with 375 hectares now in cultivation. During the early years, cotton and eggplant were cultivated, but these gave way to rice, which had been the traditional pre-scheme crop in the area, cultivated specifically by women. By 1982, however, there were only 19 women listed among 1,020 exploitants, less than two percent of the total, and of these only six held title to the plots. The others farmed lands that were officially titled in the names of their husbands, brothers, or sons (Ibid.:14-15). On the new Say scheme, which began in August 1981 with 300 hectares, about the same ratio of women to all tenants obtained (3:135) on the first section opened. On the second section, however, which was to open in January 1982, ten women were listed as having requested plots in their own name, including several women whose husbands were present. According to Keita (Ibid.:16), women may sign-up for tenancies at Say if they held land prior to the creation of the scheme.

Painter reminds us that ethnicity may be relevant in anticipating the effects of modern sector hydraulic agriculture on women. In the Dallol Bosso, he notes that "the development of dry-season fadama production will contribute to increased participationof Djerma women in gardening, an activity to which they are already accustomed and involved...:

> Djerma women have access to individual plots on which they raise onions, okra, peppers, sesame, rice, pois sucre, tomatoes, squash and calabashes. ... In some cases the gardens were located in fadama areas; in others (Kolbou), they were located in fields planted in millet during the rainy season, where the water table is quite high (1.5-2 m.) during the cool dry season. In all cases, the plots are loaned to the women for their use. In exchange for the use of the land, the women give the owner an unspecified portion of their harvest, described by the women as "gift" or a token of thanks to the owner. The women receive help in their venture. Some are helped in their gardening by their children; others hire paid workers (village men) to dig the shallow wells they use to water their gardens, and to construct the enclosures around the individual garden plots... Djerma women, unlike Hausa women, are not likely to have their own millet fields... and generally speaking, they do not participate in rainy season agricultural production as much as Hausa women do...
>
> Women in the Hausa areas...frequently participate in the cultivation of major staple and cash crops. They work in family (gandu) fields and in their own (gamana) fields during the rainy season. Unlike the Djerma women, however, they seem less likely to benefit from project-introduced improvements in fadama production, for they rarely if ever do dry season gardening at present. What is more, there seems to be some reluctance among men...that women engage in gardening (1979:55-56).

This does not mean, of course that under a new set of conditions Hausa women would continue to be excluded from gardening. It does mean that project planners must be cognizant of local perceptions and definitions of appropriate behavior for men and women, and these perceptions and definitions are variable by class and ethnicity. Whenever one begins to probe beneath the surface in rural Niger, the supposed homogeneity of the population fades and marked differences appear boldly across a broad range of indices.

Expropriation of lands without just compensation is one of the recurrent issues where smallholder cultivation is converted to large, heavily capitalized, state farms. Another is the lost opportunity costs of alternative uses of the land. De Ravignon (1977), taking the case of a cuvette some 30 kilometers north of Niamey that had been targeted for development, points out that the anticipated exclusive commitment to irrigated rice production might actually decrease the total quantity of food produced in the basin and on adjacent terrace lands. He notes that the imposition of a perimeter with full water control and double cropping of rice will indeed, at least initially, increase rice production. It also will reduce, however, both the rich dry-season pasture (bourgou) and fishing, with a negative consequence on the availability of milk, meat, and fish. Fewer cattle in proximity to the village means less manuring of the millet fields on the terraces and sandy plains, with a consequent reduction of millet yields. Cattle no longer having access to

the bourgoutiere will increase the charge on remaining pastures, possibly accelerating their degradation. Finally, rice yields will also decline over time, if experiences in similar areas are a guide, and the local community will end up with less food than it had before the scheme was introduced. As an alternative to this gloomy scenario, de Ravignon suggests a more complex production system, in which livestock, grains, and rice are produced. To achieve this, the GON will have to agree to a more reduced area for irrigated rice cultivation and to the introduction of livestock on the scheme. According to the author, the Government has been unwilling to entertain that combination.

As is discussed in the section on rainfed agriculture, shifting cultivation with long fallow periods and the sequential exploitation of land by farmers and herders are the principal devices by which soil fertility has been maintained in sahelian Niger. Large-scale capital intensive hydraulic agricultural schemes normally are devoted to monocrop (or a very restricted crop rotation, such as groundnuts and cotton) production without long fallowing. When such schemes are implanted along water courses which traditionally constituted dry season pasture, the land is deprived of its annual manuring and the animals are concentrated into more compact and less nutritious ranges, to the frequent disadvantage of both farmer and herder. Schemes in which animals are integrated into the production system and in which leguminous forrage crops are introduced into the rotation may, despite their apparent unwieldyness initially, prove to be ecologically, socially, and economically more attractive. For such complexity to be successful, the Government must be willing to allow a greater decision-making role to individual farming units; that is, Government—in the person of scheme management—should encourage the farmers to optimize their own economic best interests, and provide them with the necessary extension and material inputs. In Niger, with the new stress on the Société de Développement and on greater local participation in the economic process, it may be possible. Keith Hart (1982:89) asks why, given the recurrent better performance of smallholder production schemes over large capital intensive top-down projects, governments continue to commit scarce funds and scarce technical and management personnel to the latter:

> The answer is that they are not primarily concerned with technical efficiency and gross economic output: they want revenue for the public exchequer and the opportunities for personal enrichment that go with it. Even when a large-scale project yields less than smaller-scale options, if that yields is a reliable source of state income, it may be counted as a plus. Even if there is no net revenue at all, the scheme is a rural manifestation of the state's active presence; it keeps a loyal cadre of followers employed; and it always holds out the prospect of greater efficiency in the future... Failure is inevitable because the schemes (irrigation, colonization, and resettlement) cannot satisfy the needs of a labor force ripped out of its subsistence environment at a cost commensurate with the expected rake-off from production. So people leave, productivity remains low, and another project miscarries.

In contrast to Tillakaina and Ibohamane, which have been beset with problems, the Toula rice production scheme has received a better, indeed, a glowing press. According to the World Bank, from a technical point of view:

> the design of the scheme is excellent, and explains in a large part the yields obtained (more than 5 tons/ha per cropping season, with two crops per year) (IBRD 1978:35).

Robert Hecht (1982), anthropologist now with the World Bank, wrote in the Christian Science Monitor, that Toula has also been a sociological and economic success, evidencing a degree of farmer-management unusual among Niger irrigation schemes.

Built in 1974-75 with Common Market financing, Toula provides full water control by means of a dike, a pumping station for irrigation and drainage, and concrete-lined canals. It covers 260 hectares, divided by tertiary canals into seven-hectare plots (IBRD 1978:35). In 1978, average yields of 9,723 kilograms per hectare were achieved (Club du Sahel/CILSS 1979:4), among the very highest in the country.

Hecht writes that the 240 hectares were divided among 540 farmers in 1981, with an average holding of 0.44 hectares per farming unit, and an average yield of about 4.5 metric tons of rice per holding. About a quarter of the production was sold to the government at a fixed price to settle the farmers' debts to the scheme. Approximately 900 kilograms (for a farming unit of seven persons) was retained for household consumption, and the remainder sold to private traders on the open market. Farm unit incomes from rice averaged around $1,200 in 1981 (Hecht 1982:9). Millet and sorghum requirements were met either through rainfed cultivation off the scheme or by purchase. With an annual income of about $1,200, the tenants on the Toula scheme are among the best remunerated small farmers in the country, where, according to the World Bank, "average farm and livestock incomes... probably cluster around US$75 per capita (1978)" (IBRD 1981b:10). It is interesting to note that 14 hectares of Toula scheme land were planted in eucalyptus trees on a five-year coppice cycle for fuelwood and poles. The woodlot, revenue form which totaled $4000 in 1981, is operated on behalf of the farmers' association who employ several local people to care for it.

Even where irrigation schemes are both technical and socio-economically satisfactory, they often raise equity-related issues. To the extent that irrigated perimeters are funded in part through direct taxes on the rainfed agricultural sector or on indirect taxes through the investment of funds that might have been otherwise employed, hydraulic agriculture benefits the small number of farmers who receive tenancies as opposed to the vast majority on drylands. Even the World Bank, whose concern for equity is often tepid at best, has raised this issue in the context of Niger:

> The Government's subsidization policy for irrigated agriculture has actually resulted in increasing existing disparities between two groups of farmers, a large one consisting of dry-land farmers and a very small favoured group, cultivating irrigated land. Moreover, considering that the major part of government revenues is accruing from taxes on rainfed agriculture, present Government's policy obviously means that the poorest part of the rural population is subsidizing the richest one (Fontana 1974:11).

There is some evidence, on the other hand, indicating that the negative assessment accorded to large-scale irrigation schemes by many experts, is a consequence of evaluations done too early and too narrowly. As Scudder (1981) suggests, on the basis of his global evaluation of new lands settlement—for the most part, settlements associated with large-scale irrigation schemes—many of the benefits may take years to appear, and then will be manifest not necessarily in activities directly to do with hydraulic agricultural production, but rather in the employment and commercial activities generated in the surrounding off-scheme area. In other words, the appropriate evaluation of the large perimeters should include the contributions they make to the social and economic development of the region. These, Scudder feels, may turn out to be far more positive than those focused exclusively on maintenance costs, yields, and producer income.

SMALL-SCALE IRRIGATION IN NIGER

Modern sector schemes with full water control account for less than 17 percent of irrigated lands in Niger (Ferguson 1979:2). The remainder, some 26,000 hectares, include irrigated gardens and orchards constructed and managed by farmers under their own initiative, small-scale projects sponsored by private voluntary organizations (Derenoncourt 1979), and dry-season gardening in oases and marshlands encouraged by the government. What is characteristic of these fields, in addition to their relatively small size, is their reliance on low energy technology in water and cultivation. In several instances, such as the new government-run perimeter at Tam on the Komadougou River, traditional shadouf-watered fields with earthen canals have been replaced by a large diesel pump and concrete conduits. It remains to be seen whether the energy advantages of the new system outweigh their costs (of amortization, fuel, maintenance, and supervision). When we visited the perimeter in December 1982, the pump was out of service.

Nigerien farmers have developed a range of systems for combining rainfed cultivation of cereals on light sandy soils with irrigated cultivation of garden crops on heavier soils in low-lying areas. The combination tends to allocate the former as "subsistence" crops (recognizing that millet and sorghum are vigorously marketed throughout Niger, and have been important exports) and the latter as "commercial" crops (recognizing that tomatoes and peppers, especially in their dried form, and onions, okra, beans, and eggplants are increasingly important consumption items in rural as well as urban areas).

Saunders (1980:2) has written that irrigated gardening developed primarily in areas where "land suitable for irrigation coincides with access to markets for irrigated crops." Painter (1979:53) notes that farmers in the Dallol Bosso were particularly concerned over "evacuation of produce which, given the isolated locations of many fadama areas and the poor road networks in the region, hinders production efforts due to poor market access." As an indication of its association with marketing, Hausa farmers classify gardening as kaptu, along with trade and crafts, rather than as noma, or rainfed farming (Koechlin 1977; Nicolas 1960). Painter (1979) reports that Hausa-speaking women in the Dosso area rarely garden, while both Hausa men and women garden in the Zinder region. On the other hand, gardening appears to be mainly a women's activity among the Zarma (Stier 1980; Goldmark 1977). Kanuric-speaking Manga, Mobeur, and Kanembu have irrigated gardens in the Komadougou Valley and along Lake Chad (Horowitz 1972). Tamasheq-speakers have developed oasis gardening in the Air and elsewhere, and Tabelot Oasis Integrated Productivity Project, supported by Church World Services, has an on-going potato cooperative, and provides seed potatoes to the entire country (Derenoncourt 1979). Church World Services participated also in marshland gardens in Guidimouni and Doungou. The latter, focused on manioc production and the marketing of manioc flour, initially experienced poor sales due to the low quality of the flour. The Guidimouni marshland, however, has been in cultivation for a very long time, and, with the improvement of the road to Zinder, might enjoy improved sales once the technical and managerial problems are resolved.

Historical evidence for the Sosaibaki Kingdoms of Ouacha and Mirria, now in Zinder Department, suggests that local rulers initiated the construction of irrigation systems in the late 18th or early 19th century (Brouin 1938, Saunders 1980), mobilizing the labor both of slaves and of the free peasantry. The ruler of Mirria around 1800 was reported to have required each household head to clear and plant a garden. By the 1850s, the Sultan of Zinder and other Zinder notables established gardens and orchards in various parts of Damagaram (Dunbar 1971; Richardson 1853). Barth (1857) and Richardson (1853) provide fascinating pictures of irrigated agriculture during the mid-19th century. A pre-colonial textile industry was based on locally-produced cotton and indigo. Other irrigated crops included tobacco, pepper, onion, sweet potato, gourd, manioc, dates, rice, wheat, and barley (Saunders 1980:7). By the very early colonial period, lemon and banana trees were grown (Landeroin 1911). While the records are not clear on this point, there are indications that most of the production was in the hands of smallholders, while some irrigated gardens continued to be cultivated on behalf of the rulers and nobility.

Colonial authorities encouraged gardening where it was feasible. A large government garden was created at Mirria in the 1930s, expropriating a number of smallholder gardens. Laborers were hired to work the garden, which produced vegetables targeted at the European community in Zinder, some 22 kilometers distant. Additional land was brought into irrigated production by peasant farmers, and the traditional crops of cotton, wheat, barley and other grains gave way to salad crops, fruit trees, vegetables, and strawberries

preferred by the Europeans (Saunders 1980:12). The French Commandant de Cercle at Maine-Soroa in the 1930s commandeered an irrigated garden along the Komadougou which he had fenced and planted in citrus trees.

Saunders (1980:20, 21) details the commercial spin-offs from the Mirria gardens as a "multi-layer marketing system" including petty retailers, intermediate bulkers, and large-scale dealers. The latter group negotiated vegetable and fruit contracts with large consumers, "such as the Canadian road-building crew...(and) the Zinder hospital." It would be interesting to have comparative data on the vitality of the commercial or entrepreneurial sector dependent on large government-managed and small farmer-managed schemes, but such data are not available. We suspect that the latter generate more independent (as opposed to scheme-salaried) employment, which, if true, should have significant policy implications.

Smallholder gardening at Mirria in the early 1970s combined a labor-intensive system of watering with an elaborate network of tiny plots and water channels fed from larger canals. Hand watering required two-man teams: one worker standing in the main channel of the feeder canal, lifting water by calabash to pour into the lead channel of the garden, while his partner moved rapidly around the garden opening and closing secondary channels by hoe to direct the flow of water to each little plot. No pumps were in use in the smallholder sector of the garden, although a motor-driven pump irrigated the government neem (Azadirachta indica) tree nursery. Curiously, not even the shadouf was used in Mirria, although it is known both to the west in the Maradi area (Raynaut 1969) and to the east along the Komadougou Valley.

There have been few examinations of the economics of smallholder gardening in Niger. Raynaut (1969:144) reported income and expenses for seventeen gardens in the goulbi of Maradi. Gross revenues ranged from 3,150 CFA to 47,500 CFA; net income ranged from nil to 18,395 CFA. Nine of the gardens earned 12,000 CFA or more, while the others earned less than 7,000 CFA each. Unfortunately, Raynaut's study is the only one providing data of this kind.

Perishable garden produce is restricted by access to markets. In the gardens along the Komadougou, the emphasis was on onions and on crops that could be sun dried and stored, like tomatoes and red peppers. In 1956, Nicolas observed garden crops in Tassao Haoussa, a village in Matameye Canton in southern Zinder Department. Sugar cane, manioc, dates, and mangoes worth some 500,000 CFA; but much of it went unsold because of lack of outlets (1960:442). The improved highway system connecting all the major population centers should facilitate marketing, as the rapid growth of these centers should increase demand. When individuals enter urban and civil service positions, their consumptive profiles tend to change as they emulate a more European-oriented diet. Small shifts of such persons, however, can have immediate impacts on farmers who have invested land, capital, and

labor in developing gardens. We must wonder what happened to the farmers and traders dependent on the construction of the Route à l'Unité when the Canadians finished the job. What will happen now that the decline of uranium revenues causes a decline in the expansion of public sector employment?

The largest external involvement in smallholder irrigation is the "3M" project based in Matamaye, Magaria, and Mirria cantons in Zinder. According to an evaluation report in March 1979 (République du Niger 1979), some 30 marshlands and low-lying basins were identified as having good potential for gardening of wheat, maize, and other cereals, manioc, and sugar cane. Most of these areas were judged to be under-utilized, and almost 70 million CFA was provided by the Common Market for their development during 1977-1980. Actions included provisioning of seeds, seedlings, and tools, and training of young farmers in irrigated gardening at three centers (CPTs). The CPTs gave instruction in animal traction, irrigation, phytosanitation, and product conservation, and trained the 36 young men chosen in the cultivation of maize, wheat, potatoes, tomatoes, peppers, onions, lettuce, carrots, okra, cabbage, and watermelons. The CPT at Gada also built a one-hectare gravity irrigation scheme for training purposes, including a concrete well with a motorized pump, a reservoir, and a cement-lined canal. The project also had an extension component aimed at encouraging smallholders to intensify production of garden produce. The 3M project is also managing a three-hectare fruit tree nursery at Mirria, producing mango, citrus, and guava seedlings for marshland orchards. These trees are aimed both at improving local nutrition and in augmenting producer income.

It is clear that a good deal of research is needed on the socio-economics of smallholder irrigated gardening. We know little about marshland land tenure, about the social organization of production, or about income and expenses on these fields. We know almost nothing about their health implications, although these gardens are likely to be arenas for schistosomiasis, filariasis, and malaria. We suspect, nonetheless, that the development and expansion of small-scale irrigated cultivation has a good deal of potential for improving the income and quality of life of rural producers: the intensity of their cultivation implies a good deal of direct employment generation, and the open marketing of their produce implies an expansion of private sector trading. The fact that they are capable of being operated with low energy equipment reduces the vulnerability of farmers to the high costs and frequent down time of the capital intensive technology on large schemes. The small size of the plots facilitates rapid shifts and experimentation with different crops, and the location of management in the hands of the producers themselves facilitates a fine-tuned adaptation with micro-ecological constraints and opportunities. A critical element often ignored in large-scale development projects, especially those involving hydraulic agriculture, is vesting managerial decision-making in the persons of the farmers. The apparently greater returns for small-scale gardening, at least at the level of the producer, would seem to evidence its importance.

ANNEX I - IRRIGATION SCHEMES IN NIGER

A. Schemes in operation as of 1 January 1979[a]

I. Niamey Department	Type	Area	Date	Exploitants 1975/1976[b]
Firgoun	Cuvette	300 ha	Completed 1953	202 exploitants
Koutoukale	Cuvette	410 ha	1966	
Daikena	Cuvette	120 ha	1964	361 exploitants
Toula	Cuvette	260 ha	1974/1975	450 (may be a misprint, 540 in 1982[c])
Sona and Kokomani	Cuvette	212 ha	1974/1975	
Lossa	Cuvette	190 ha	1974/1976	
Karma[d]	Cuvette	250 ha	1972/1978	
Karegourou	Cuvette	145 ha	1970/1976	
Kourtere	Cuvette	10 ha	1970	
Kirkissoye	Cuvette	100 ha	1965/1977	
Saadia	Cuvette	115 ha	1973	
Saga	Cuvette	385 ha	1966/1976	
Libore	Cuvette	259 ha	1966/1976	
N'Dounga I	Cuvette	280 ha	1966	
N'Dounga II	Cuvette	290 ha	1966/1978	
Sakoira	Terrace	42 ha	1966	275 exploitants
Tillakaina	Terrace	100 ha	1967	124[e] exploitants
Sona II	Terrace	71 ha	1975/1976	470[e] exploitants
Lossa II	?	91 ha	1975/1976	288[e] exploitants
Sub-Total		3,530 ha		

II. Tahoua Department	Type	Area	Date	Exploitants 1975/1976[a]
Ibohamane	Retenue Collinaire	750 ha	1966/1969	
Guidan Magagi	R.C.	132 ha		
Moulela	R.C.	65 ha	1966/1969	
Kaware and Touffani	R.C.	80 ha		
Others (in need of repairs)	R.C.	132 ha		
Sub-Total		1,159 ha		
III. Other Schemes				
Birni N'Konni	R.C.	600 ha		
Dosso (and Mara)		130 ha		
Diffa		90 ha		
Sub-Total		820 ha		
TOTAL (I plus II plus III)		5,509 ha		

Notes:

[a] Club du Sahel/CILSS 1979:12 (Table 1)

[b] IBRD 1978:60

[c] Hecht 1982:9

[d] A 10 KW solar pump was installed at Karma (République du Niger 1980:296; also see Arrigni de Casanova 1975).

[e] These farming units are associated with the following areas under irrigation: Tillakaina - 42 ha; Sona - 212 ha; Lossa - 190 ha (IBRD 1978:60).

B. Work in progress or nearing completion as of January 1979[a]

I. Niger River Valley

Karma: Conversion to full water control; 150 ha; FED financing; work done by Genie Rural, ONERSOL installed a solar pump capable of irrigating 20 hectares (10 KW[b]).

Firgoun: Conversion of Niger's oldest irrigation scheme to full water control; 220 ha; work done by Genie Rural.

Lossa III: A 160 ha terrace scheme; FAC financing; only a small portion of the scheme was actually completed as of 1979, and this area was passed to INRAN/GERDAT for Niger Cereals Project experimentation.

Kirkissoye: Rehabiliation of 100 ha by Genie Rural and 10 ha extension.

Tara: 50 ha of a 140 ha AFRICARE project had been completed on this cuvette rice scheme.

Tiaguirire upstream: Perimeter intended for irrigated production of livestock fodder for a fattening program; 240 ha; additional funding needed for completion. German funding.[c]

Tiaguirire downstream: Cuvette rice scheme; partial funding by FAC, additional funding needed; only exterior dike and pumping station had been completed.[c]

Goudel: Small cuvette (85 ha); partial funding by CEAO, additional funding needed; work on exterior dike was in progress in 1979.

II. Other Regions

Birni N'Konni Project: Development of a gross area of 3,300 ha (2,600 ha irrigable) by means of two retenues collinaires:

a dam at Zanbo (15 Hm^3)
a dam at Mozague (30 Hm^3)

Of the total project, 300 ha were already under cultivation[d] (two-thirds in sorghum, one-third in cotton, with wheat and niebe in the dry-season).

Funding by BCEA, PNUD, and Niger's own FNI; work carried out both by private enterprises and by the Genie Rural.

Scheme operated by the Birni N'Konni productivity Project; not expected to be turned over to UNCC/ONAHA in near future.

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Diffa Department: A 20 ha perimeter at Tam for diverse food crops; completed. The 120 CDA Project (rice with total water control) in the Komadougou Valley, completed. Both funded by CEAO as part of the Lake Chad Basin Commission activities.

Other: Small projects for diverse food crops and other experimental efforts in the regions of Agades and Tabalak (see later sections of this Annex for further information).[e]

Notes:

[a] Club du Sahel/CILSS 1979:26-29.

[b] République du Niger 1980; Club du Sahel/CILSS 1979:26

[c] The Plan Quinquennal shows areas of 300 ha for Tiaguirire Amont (upstream) and 250 ha for Tiaguirire Aval (downstream) (République du Niger 1980:162).

[d] Club du Sahel/CILSS 1979:12 (Table 1) shows 600 ha already completed at Birni N'Konni.

C. Activities proposed by the GON under the 1979-1983 Five-Year Plan[a]

I. Development of 5,500 ha (or about 1,100 ha/year) out of a total of 9,300 ha proposed for irrigation development at the following sites along the Niger River:

Namarigoungou	1,500 ha	(207 ha opened for use in April 1981[b] with cultivation to begin in June 1981)
Dayberi	400 ha	
Yelewani	150 ha	
Kourani Baria	670 ha	
Lata	150 ha	
Koutoukale	400 ha	
Namarde-Goungou	150 ha	
Goudel	85 ha	
Tiaguirire Amont	300 ha	
Tiaguirire Aval	250 ha	
Say	300 ha	(300 ha section put into use in August 1981, with a second seciton to open in January 1982[c])
Koulou	500 ha	
Kouanza-Ouna	600 ha	

II. Development of 1,000 ha in the goulbi of Maradi (Maradi Productivity Project).

III. In the Ader-Doutchi-Maggia (ADM) area: continued work at Birni N'Konni; work at Galmi; work at Tegelegel; rehabilitation of dams affecting 200 ha at Ibohamane and 200 ha at Keita.

IV. In the Komadougou Valley, development of 200 ha.

V. Studies of various other potential irrigation projects were also proposed.

Notes:

[a] République du Niger 1980:162-163

[b] Amani 1982:2

[c] Keita 1982:16

D. Future Projects

I. Niger River Valley

Namarigoungou: 1,500 ha, financing by BIRD/KFW[a]. First section of 207 ha opened in April 1981 with plots distributed to 515 farming units[c]. Cuvette rice scheme, full water control.

Koutrukale: Cuvette rice scheme, total water control; 400 ha; possible FED financing.[a]

Yelewani and Daibery: 120 ha and 357 ha[b]: rice schemes (or 150 ha and 400 ha as shown in CILSS[a] and Plan Quinquennal[d]).

Kourani-Bahia: Cuvette rice scheme, 750 ha[a] (Plan Quinquennal shows 670 ha)[d]

Lata: Cuvette rice scheme, 190 ha[a] (Plan Quinquennal shows 150 ha)[d]

Kouanza-Ouanza: Cuvette rice scheme, 410 ha[a] (Plan Quinquennal shows 600 ha)[d]

Say: 300 ha[a]. First section of 300 ha opened in August 1981, with a second section to open in January 1982[e].

Kolo: 500 ha[a]

Namardegougou: 150 ha[a]

Tillabery: Proposed sugar perimeter of 3,500 ha to provide sugar cane for a sugar processing plant.

Gabou-Bonfeba: A 3,270 ha site upstream of Namarigoungou just downstream of the proposed Kandadjo dam site.[a]

II. Other Regions

Bimi N'Konni: Continuation of Bimi N'Konni project with a second phase of 1,300 ha. Includes dam at Mozague.[a]

Maggia Valley: Additional studies.

Komadougou Valley: A maximum of 2,300 ha may be irrigable.[a]

Lake Chad Borders: Area not estimated*

Tarka, Karofane, Talak, Western and Eastern borders of the AIR: Possible sites in Northern areas.[a]

Notes:

[a] Club du Sahel/CILSS 1979:30-33

[b] IBRD 1978:35-36

[c] Amani 1981:2

[d] République du Niger 1980

[e] Keita 1982:16

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E. Agricultural Projects in the Air (November 1975)

Lieux (altitude et nombre d'habitants)	Type d'action realisee	Financement assure par:	Budget Annuel 1975*	Date de mise en place	Personnel cooperant		Personnel autochtone	Nombre de jardins
					Sur place	A Agadez au Niamey		
1) IFEROUANE 650 m. 1314 h	construction de barrages et de puits; mesures forestieres anti-erosives	Office allemand de cooperation technique	158	oct. 74	2	4	150 a 450 (chantiers)	40
2) TIMIA 1100 m. 1280 h.	lutte anti-erosive; lutte bacteriologique	Idem	90	aout 75	1	4	70 a 300 (chantiers)	65
3) TADELLOT 850 m.	amelioration des methodes culturales; lutte biologique	USAID; Church World Service	33	dec. 74	2	3	12 jardiniers 9 instructeurs agricoles	340
4) ICHIROZRIN 500 m.	construction de banquettes et digues; animation	Mission catholique (dons prives surtout de France)	8	dec. 72	3		130 a 170 (chantiers)	114
5) vallee de ICHIN TEBEZGIN 490 m. 700 h.	travaux de barrages cultures seches	Eirene (dons prives surtout allemands)	25	avril 74	3		30 a 150 (chantiers)	62
6) vallee d'ANDIGRA 570 m. 260 h.	animation rurale	Frere des Hommes (dons francais ou suisses)	15	aout 74	4		neant	40
7) ICHIN TOUALOUST 820 m. 250 h.	construction de barrages remise en valeur de jardins	Oxfam (fonds prives)	15	fev. 74	2		60 a 120 (chantiers)	13 (15 en preparation)

(Morel 1976:270).

* CFA en millions

F. Private Voluntary Organization Gardening and Fruit Tree Activities, 1981[a]

1. Church World Service: Aménagement Mares, Doungou, Zinder Department.
   Section fruitière, Gabagoura, Niamey Department.

2. Association Français des Voluntaires du Progres:
   Projet Mare Tegueye et Namga (Tera), Niamey Department
   Maraichage Bonkoukou (Filingue)
   Pepinières fruitières, Agadez Department
   Papinière fruitière, Maradi Department
   Jardins villageois Guidan-Roumgi, Maradi Department
   Puits Maraichers Guidan Roumji, Maradi Department
   Jardins villageois Madarounfa, Maradi Department
   Puits villageois Guidan Roumji (?), Maradi Department
   Pepinière fruitière, Diffa Department.

3. OXFAM: Projet jardins villageois Maradi
   Projet Mares Tegueye-Namga Tera, Niamey Department

4. Lutheran World Relief: Projet boutures patates-manioc Borgo Filingue
   Aide aux jardiniers de Tahoua, Tahoua Department
   Jardinage Damana Filingue, Niamey Department
   Pepinière fruitière Guidan Ider-Birni N'Konni, Tahoua Department
   Jardinage Telemces Tchintabaraden, Tahoua Department
   Mares II Illela, Tahoua Department
   Mares et bas-fonds Konni, Tahoua

5. Mission Catholique: Jardins à Doutchi, Dosso Department.
   Jardinage à Dolbel-Tera, Niamey Department
   Projet agricole à Ouriamija, Tahoua Department

6. CFCMCF (Comité Français pour la Compagne Mondiale Contre la Faim):
   Pepinière fruitière Agadez
   Puits et jardins maraichers Bonkoukou, Niamey Department
   Pepinière fruitière Maradi
   Pepinière fruitière Diffa
   Aménagement cuvette Gremari, Diffa Department

7. Sudan Interior Mission: Brise vent et formation agricole à Maradi

8. CIRATAS: Jardinage écoles Tchirozerine, Agadez Department

9. CARE: Projet diversification agricoles et haies vives Baleyara, Filingue, Niamey Department

10. EIRENE (Service Cretien International pour la Paix):
    Développement jardinage Projet ETTA, Agadez Department

Notes:

[a] République du Niger, 1982.

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HEALTH

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INTRODUCTION

The overall health profile of the Niger Republic resembles that of the vast majority of low income countries in tropical zones: high rates of infant and child mortality; high morbidity rates, especially from diarrheal, parasitic, and respiratory diseases; poor access to potable water and sanitary facilities on the part of the bulk of the rural majority; inadequate nutritional status, reflected in insufficient caloric consumption; and, especially in rural areas, a paucity of trained health professionals. These poverty-induced characteristics are presented numerically for Niger in the World Bank's Indicator Tables (IBRD 1980):[1]

Life Expectancy at Birth (1978)	40 years
Total Fertility Rate (1978)	7.1[2]
Infant Mortality Rate (aged 0-1) (1960, last available)	212
Child Death Rate (aged 1-4) (1978)	32
Population per Physician (1977)	42,610
Population per Nurse (1977)	5,160
Percentage of Population with Access to Safe Water (1975)	27
Average Index of Food Production per capita (1969-71=100) (1976-1978)	87
Daily Calorie Supply (DCS) per capita (1977)	2,139
DCS as Percentage of Requirement (1977)	91

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[1] Health-related statistics in Niger are no better than those in other realms and must be approached with a cautious skepticism. Commenting on the health data system in Niger, the Rural Health Improvement Project evaluation team stated:

> Cultural mores, low levels of literacy, and social factors affect reporting of deaths and make accurate data collection difficult. Less than 10 percent of rural deaths and 20 percent of urban deaths are said to be reported and recorded. Causes of death are not well-specified, even for principal causes such as malaria, diarrhea with dehydration, and communicable diseases such as measles. The extent of malnutrition is not well quantified. There are no reliable indicators available to measure impact of the rural health system on decreasing morbidity and mortality. WHO estimated that a child born in Niger in 1976 has an estimated life expectancy of 39 years; by 1980, that life expectancy had been raised to 42 years. The source of data on which these estimates were made is not known (Ferguson et al 1982:29).

[2] Of 38 Low Income Countries listed by the World Bank, only Kenya, with 7.8, indicates a higher fertility rate.

The GON clearly is committed to improving the health conditions of the population, and has shown a welcome shift away from the excessive reliance on capital intensive clinical medicine that characterized the first 15 years following independence. During those years, the emphasis was on training health professionals and constructing clinical health facilities, mainly in the capital city and in other large urban centers. Today, the accent is on preventive public health measures and, through the development of decentralized paramedical Village Health Teams (VHTs), on improving access to health facilities in the rural areas.

> The increasing percent of the GON's annual health operating budget between 1979 and 1980 for rural health care as opposed to urban hospital services reflects the Government's rural health priorities: allocations to hospitals decreased from 43 percent to 35.3 percent while those to the rural health care system increased from 57 percent to 64.7 percent (Lukas 1982:5).

According to the five year plan for 1979-1983, the goal is "health for all by the Year 2000".

> L'accent serait mis, pour le développement des structures, sur une médecine globale définie comme un médecine de masse, préventive, éducative et mobile et dans certains cas sur l'amélioration de l'efficacité de la médecine curative.
>
> L'orientation suppose l'implementation d'une structure assurant à la base une large couverature sanitaire au niveau des villages, et le renforcement de l'auto-encadrement sanitaire de la population (République du Niger 1982a:307).

To achieve the global improvement in the health profile of the rural population, the GON has mounted a three-pronged approach:

1. To expand the provisioning of basic health services through broadened immunization campaigns and through the expansion of the VHTs, where the goal is to increase the number of villages covered from about 1,500 in 1978 to 4,000 in 1983, and to decrease the ratio of persons to each dispensary or medical center from almost 27,000 in 1978 to about 19,000 in 1983;

2. To improve environmental health conditions through expanded provisioning of potable drinking water and sanitary waste disposal systems.

3. To improve the nutritional status of the population by education programs and by encouraging increased food crop production on the farms.

Recognition of the need to redress urban-rural imbalances in the provisioning of health facilities and personnel in Niger did not await the rhetoric of the United States Congressional Mandate or the McNamara Doctrine at the World

Bank. Neither did it await the general consensus that the Third World had much to gain in emulating the Chinese system of non-urban medicine based on the "barefoot doctor" in each rural village, factory, and production brigade. As early as the 1960s, Niger began to install "secouristes de village" with simple pharmaceutical kits in the rural areas. The first was placed in Matameye in 1963, followed the next year by secouristes in Madaoua and Tillaberi. In 1966, six villages near Maradi had secouristes, and the following year, some 92 health workers were active in 41 villages, reflecting the desire to have at least two such trained persons in each village. These individuals were selected for training by their fellow villagers, who also contributed the 2,500-5,000 CFA needed to stock the kit. Although the training seminars took place in hospitals, under supervision of physicians, these front-line medical workers were not responsible to the Ministry of Health, but to the Direction de la Promotion Humaine. In other words, they formed part of the rural animation cadres and not those of the health services. This separation, combined with the attitude of Ministry of Health staff that was, at best, ambivalent and, at worst, actively hostile, often served to subvert the contributions that might have been made by these teams to a more effective improvement in the health status of villagers. Indeed, the opposition between Santé and Promotion Humaine gave rise to such incidents as a nurse refusing to treat a seriously ill patient brought to him by a securiste: "Va te faire soigner à l'animation," the nurse said. "Get cured by the extension workers." Regional animation agents were responsible even for replenishing the medical kits (Belloncle and Fournier 1975:18).

The secouristes had three primary responsibilities: treatment of external wounds and eye infections; sanitary education; referral of serious complaints "up the ladder." Where these workers were active, that is, in about half the villages checked in 1968, the reports indicate a quite satisfactory handling of the first responsibility: "la disparation quasi totale des conjonctivites et une très nette amélioration quant au nombre de plaies 'infectées'" (Ibid.:70). Problems developed in proportion to the distance of the village from an urban center, for the professional health personnel were most reluctant to undertake the periodic field visits that were seen as necessary for the continued success of the program. Dr. Hacques, who was in charge of the training program in Maradi, wrote in his report of 1967:

> Nous avions l'intention de confier le contrôle des secouristes aux infirmiers des dispensaires de brousse (sept dans l'arrondissement), mais il s'est avéré que l'infirmier de dispensaire se considère (sauf exception) comme un fonctionnaire brimé parce qu'affecté en brousse — se contentant de distribuer des médicaments sans commentaires... L'infirmier considère que la population doit venir à lui. Il serait capital qu'on insiste sur l'aspect éducatif que peut avoir l'infirmier auprès des populations pendant sa formation (quoted in Ibid.:74).

Rural school teachers proved to be no more interested in health education than were the nurses.

It is not surprising that local medical (and educational) personnel were little interested in the success of village health programs using briefly trained paramedical secouristes. Apart from what might be a professional jealousy or protection of "turf," the nurses simply were echoing the official policy of the Ministry of Health, which had not relinquished its emphasis on capital intensive medical facilities in the urban areas staffed by qualified professionals. Throughout the Diori regime, the heavy imbalances between the urban areas and the countryside, as reflected in medical resources, continued. By 1973, the year before the military seized control of the government, there were 98 physicians (of whom only 16 were Nigérien) in the country. Of these, 50 practiced in Niamey. Of the 1,310 hospital beds throughout the country that year, 907 were concentrated in Niamey and Zinder. Almost half of 44 officially-recognized mid-wives practiced in the capital city. Following the change of government in 1974, Niger was among the first West African countries to experiment with an extensive paramedical approach to rural health, and USAID participated in the experiment from its inception. According to an early project document, the purpose was:

> to improve the Rural Health Delivery System of the GON with an objective of providing basic promotive, preventive and curative health services at the village level. This project will provide health care services in 50% of the country's 9-10,000 villages, using primarily non-salaried volunteer village health teams consisting of seccouristes (basic village health workers) and matrones (retrained and reoriented traditional midwives) who will be supervised, supported and coordinated by the GON (USAID 1976).

While neighboring countries, such as Mali, Nigeria, and Cameroon, saw in the traditional medical practitioners a potential resource for development, constituting an already existing delivery system (cf. Pillsbury 1979), the Nigérien medical establishment was reluctant to admit these curers, other than the midwives, to even the most junior roles in the modern structure. They favored instead the creation of a parallel system de nouveau, in which the secouristes were selected mainly because of their connections to the village chieftancy. Some social scientists who had studied the traditional health sector (Brokensha et al 1977:132 et seq) felt that the creation of a parallel rural delivery system was needlessly costly, and that anyway the villagers and herders were unlikely completely to abandon consulting with traditional specialists: wanzamma (Hausa "barber"), surgeons; boka (Hausa) and kaskama (Kanuric) herbalists or medical specialists; and malami (Hausa, literally "educated persons", but in essence Islamic cleric or teacher), who provide ritual and psychiatric curing. The GON recently has shown a tentative interest in the traditional sector. Although its interest apparently now is limited mainly to pharmacology, this is an encouraging sign. The traditional curers are already in the villages; they have established practices; and they often have the confidence of the local people with whom they have established mutually acceptable means of compensation. Anthropological field workers have found that these curers manifest a vested interest in

success and show a receptivity to learning new techniques (Horowitz 1974). With the exception of a few private clinics and the foreign missionary medical network, the traditional practitioners, operating independently of the government, constitute the private sector approach to health in Niger.

The significance of improvements in health for Nigerien social and economic development is noted in the Niger CDSS FY83.

> If improved health status permits more active participation of the country's population in its own development process, then development prospects are dramatically improved; if health status detracts from already tentative development prospects, then the probability of ultimate goal achievement is seriously compromised. Thus, efforts to reduce malnutrition and disease and the rate of population increase are essential elements of a Nigerien development strategy and can prove to be cost effective (USAID 1981:21).

A similar tack is taken by Lukas (1982:3) in her recent consideration of the relationships between health and productivity in the Nigerien agro-pastoral sector, when she suggests that improved health increases the amount of labor available for productive work and therefore leads to increased yields, "since the per capita rural supply is a constraint both on agricultural and livestock output."

In this chapter we summarize the health and morbidity situation of Niger, outline some of the efforts being made to improve them, and describe briefly the organization of services in the Ministry of Public Health.

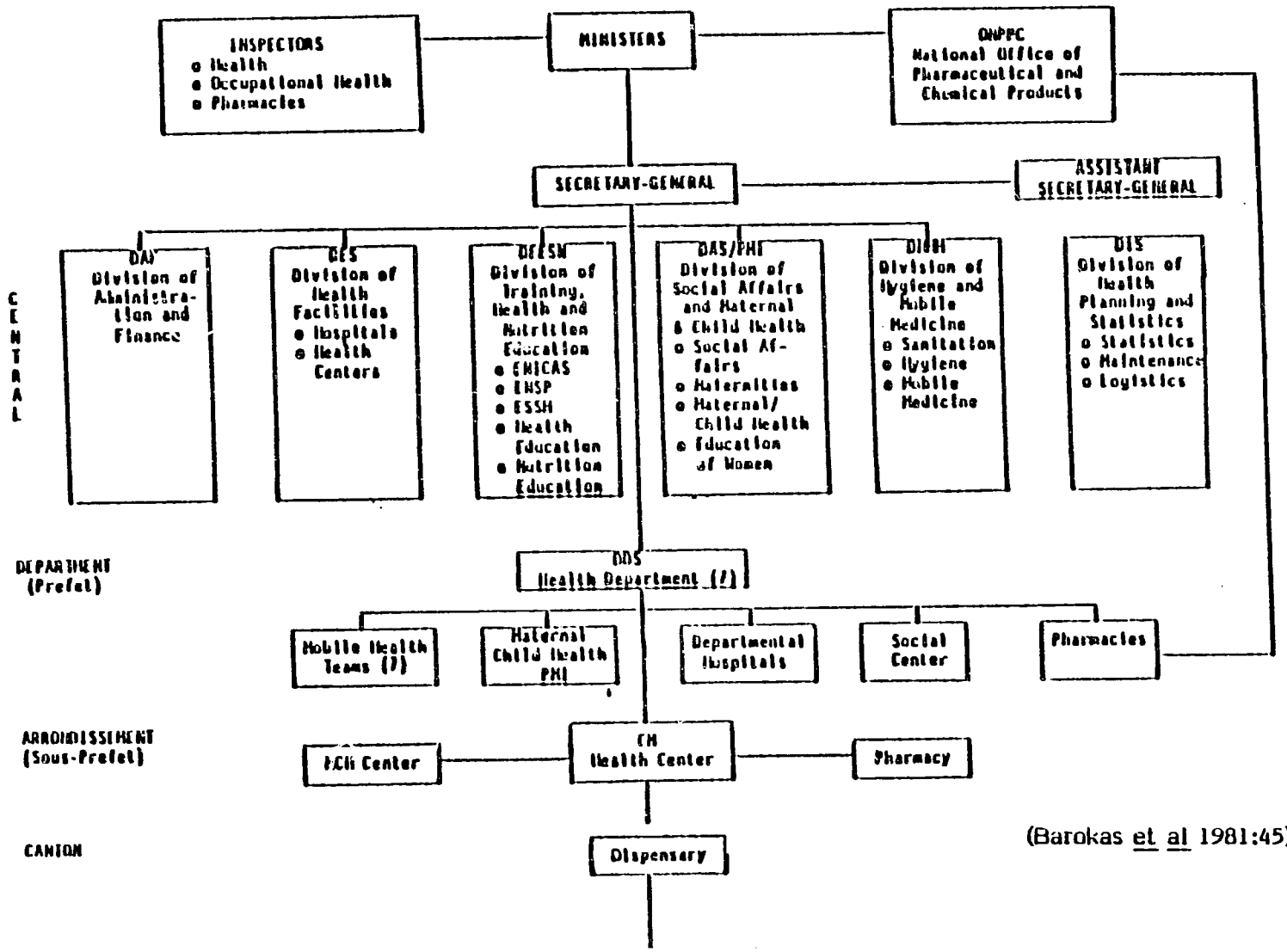
HEALTH SERVICES

Modern medical services in Niger are under the authority of the Ministry of Public Health and Social Affaires (Ministère de la Santé Publique et des Affaires Sociales, or MSP). The MSP has both a centralized national-level administration and a territorial organization for the provision of health services at regional and local levels (see Figure 1).

The MSP provides preventive medical actions, including immunization campaigns, maternal and child health services, and malaria prophylaxis. Non-MSP programs for providing clean water and improving community sanitation also contribute to preventive medicine. Much MSP activity, however, is curative in nature. Visits to health facilities most often are prompted by urgent health problems due to illness or accident. Laboratory facilities for diagnosis and analysis are concentrated at the nation's seven hospitals; elsewhere treatments must be based largely on observable symptoms and patients' descriptions of their problems.

The territorial organization of the Ministry of Public Health follows that of the civil administration, with operations at department, country, district,

FIGURE 1 - ORGANIZATION OF THE MINISTRY OF PUBLIC HEALTH AND SOCIAL AFFAIRS



(Barokas et al 1981:45)

and village levels. Each of the seven departments has a Direction Départemental de Santé (DDS), whose director coordinates all health services. These include health care facilities from departmental hospitals down to village health teams, as well as the activities of the various subdivisions of the Ministry outlined in Annex 18.

Health care facilities are summarized in Table 1. A hospital is located in each department capital, with those at Niamey and Zinder designated as national hospitals and the others as departmental hospitals. Government physicians are found only at this level. Government pharmacies are also located in each department capital. Although six private clinics were reported in 1978 (République du Niger 1980:403), there are restrictions on private medical practice. The "virtual prohibition" of private practice reported by the Rural Health Improvement Project (RHIP) evaluation team (Barokas et al 1981:51) does not preclude private voluntary organizations working in the health sector. The Sudan Interior Mission (SIM) has operated a hospital at Galmi for many years. SIM budgeted nearly 36 million CFA for this facility in 1981 (République du Niger 1982b:14). The long-term relationship between SIM and MSP is not entirely clear, however.

A network of 38 medical centers (Céntres Médicaux, CM) is found at the arrondissement or county level. A CM is headed by a state-diploma nurse (a graduate of the Ecole Nationale de Santé Publique), with several certified nurses and a driver under his supervision. A CM also usually includes a maternity clinic staffed by a certified midwife (sage-femme) and a maternal and child health program (protection maternelle et infantile, or PMI). Pharmacies are somtimes located at the county level.

Certified nurses (with a total of about ten years of schooling) staff the lowest level of fixed health care facilities, and the rural dispensaries are found at the canton or district level. Other small rural facilities serving administrative posts are termed postes medicales (see Garba 1982:8 for a description of one poste medicale). As of 1980, 189 dispensaries and 24 medical posts were in operation.

Elementary health care at the village level is provided by volunteer village health workers. A village health team (équipe villageoise de santé, EVS) should include two health workers (secouristes, usually men) and two birth attendants (matrones), who are chosen from traditional midwives. Secouristes and matrones are selected by the village community and undergo a brief training period (105 hours for matrones, 9[illegible] hours for secouristes, over a period of about ten days) (Barokas et al 198[illegible].70, 89). They then return to the village with a simple kit that includes an initial supply of medicines. Minimal supervision of village health teams is provided by the nurses of the canton dispensaries, or of the CM where no dispensary exists. Village health team members charge for their medications and are expected to purchase new supplies as needed from the dispensary or CM.

TABLE 1 - HEALTH CARE FACILITIES, NIGER

Facilities	1978	1980
National hospitals (Niamey, Zinder)	2 (1,318 beds)	2
Departmental hospitals	5 (695 beds)	5
Private clinics	6 (212 beds)	no data
Medical Centers (CMs)	38 (937 beds)	38
Maternity Clinics	41 (including 4 private)	49
Dispensaries	159	189 plus 24 "medical posts")
Maternal and child health centers (PMIs)	20	24
Departmental mobile medical teams	7	7
Pharmacies (government sponsored)	15	18
Private pharmacies	2	no data
Village health teams	1,496 teams	2,411 teams

1978 data: République du Niger 1980:403

1980 data: Barokas et al 1981:8-9.

By 1980, some 2,400 village health teams were in operation, although not all had a full complement of four members. Despite their limited training, village health teams can deal with health problems such as malaria (treated with chloroquine) and conjunctivitis (treated with ophthalmic ointment). In theory, cases beyond their competence are referred to a dispensary, CM, or hospital. A large USAID-funded project, Niger's Rural Health Improvement Project, is contributing to the expansion of the village health team program during the current five-year plan. As a recent evaluation of this project notes (Barokas et al. 1981), the absence of baseline data makes it difficult to determine the actual health impact of the program of village health teams.

Modern health services provided through fixed facilities such as CMs and dispensaries, and even village health teams, are most readily accessible to the sedentary populations of Niger's southern agricultural zone. Providing health services to dispersed nomadic or semi-nomadic populations is complicated and often considerably more expensive on a per user basis (v. Imperato 1974 on experience with nomad health services in Mali). According to the 1981 evaluation of the Rural Health Improvement Project, the GON does not presently provide health services specific to pastoral nomads:

> As a policy, the GON has indicated that all of its citizens are treated equally with respect to health services. No special arrangements are made to deal with nomads who are less likely to have access to fixed health facilities... (Barokas et al. 1981:70).

The Revised Implementation Plan for the RHIP also notes that it is GON policy to deal with nomad populations "within the standardized system of the rural VHT (village health team) plans" (USAID nd:10). It adds, however, that "small experimental programs are underway to test methods of more effectively providing simple health services to nomads" (Ibid.). Some special services for nomads were offered during the colonial period throughout French West Africa (Imperato 1976: 293-294).

Although the population of Niger is scattered among more than 8,000 settled towns and villages and numerous small nomadic bands, a recent report of the Direction de l'Urbanisme of the Ministry of Public Works suggests a pattern of population concentration that favors access to health care. The Direction de l'Urbanisme was able to divide the entire sedentary zone into 108 zones of "urban influence," each with a radius of 30 kilometers. These 108 urban zones accounted for nearly 80 percent of the national population in the 1977 census (République du Niger 1981:2). This report also identified 57 surplus areas for which the population within a ten-kilometer radius reached 10,000 or more according to 1977 census data. Of these areas, 23 had 15,000 or more inhabitants and eleven had 20,000 or more. These 57 "agglomerations" accounted for nearly one-fourth (23.5 percent) of the total population in 1977 (Ibid.:21-22). Such information can be useful in planning the locations of new health care facilities, although this approach affords less access to health care facilities to populations living further to the north, outside the more densely populated agricultural zone.

MEDICAL PERSONNEL AND TRAINING PROGRAMS

In 1978, 118 physicians, ten pharmacists, and nine dentists were serving in Niger and of these, 29, seven, and three respectively were Nigerien (see Table 2A).

The School of Medical Science at the University of Niamey trains medical doctors in a program that enrolled its first students in 1978 (République du Niger 1980:320), the 1983 graduating class of twelve includes three women. Some students are sent abroad for medical training. Hence, the number of Nigerien physicians is growing. Initially, many of the country's doctors were assigned to administrative positions in the Ministry of Public Health. The 1981 RHIP evaluation team felt that many of these positions could be staffed by personnel trained in public health and health administration, releasing doctors for more direct health care service. Responsibility for the School of Medical Science at the university is shared between the Ministry of Higher Education and Research, which holds general responsibility for the university, and the Ministry of Public Health.

Nurses and other health personnel are trained at two institutions under the Ministry of Public Health. The Ecole Nationale de la Santé Publique (ENSP), located in Niamey, trains state diploma nurses, certified mid-wives, and laboratory technicians. Nursing and midwifery programs last for three years; laboratory technicians receive two years of training. The ENSP enrolled a total of 285 students during 1980-81. Candidates for the state nursing program are recruited through two channels: at the BEPC level (certificate earned after ten years of previous schooling); and by competitive examination among certified nurses with four or more years of experience (Barokas et al. 1981:115).

The Ecole Nationale des Infirmiers Certifiés et des Aides-Assistants de l'Action Sociale (ENICAS), located in Zinder, trains certified nurses and social workers for the MSP's Division of Social Affairs and Maternal and Child Health (DAS/PMI). Students are recruited by examination among persons with two or more years of secondary school (the CFEPD certificate plus two years, for a minimum of eight years of previous education). The course for certified nurses was extended from one to two years in 1981, to allow for more extended practical experience in the training program (Barokas et al. 1981:112). ENICAS also trains sanitation agents in a program that also was expanded to two years in 1981 (Ibid.:118).

Training programs for health professionals are discussed in the 1981 RHIP evaluation (Barokas et al. 1981:111-116, 118); limited data on ENSP, ENICAS, and the School of Medical Science at the University are also found in the Plan Quinquennal (République du Niger 1980:358; 370-371). A new Ecole Nationale des Infirmiers (ENI) to be located at Maradi also was proposed in the five-year plan (pp. 375, 378), to open in 1980; but it is not mentioned in the RHIP evaluation.

Training of village health team secouristes and matrones has been summarized above. Additional information on the development of this approach to health services in Niger and early training programs may be found in Belloncle and Fournier (1975) and Fournier and Djermakoye (1975). Some 2,400 village health

TABLE 2A - MEDICAL PERSONNEL, NIGER, 1978

Field/specialty	Number
Doctors	118 (of whom 19 are Nigeriens)*
Pharmacists	10 (of whom 7 are Nigeriens)
Dentists	9 (of whom 3 are Nigeriens)
State-diploma nurses	345
Certified nurses	735
Certified midwives	88
Social workers	13
Social work aids	65
Laboratory assistants	28
Anesthesiology aids	17

* According to the Bilan d'Execution 1979-1981 (République du Niger 1982a:322), there were 106 physicians in Niger in 1978. By 1981, the number had increased to 133, of whom 13 were in private practice and the rest in government service. These figures are presented in Table 2B.

(République du Niger 1981:404)

TABLE 2B - EVOLUTION DE LA COUVERTURE SANITAIRE AU 30/12/81

Departments	Medecins		Habitants par medecins		Lits CHN/CHD CM/Maternite		Habitants Par Lits		Lits de Maternite	Femmes par lits de maternite	Dispensaires + CM		Habitants par dispensaires CM	
	1978	1981	1978	1981	1978	1981	1978	1981	1981	1981	1978	1981	1978	1981
Agadez	8	10	16500	15700	156	850	850	700	52	610	16	18	8300	8700
Diffa	6	6	28300	29900	139	206	1220	870	39	920	14	14	12100	12800
Dosso	5	6	141900	95200	246	337	2900	2260	95	1600	28	31	25300	24600
Maradi	13	14	74700	75500	427	575	2270	1840	91	2320	27	37	36000	28600
Niamey	49	67	24700	19900	1079	1297	1120	1030	199	1340	51	64	23700	20900
Niamey (Vl.)	(47)	(56)	(5300)	(5900)	(899)	(1043)	(170)	(320)	(120)	550	(8)	(12)	(34000)	27500
Tahoua	9	12	112800	90000	512	596	1920	1810	123	1760	32	34	31700	31800
Zinder	16	16	64400	69800	603	618	1710	1810	103	2170	29	32	35500	34900
NIGER	106	133[1]	49400	42800	3.122	3.52	1.700	1.500	702	1620	197	230	26600	24.700

[1] soit 120 médecins secteur public et 13 médecins dans les cliniques privées.

N.B. Si l'on défalque du nombre total de médecins, le chiffre des médecins concentrés à Ny, la couverture réelle du pays est de 1 médecin pour 58700 habitants. Elle était de 52.000 en 1978 mais la zone urbaine de Niamey non comprise.

Le nombre de femmes par lits de maternité correspond aux femmes en âge de procréer. (15-45 ans)

(République du Niger 1982a:322)

TABLE 2C - EVOLUTION DE LA COUVERTURE SANITAIRE - SITUATION AU 30.12.81.

Départements	Secouristes		Matrones		Villages touchés		Couvertures sanitaires*		Nombre de villages du Niger	% Villages touchés	
	1978	1981	1978	1981	1978	1981	1978	1981		1978	1981
Agadez	62	102	26	38	51	91	1030	900	110	46,4	82,7
Diffa	116	173	36	180	93	139	1050	500	547	17,0	25,4
Dosso	267	863	282	857	436	565	1200	400	1.292	33,7	43,7
Maradi	635	1.071	536	1232	280	575	750	400	2.151	13,0	26,7
Niamey	612	929	375	779	420	623	900	550	1.450	29,0	43,0
Tahoua	273	423	409	667	185	391	1400	900	955	19,4	40,9
Zinder	202	172	172	570	190	529	2400	800	2.110	9,0	25,1
TOTAL NIGER	12.185	4.238	1836	4323	1496	12913	1550	600	8.615	17,4	33,

Source MSP/AS

* Nombre d'habitants par personnel de santé (E.S.V.) - La population rurale "vraie" et normale a été estimée après avoir défalqué les populations urbaines et semi-urbaines - à partir de l'étude démographique du MP/SPR d'Août 1979.

1. En 1978, on comptait 1 pharmacien pour 523,960 habitants, soit 10 dont 3 expatriés (dont les 2/3 à Niamey)
   En 1981, on comptait 1 pharmacien pour 270.300 habitants, soit 21 dont 14 nigériens (dont 17 à Niamey y compris: à l'ONPPC)
2. En 1978, on comptait 1 dentiste pour 582.200 habitants, soit 9 dont 3 nigériens
3. En 1978, on comptait 1 Sage-femme diplômée d'Etat pour 11.500 femmes en âge de procréer (15-45 ans), soit 9
   En 1981, on comptait 1 Sage-femme diplômée d'Etat pour 7.400 femmes en âge de procréer (15-45 ans), soit 1
4. En 1978, on comptait un infirmier diplômée pour 14.760 habitants - soit 355
   En 1981, on comptait un infirmier diplômée pour 11.500 habitants - soit 494
5. En 1978, on comptait 1 infirmier certifié pour 7.150 habitants - soit 735
   En 1981, on comptait 1 infirmier certifié pour 5.700 habitants - soit 994

N.B. Situation provisoire.

(République du Niger 1982a:323)

teams were in operation in 1980, reaching about 30 percent of Niger's secentary villages. By 1981, 2,900 villages were included in the program (Table 2C).

DISEASE PATTERNS

Gaps and flaws in the mortality and morbidity data for Niger are noted in the population section of the S.I.P. The 1981 evaluation of the Niger RHIP project pointed out that, although the Ministry of Public Health has a statistics division, collection and analysis of health statistics for planning purposes need considerable improvement. The limitations in data should be kept in mind.

According to the 1981 RHIP evaluation,

> Nationwide, at least 50% and possibly 60% of total deaths occur in children under five. The predominant causes are relatively easily preventable diseases - malaria, and diarrhea - combined with malnutrition. Other bacterial and viral infections, e.g. tuberculosis, meningitis, and hepatitis, are also important causes of morbidity and mortality. In the older age groups, venereal infections are frequent. Accidents (trauma) make up about 10% of all diagnoses reported (Barokas et al. 1981:40).

The GON collected data for a number of years on twelve "reportable" diseases. Tables 3 and 4 provide official figures for the years 1975 through 1980 for these ailments. Malaria accounts by far for the largest number of cases, with more than 290,000 reported in 1980. Measles (31,761 reported cases) and diarrhea severe enough to cause dehydration (7,681 cases) come next (Ibid.:41, 43). These figures are likely to be underestimations.

Three strains of malaria have been identified in Nigerien samples. Plasmodium falciparum is the most common, followed by P. malariae; P. ovale is considered rare (Belloncle and Fournier 1975:45). Along the Niger River malaria is a year-round problem; in other areas it is a seasonal problem which peaks during the rainy season. Human interventions such as the creation of irrigated perimeters and even the construction of the Trans-Sahara Highway have affected the distribution of the malaria vector mosquitoes (Smith 1981), and probably have caused increased malaria morbidity.

Young children are among the major victims of malaria. In addition to infant and child deaths which can be directly attributed to malaria attacks, some evidence suggests a relationship between malaria during pregnancy and low birth weights.

> Various surveys in Western Nigeria have found a significant effect of malaria in lower average birth weights....Since high rates of prematurity are apparently linked to elevated neonatal mortality rates, the reduction of prematurity and perhaps stillbirths through malaria control may greatly increase the survival rates during this period (Annegers 1972:255-256).

TABLE 3 - REPORTABLE DISEASES IN NIGER 1975-78

	1975		1976		1977		1978	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Malaria	292,132	272	323,799	150	296,246	174	307,837	155
Diarrhea, Severe	25,315	38	25,744	111	24,469	32	20,872	95
Measles	9,018	71	22,620	343	18,173	340	33,012	389
Whooping Cough	8,792	10	4,482	7	4,476	0	3,836	2
Chickenpox	4,749	0	6,171	0	6,037	0	2,105	1
Meningitis	3,738	221	1,144	28	3,034	218	9,244	580
Pneumonia	3,726	42	4,575	22	4,012	0	5,495	43
Influenza	2,371	2	4,827	0	3,084	0	2,257	1
Jaundice	2,121	45	1,065	43	883	28	1,708	43
Tetanus	165	38	341	38	349	53	338	59
Poliomyelitis	163	2	232	9	250	2	189	4
Diphtheria	29	2	463	4	97	20	52	15

Source: Ministry of Health/GON

(Barokas *et al.* 1981:41)

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TABLE 4 - REPORTABLE DISEASES IN NIGER, 1979-80

	1979		1980	
	Cases	Deaths	Cases	Deaths
Malaria[1]	262,035	141	290,649	116
Diarrhea[2]	12,714	62	7,681	154
Measles[3, 4]	353,555	439	31,761	222
Whooping Cough	5,444	2	5,184	5
Chickenpox	1,960	0	1,460	1
Meningitis	5,923	164	3,968	258
Pneumonia	2,951	19	2,253	15
Influenza	840	1	1,464	0
Jaundice	1,142	27	973	24
Tetanus	251	35	270	52
Poliomyelitis	263	5	354	6
Diphtheria	31	2	27	4

Source: Annual Report, 1981, of the WHO Representative in Niger

[1] Increase in cases in 1980 is said to be due to better reporting.

[2] Criteria for reporting were changed in 1980 to include only cases with dehydration.

[3] Case mortality rate has dropped progressively in the past two years: 1978 - 1.53%; 1979 - 1.24%; 1980 - 0.69%. Cause for this regression has not been established. In 1978 there were 32,644 cases reported with 502 deaths.

[4] The 1978 figures reported here are at variance with those reported in the Annuaire Statistique 1978-1979, published by the Ministry of Plan. Those figures showed 33,012 cases and 389 deaths, for a case fatility rate of 1.18%.

(Barokas et al. 1981:43)

Successful malaria control campaigns have been associated with increased birth rates not entirely explained by other factors. This may reflect reduction of fetal mortality from maternal malaria (Ibid.).

Malaria control is a topic of some debate in the health literature. Some authors suggest that routine malaria prophylaxis interferes with the development of natural resistance within a population and allows the development of new strains of malaria resistant to current treatments (Barokas et al. 1981:15). The GON policy is to encourage malaria prophylaxis (using Flavoquine) for about eight weeks during the rainy season among the populations most highly at risk, infants and younger children.

The Ministry of Public Health's subdivision of Mobile Medicine and Hygiene carries out an active immunization program, visiting sedentary villages on a rotating basis every few years. Parents may also have children immunized, following standard French medical practice, by purchasing vaccines at the pharmacy to be administered at the local maternal and child health center (PMI).

According to the current Five Year Plan, nearly two million measles immunizations were administered from 1974 through 1978 (République du Niger 1980:405); some 277,892 doses were administered in 1979 and 374,368 in 1980 (Barokas et al. 1981:76). Table 5 reports recent immunization activities. Despite this volume of activity, results in disease protection may leave much to be desired. The RHIP evaluation team felt that poorly functioning Ped-o-jet equipment observed in 1981 led to administration of inadequate doses for as many as 90 percent of those receiving immunizations (Ibid.:103-104).

A number of common and serious ailments are omitted from the twelve reportable diseases covered in Tables 3 and 4 above. These include tuberculosis, venereal diseases, trachoma, schistosomiasis, and Hansen's disease (leprosy). While information on these diseases may be included in the annual reports of the Ministry of Public Health, we are not privy to current or recent information.

According to the Revised Implementation Plan for the RHIP (USAID nd:7), the MSP maintains two tuberculosis centers and a leprosy center. Using WHO data, Imperato reported only 664 cases of pulmonary tuberculosis for Niger in 1968 (1976:289), while Belloncle and Fournier (1975:48) report data which suggest as many as 17,000-20,000 cases in that year. A search of MEDLINE files shows that recent research on tuberculosis in Niger has been reported by Rey et al (1982b) and by Pestiaux and Rey (1982). Some 21,508 persons suffering from leprosy were reported in 1966 (Belloncle and Fournier 1975:49). During the early 1970s, Margaret Saunders found periodic treatments with the drug Diaphenyl Psulfare Dapsaie offered at the dispensary and CM level to control leprosy. The national hospital at Niamey found that hypertension-related problems were responsible for a significant proportion of admissions (Desechalliers and Dufour 1980) at that facility.

TABLE 5 - VACCINE ADMINISTERED BY DHMM
IN 1977 AND 1978 AND BY DHMM AND OTHERS
IN 1979 TO 1980

Vaccine	1977	1978	1979	1980
Measles	448,746	335,473	277,892	374,368
Polio, Oral	49,980	39,139	22,436	126,260 (injectable)
DTcoq & Oral Polio	4,541	45,095	21,031	56,417
DTcoq	147,308	6,317	9,619	8,924
DT	13,636	0	183,229	0
BCG	238,818	99,371	142,324	116,135
Meningitis	0	13,790	156,477	578,841
Cholera	10,666	250,398	304,417	257,985
Yellow Fever	0	0	49,608	233,627
Smallpox	815,996(?)	291,497	321,167	217,960

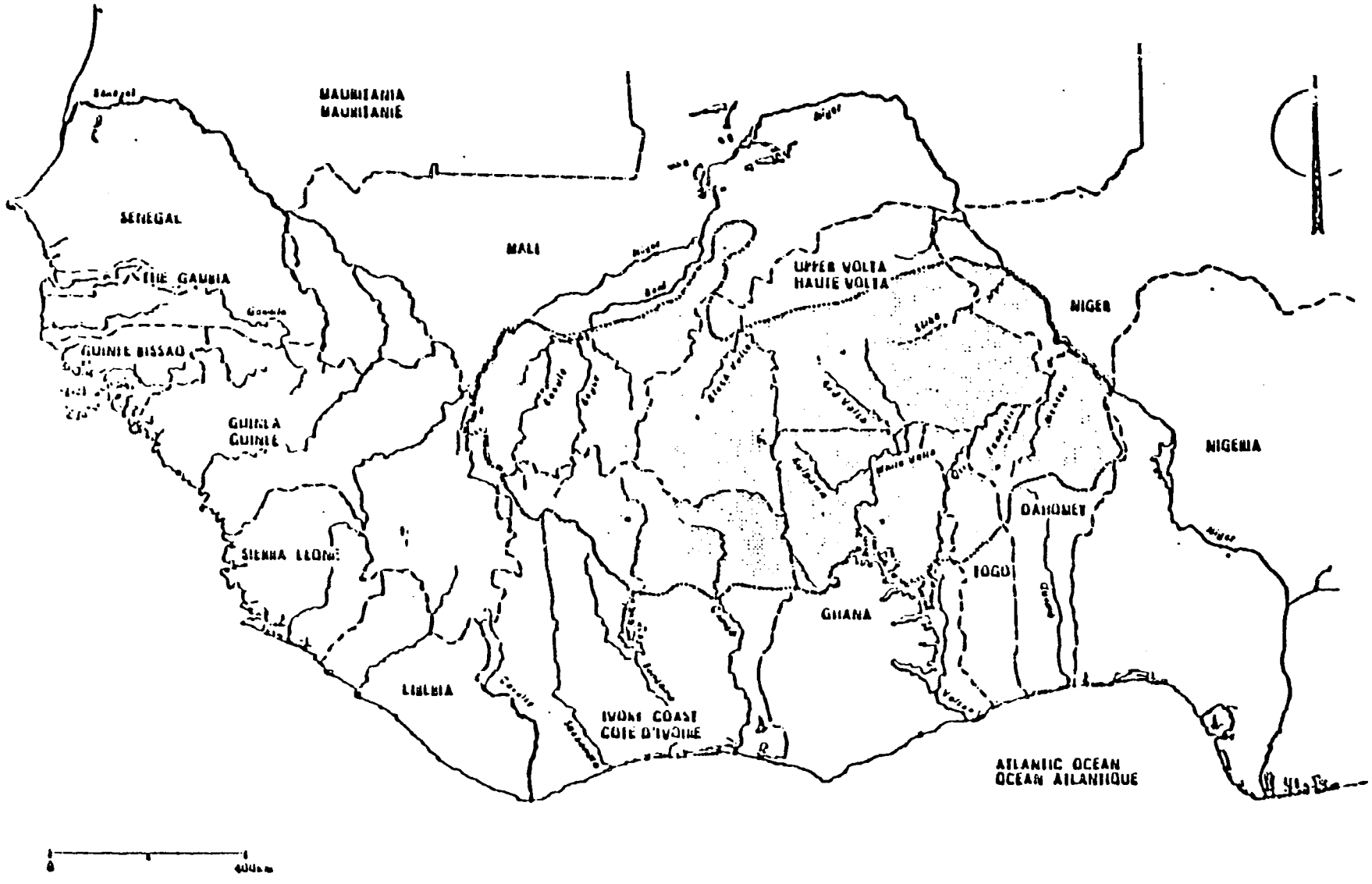
(Barokas et al. 1981:76)

It now seems widely recognized that better health for a population can contribute to productivity and, hence, to overall development activities (Lukas 1982; Joseph and Scheyer 1977; Benyoussef and Zollner 1974). It also is recognized widely that development interventions themselves increase health risks, as in the case of diseases carried by water-related vectors. The pro-irrigation policy of the GON has brought increased exposure to schistosomiasis, as the vector, snails, infect the canals used for irrigation. Recent experience with the drug Oltipraz as a schistosomiasis treatment in Niger has been reported (Rey et al 1982b), and a general review of schistosomiasis control is forthcoming in the 1983 Annual Review of Public Health (Jordan and Rosenfield 1983).

Current data for venereal diseases are also unavailable. One source indicates that nearly 22,000 cases of gonorrhea-related infections were reported in 1968 (Imperato 1976:289). Venereal diseases cause much human suffering, in part through their contribution to infertility. Southeastern Niger adjoins a well-known low-fertility belt (which includes Cameroon). Given the strong positive attitude toward fertility among all Nigerien peoples, infertility is as much a disaster for its victims (see Cys 1975; Clairin 1971; Belsey 1976), as the overall high national fertility rate may be for the country as a whole.

The southwestern area of Niger, slightly to the west of the Volta Valley Basin, is host to the black fly, Simulium damnosum, vector for the filaria Onchocercus volvulus, causing impaired lymphatics, eye lesions, and often blindness. Africa is unique among the continents of the world in having a significant portion of its lands either sparsely inhabited or virtually uninhabited because of the prevalence of disease, the two most important of which are human and bovine trypanosomiasis and river blindness or onchocerciasis. Both are present in Niger, although the pastoral zone is generally too arid and too open to support the tryps-carrying Glossinae. Nearly 700,000 square kilometers of the West African savanna zone are infested with onchocerciasis, affecting a population of over ten million persons, of whom, according to data collected under United Nations auspices in the early 1970s, nearly one million were actually infected, and an estimated 100,000 were either blind or classified as having severe sight impairments (AID 1980:41). We do not have precise figures for the number of Nigeriens suffering from onchocerciasis but it must be considerable, for the WHO-managed Onchocerciasis Control Program (OCP, to which AID is a major contributor) includes its larvicidal action zone the entire West Bank of the Niger River from just north of Niamey to Benin. Thus, many of the Zarma-speaking and practically all of the Gourmanche-speaking Nigeriens are included within the affected area (Hunter 1981). Map 1 shows the portion of Niger in the OCP.

Oncho as a disease is not only a medical problem. It contributes also to environmental degradation, since it forces riverine inhabitants to retreat from heavily infested valleys and move onto the sandier uplands which have considerably lower carrying capacity. Many of these plateau lands in proximity to the valleys have become refuge areas, and existing systems of land use may



THE PROGRAMME AREA
LA REGION DU PROGRAMME

FIG.

Report of the PAG Mission
Onchocerciasis Control In
River Basin Area, Geneva 19

HEALTH

be ill-adapted to support the increased population, hence accelerating erosion. Material from the Upper Volta indicates that in the past there may have been cyclical movements between the valleys and the uplands with people periodically fleeing the riverine areas for the less infected uplands, but then being forced to recolonize the valleys when upland soils could no longer support their number. In the 20th century, the circulatory and permanent labor migration to the south, to Nigeria, and the Ivory Coast, probably has functioned in the same way.

WATER AND SANITATION

While much of the activity of the Ministry of Health emphasizes curative medicine, other GON agencies are actively working to improve community health through clean water and better sanitation. According to the RHIP evaluation, a new Ministry of Hydraulics, created in June 1980, is responsible for national water resources, including urban and village water supplies (Barokas et al 1981:79). Urban sanitation planning is the responsibility of the Direction de l'Urbanisme of the Ministry of Public Works (Ministère des Travaux Publiques), while cities themselves are responsible for operating and maintaining existing sanitation systems (Ibid.:88).

A recent issue of the government weekly, the Sahel Hebdo (1982b:18-27), aired urban sanitation problems in a "dossier assainissement." Drainage of rainwater, garbage and refuse disposal, and disposal and treatment of human wastes and used water are major concerns of Nigerien cities. The rapid growth of urban populations, which are estimated to be increasing at about seven percent per year (compared to an estimated 2.7 percent per year overall population growth rate), makes urban sanitation an area for urgent concern in public health. The physical expansion of urban areas has been outpacing the ability of sanitation measures to keep up.

Providing supplies of clean water for drinking, cooking, and general household use is a problem in rural as well as urban areas. The Office des Eaux du Sous Sol (OFEDES), which had been responsible for much of the nation's well-digging and maintenance has been transferred to the new Ministry of Hydraulics. In addition NIGELEC-Eau, which manages water systems for cities and towns which have electricity, is now under this ministry (Barokas et al 1981:70); other urban water systems remain with OFEDES (République du Niger 1980:418).

The current five-year plan called for major efforts in well-drilling to provide potable water systems for additional administrative centers and other secondary towns (Ibid.:420-421). Table 6 summarizes progress in well construction. In December 1982 the GON received a long-term loan from the International Development Association of the World Bank totalling $6.5 million to be used in improving water supply systems (Sahel Hebdo 1982a:6). The United

TABLE 6 - WELLS AND DRILLINGS:
ACTUAL AND PLANNED STATUS 1983-1990

	Status end 1979	Status in 1980		Planned for 1981-83 Financing		Planned for 1983-1990
		Actual	In Process 1981	Obtained	Needed	
Wells	5047	591	391	1061	930	
Drillings	241	133	5	2132	1620	
Total	5288	724	396	3193	2550	10,000
Cost (million CFA)		2930	1130	12400	10500	
Satisfaction-1980		6012 water points				1500 water points per year, i.e. approximately 8,000 million CFA 1980/year
Total Planned-1983				5743 water points		
Cost (million CFA)				22,900		
Achieved-1983				1215 water points		
Estimated total cost, 1980-83				26,960		

(Barokas et al 1981:86)

Nations Development Programme (UNDP) has also contributed $1.05 million towards this program. Water supply efforts in the pastoral zone have generally been undertaken by the Livestock Service in the Ministry of Rural Development in association with various livestock development projects.

NUTRITION AND HEALTH

Available data indicate that the average caloric supply per capita in Niger is almost ten percent below the recommended level of 2350 calories per day (IBRD 1980:152), and that food production per capita declined by about 13 percent between 1969-71 and 1976-78 (Ibid.:110). The causes of this inadequacy and decline are many, and we have no way of calibrating their relative significance. Among the suggested causes are: increasing population; inadequate rainfall; overcultivation on impoverished soils; cultivation of export rather than of domestic crops; poverty, leading small cultivators to mortgage grain harvests to repay debts; the politically-determined terms of trade between rural and urban regions; and the lack of economically feasible, ecologically appropriate "technical packages" leading to increased production of food crops. While the causes are not clear, at least not their relative contribution to the situation, the effects are anything but obscure: poor nutrition—defined as inadequate caloric intake, especially among the rural populations—is the major contributor to poor health, especially among infant and small children and among pregnant and nursing women.

> A major reason that these infections (malaria, measles, infleunza, pneumonia, diarrheal diseases, etc.) so often lead to death in preschool children in developing countries is their interaction with malnutrition, especially among children between six months and three years old. As a result, malnutrition appears to contribute to between one third and two thirds of all child deaths... Infection can reduce appetite and food intake in several different ways, including the action of intestinal parasites; and they can reduce the proportion of nutrients that the body absorbs. Undernutrition in turn weakens the body's immunizing mechanisms—and so lowers its defenses against the initial infection, while making it more susceptible to further infections... Anemia due to iron and folic acid deficiency is common among pregnant women—and harmful, because it can lead to premature birth and a much lower chance of survival for the newborn child. The more children a woman has (recall the fertility rate in Niger is estimated at 7.1!), the greater the probability of severe anemia—so adding to the cycle of poverty, high fertility and low rates of child survival (Ibid.:54, 60).

Global nutritional data do not tell us anything about regional, class, age and sex differentia. Except in years of severe overall drought, some regions blessed with good rainfall, reasonable soils, and adequate labor produce food stocks beyond their consumption needs. Even within a region or, indeed, a village, certain farmers who are able to mobilize adequate labor resources on good land, frequently produce surpluses. While some of this surplus produc-

TABLE 7 - ESTIMATED CEREAL CONSUMPTION IN NIGER BY VARIOUS STUDIES AND GON

(Kilogram per Capita per Year)

Population Group	1	2	3	4	5	6	7	8
Rural Sedentary	212.8	250.0	-	-	-	480.11	339.5	-
Nomad	120.0	-	-	-	200.0	290.3	-	-
Urban	140.0	-	-	-	-	364.3	-	-
Total	190.5	29.0	220.0	250.0	-	-	-	186.0

1. SEDES, Les produits vivriers du Niger, Paris 1963.
2. Becker, John, An Analysis and Forescast of Cereals Availability in the Sahelian Entente States of West Africa, USAID, January 1974.
3. University of Michigan, Marketing, Price Policy, and storage of food Grains, Volumes I and II, CRED, CILSS, Club du Sahel, August 1977.
4. Current Estimate, Ministry of Rural Development, GON
5. Burke, R., H. Vandermeulan and H. Weijo, Rapport concernants les produits vivriers au Niger, HM Associates Limited, ADCI, January 1971.
6. Eddy, E. Labor and Land-Use on Mixed Farms in the Pastoral Zone of Niger, CRED, University of Michigan, July 1979.
7. Daves, T. and J. Elterich, Several Aspects of Marketing and On-Farm Storage of Cereals in Niger. Survey Results. and Recommendations, Conseil de l'Entente, April 1978.
8. CILSS Report on Niger, unauthored, undated.

(Borsdorf 1979:5)

tion remains within the local distribution and marketing system, much of it follows the market to areas where consumers are able to pay high prices. The situation worsens in the months preceeding the harvest, the soudure, when on-farm stocks of grain are at their lowest and market prices are at their highest. Despite the often cited impoverished distribution system—i.e., the poor state of the road network—as a constraint to the equitable dispersal of cereals, there are no documented cases of even remote affluent households going hungry.

At the macro level the nutritional situation is likely to worsen. Given the current technology applicable to the rainfed sector in Niger, improvements in agricultural productivity are expected to be modest at best, and "Niger is likely to move into structural deficits in food staples before 2000" (IBRD 1981:i). Increases in rainfed food production will come from a continued migration of agriculture northward, but these increases will not endure and will contribute to erosion by cultivating beyond what in the Sudan is called the "agronomic dry boundary". The population will continue to increase, reaching, some estimate, between 8.5 and ten million persons by the end of the century (IBRD 1976:Table 1.2). Hydraulic agriculture is more productive, but the tremendously high costs of installing and operating large-scale irrigated perimeters in Niger render this approach to meeting anticipated food shortfalls increasingly problematic, especially with the collapse of the uranium market. Small-scale irrigation, with very modest capital requirements for construction and maintenance, may prove to be the only viable approach, at least until a more effective technical package for the rainfed sector is developed. Thus, assuring adequate caloric intake will remain the major nutritional and, by extension, one of the major health problems in Niger.

Within loc communities some households produce an adequate supply of foodstuffs, or the income necessary for making up any food deficits through purchase, while others do not (cf. Raynaut 1973, 1978). At the aggregate level, national production is at best barely keeping up with the demand for staple cereals (Bersdorf 1979); projected population growth figures indicate a need for significant production increases each year if Niger is to achieve food self-sufficiency goals. In the marketing profile prepared for the 1979 Niger Agricultural Sector Assessment, Bersdorf calculated that

> production must increase by an average of 39,500 tons annually between 1980 and 1985. This average annual increment increases by nearly 59,000 tons for the 1995-2000 period (Ibid.:2).

As Table 7 indicates, various studies have used rather different estimates of basic cereals consumption levels. The GON has adopted a figure of 250 kilograms per person per year for its planning purposes (Ibid.:50. This figure does not differentiate among rural villagers, nomads, and urban residents, although food preferences and actual consumption patterns do vary among these groups. Aggregate figures tell us relatively little about food distribution

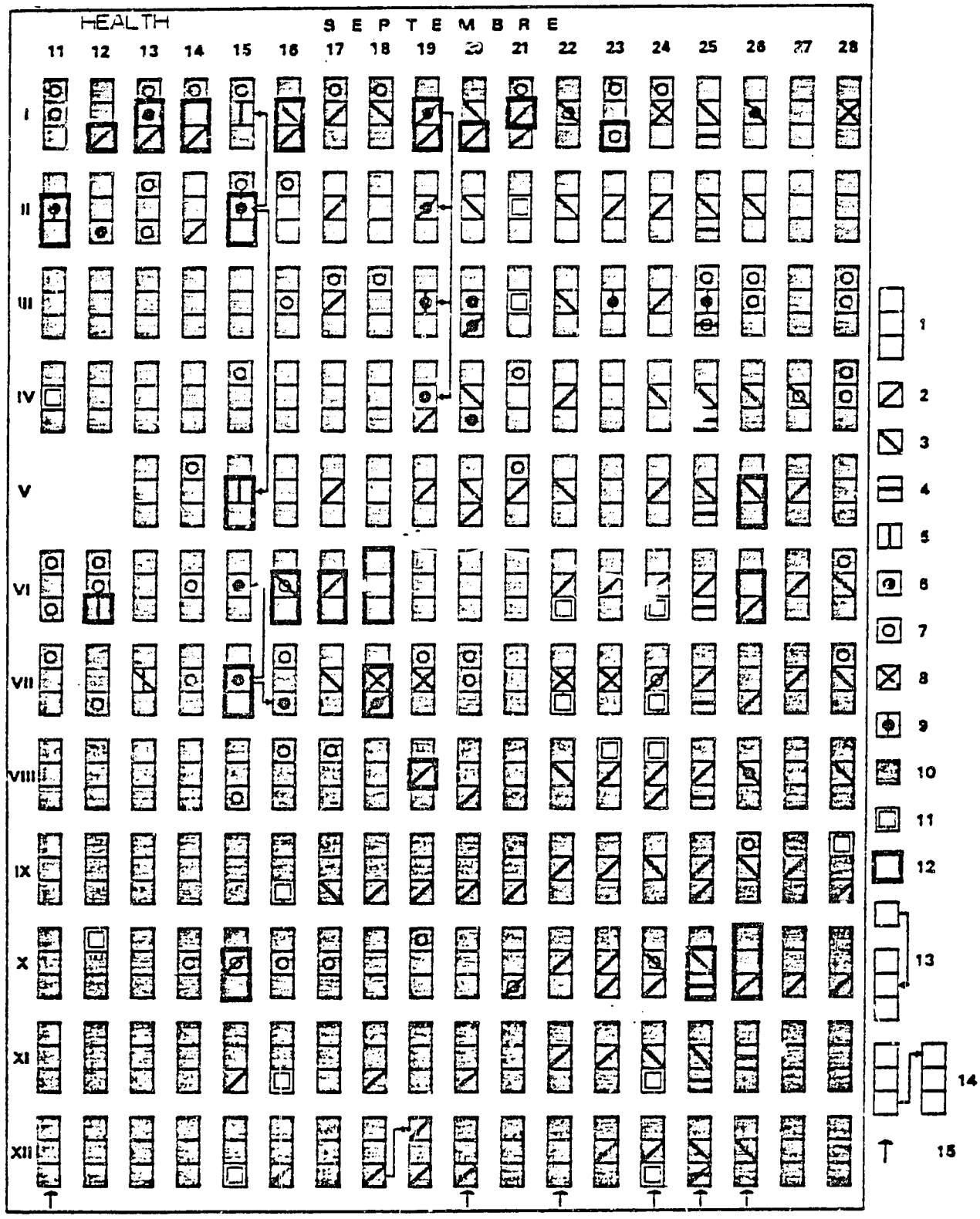


FIG. 11. — Composition des repas des douze cuisines d'un campement pendant dix-huit jours, du 11 au 28 septembre 1967.

1. (de haut en bas) : repas du matin, de la mi-journée, du soir – 2. Eshink (bouillie de mil) – 3. Aghajera (« boule ») – 4. Produits de cueillette (coloquintes) – 5. Riz – 6. Viande – 7. Thé – 8. Eshink + aghajera – 9. Viande + riz – 10. Lait frais ou caillé – 11. *Pas* de nourriture – 12. Hôtes étrangers participant au repas – 13. Redistribution de nourriture entre cuisines – 14. Restes du soir consommés le matin – 15. Jour où le campement s'est déplacé – I à XII. Cuisines [I à VI : *imghad* ; VII : *enad* (artisan) ; VIII à XII : *iklan* (serviteurs)].

at the local level, however. Solving health problems related to hunger and malnutrition requires attention to poverty as well as food production per se (Eicher 1982).

Nutritional status is also affected by the distribution of food within the family. Adult men are often favored in this process; they may also be in a better position to supplement food consumed at home with foods purchased away from home than are other family members (Raynaut 1978). For young children, weaning is often a time of nutritional stress (Newman and Gulliver 1979, and Harrington 1971). Niger's maternal and child health services (PMI) recommend adding other foods to the diet of breastfed infants from about six months of age.

Traditional dietary practices differ between sedentary farmers and pastoralists. The sedentary diet is based on staple grains (millet and to a lesser degree sorghum) and is low in animal proteins. Milk is used, especially soured (lait caillé). In central Niger groundnut oil is the predominant cooking oil, produced by women as a household industry or acquired in the market. The use of tomatoes, onion, sorrel, and many other vegetable products (including wild plants such as baobab leaves), in the sauces served with the grain-based evening meal adds vitamins and minerals to the diet and improves protein complementarity. Cowpeas (niébé) are also added to sauces and made into bean cakes served as a snack food. The pastoral diet varies by season. Herds are in their best condition during the rainy season when pastures are good and water is readily available. During this season milk can provide the bulk of the diet for those households with sufficient herds. Grain purchased from sedentary villagers, or produced by some members of the family while others travel with the herds, makes up a larger portion of the diet during the dry season as milk production declines.

Edmond Bernus (1974:101-104) recorded food consumption among the twelve households in a Tuareg camp during an 18 day period in September 1967, and presented the results graphically as indicated on the following page. Consumption patterns are not static, however (see Labonne 1981). For example, demand for rice and wheat (or wheat flour products) is increasing, as is consumption of meat among those who can afford regular meat purchases. Smoked or dried fish is another important protein source. There is also a growing demand for fruit and for non-traditional vegetables, although these foods remain too expensive to be incorporated into the diets of most households. In sum, a current evaluation of nutrition and health in Niger would require detailed nutrition surveys at the household level among urban populations, sedentary villagers of various ethnic backgrounds in different ecological zones, and pastoral peoples. A recent nutrition survey for Niamey Department has been carried out (Awantang 1980).

ETHNOMEDICINE AND THE INDIGENOUS HEALTH DELIVERY SYSTEM

The traditional medical system—local concepts of disease and curing, indigenous pharmacopea, and traditional practitioners—exists in Niger along with the modern health delivery system. In large urban hospitals, Islamic clerics make their rounds behind physicians and graduate nurses, providing not only comfort and counselling but also remedies in the form of Koranic verses written on wooden slates, washed off and drunk by the patient. Even educated Nigeriens have recourse to traditional practitioners. Michael Horowitz, who studied the cultural ecology of Mangari in the late 1960s, witnessed surgical procedures performed by barbers (waniama - Kanuric):

> While chatting with Malam K. in the morning, I saw Mustapha, the school carpenter, pass by quickly. He said he had to fetch the barber, to remove a growth in a baby's throat. Returning with the barber a few minutes later, he invited me to come along. We went to the house of the Inspector of Primary Schools, where I learned that the patient was the Inspector's 9 month old son. The operation is indicated, the Inspector told me, because the baby has diarrhea and had not been eating. The barber sat on the ground, removed his shoes, and smoothed out a flat place on the sand. He placed a cloth on the ground, and the baby on the cloth. He took out his tools: a curved hooked knife with a leather-covered handle, 19 cm long (dabugotrum) and a thin wooden spatula, 25 cm long (kaskadabugotrum). The knife's cutting edge was honed with a file.
>
> The barber covered the naked baby's penis with an edge of the cloth—apparently in self-protection—breathed several times on the tongue depresser, placed it in the infant's mouth then quickly reached in with the knife, cut and removed the uvula (dabu), which he placed on the baby's forehead. The baby cried loudly when placed on the ground and louder when cut, but quieted down when picked up by the carpenter.
>
> The father paid the barber 100 CFA. Then, looking at me, gave him another 100 CFA. He said that should bleeding develop, he will have his son drink water in which has been placed the pounded fruit of the gabarna tree (containing tannin).
>
> The whole operation, notable for the complete lack of ritual—strictly secular and professional—lasted about ten seconds. Several days later, the baby died.

In addition to removal of the dabu (Kanuric for "uvula," hakin wuya in Hausa), circumcising young boys (kaciya, Hausa) and scarring both boys and girls with ethnic markings, barbers carry out a number of surgical procedures in southeastern Niger (and perhaps across the entire country). Among these are clitoradectomy (kringagum in Kanuric, ungwiya in Hausa), performed occasionally on an infant girl with an especially prominent clitoris; and bleeding with cuts and horn cups (buudibi in Kanuric, literally 'bad blood'; bankinjini me ciwo, 'black sick blood' in Hausa). There are a series of ailments, called

k'lanjekuro in Kanuric, which the barber treats not surgically, but by physical pressure. For example, an infant born without a perceptibly throbbing fontanelle, is held by the barber with one hand on its forehead and the other at the occiput. The barber lifts the child off the ground and holding it thus squeezes and shakes it. Then he holds it at the temples and repeats until the fontanelle begins to pulsate.

While barbers concentrate on surgery and Islamic clerics tend to be psychiatric specialists, herbal medicine is the province of the bokas and kaskarnas, whose medications combine powders made of wood, herbs, bones and hides with incantations and amulets. Within a region there is a general agreement as to which kind of practitioner specializes in which ailment. Prior to mass innoculation, smallpox (baruu in Kanuric) was the most feared sickness, from which many died. Auto-innoculation was practiced in which the postules of a sufferer were pierced and the exuvia rubbed on the skin of coresident relatives. It was felt that while these latter persons would become ill, the chance of their surviving was greater than those who simply caught the disease. People knew that one who survived smallpox was thereafter immune. Chickenpox (tininim - Kanuric) was also feared, for causing death and blindness.

Bokas treated the various fever-related diseases, including malaria (konge nandiiram, in Kanuric literally 'fever of the rainy season'). One informant insisted that malaria is caused by the odor of ripening millet. He did not know of any diseases caused by mosquito bites.

Illness can be of natural causation, can be caused by violating an Islamic percept (leprosy is often seen as the consequence of false swearing on the Qo'ran), and can be caused by sorcery (karuma). The causation is relevant to the cure selected, even if the disease itself is the same. Thus, only an Islamic cleric is sought where an illness is the consequence of the violation of an Islamic precept; bokas and barbers are involved in ailments of natural causation; and bokas and marabouts deal with sorcery. Table 8 shows the variety of complaints brought to a healer in central Niger during one month in 1968.

For about 20 years, health officials in Niger evidenced a curious sexually dimorphic ambivalence toward traditional medicine. On the VHTs, female matrones were selected from among informal sector mid-wives but male secouristes were not selected from traditional curers (barbers, clerics, and herbalists). The attitude toward the "folk" tradition appears to be shifting, however, and the current five year plan contemplates the creation of an Institute of Traditional Medicine and Pharmacopeia (République du Niger 1980:408). Traditional medicine was favorably treated in the cover story of Sahel Hebdo (Tourawa 1982).

The new interest in traditional medicine on the part of the authorities reinforces the interest expressed by the donor community. Barbara Pillsbury,

TABLE 8 - A HEALER'S PATIENT RECORD FOR JANUARY 1969

(translated from his description)

Patients	Reason for visit	Result	Fee*
Sala's daughter from Dutsé	Hysteria	Herbs given;	3000CFA
Abarta of Dutsé	Plagued by the bori with chest pains	I washed her with henna and sent her to the hospital,** she recovered	750CFA
Barau	Failure to have an erection	Powdered roots sewn in an amulet; he recovered	500CFA
Aljuma	Attacked by the bori, Izanzana, with back pains	Herbs given, she recovered	1000CFA
Allasan	Failure to have an erection	Herbs given; he recovered	300CFA
Zelli of Ladama	Attacked by Aljana with chest pains	I washed her with henna and sent her to the hospital,** she recovered	400CFA
A'ishetu of Galma	Attacked by Aljana with chest pains	I washed her with henna; she recovered	400CFA
Araga	Spitting up blood	She drank powdered roots; she is now somewhat better)	100CFA (down payment)
Dan Dijé	Attacked by the bori, Sarauniya, with thigh pains	I washed him with herbs; he recovered	250CFA
Dijé	Attacked by the bori, Kuri, with shoulder pains	I washed her with henna, she recovered	500CFA

* At the time US $1.00 was equivalent to about 250CFA.

** The SIM hospital at Galmi, which was nearby.

(Faulkingham 1975:26)

medical anthropologist, prepared a comprehensive examination of traditional health care in seven North African and Near Eastern countries (1978) under contract to AID's Near East Bureau, and prepared a policy paper (1979) reminding us that the traditional practitioners constitute an existing delivery system that can be integrated into a modern trained outreach primary health care system. This position was formally adopted by AID in its 1980 Health Sector Policy Paper:

> The efforts of developing countries to upgrade the skills of traditional practitioners in the provision of primary health care are supported by AID. Traditional practitioners are already widely utilized in their communities and may provide effective care in many circumstances. Specific types of traditional practitioners who may be encouraged to participate in primary health care programs include midwives ("traditional birth attendants"), herbalists, and religious and secular leaders and counselors who already provide information and assistance on fertility regulation and maternal and child health. Traditional medicines also deserve further study as a readily available and inexpensive resource for combatting certain prevalent health problems (AID 1980:14-15).

There has also been a flourescence of scholarly discussions of traditional medicine, and some of the more pertinent recent studies (Darrah and Froude 1975; Harrison and Cosminsky 1976; Imperato 1977; Ulin and Segall, eds. 1980) are included in the bibliography to this section. There is considerable literature concerned with traditional health practices in Niger and among related peoples in neighboring countries. Among the topics examined are:

(1) childbirth, maternal and child health care (Fikry 1977; Loutan 1982; Trevitt 1973);

(2) nutrition and hygiene (Awantang 1980; Bernus 1974; Gast 1968; Hardy and Richet, eds. 1933; Lecoeur and Lecoeur 1946; McCulloch 1929; Mornet and Gilbert 1948; Raynaut 1978);

(3) pharmacopeia (Adam et al 1972; Bernus 1967, 1973, 1981:261-265; Dupire 1957; Peyre de Fabrègues 1979);

(4) illnesses, treatments, and practitioners (Belloncle and Fournier 1975; Bernus 1969; Bisilliat and Laya 1973; Faulkingham 1975; Horowitz 1972 III, 1974);

(5) mental illness, and physical and psychological aspects of spirit possession (Faulkingham 1975; Monfouga-Nicolas 1972; Nicolas 1967).

This listing is meant to be indicative rather than exhaustive, for there is a good deal of material on informal sector health and curing in the broad ethnographic literature for Niger.

What is regretably absent from the literature, however, is any systematic consideration of how to make the traditional medical system relevant to the needs of a modern health sector program. The absence of such studies in Niger is even more serious than would be a lack of major investigations of farming systems or range management or river basin development. In the latter arenas, the centrality of ecological adaptation means that studies carried out in other countries with similar techno-environmental profiles are germane to understanding Niger. Thus, the findings of a detailed investigation of pastoral herding practices in the Sudan or in Senegal should be instructive for Niger. But concepts of health and disease are basically cultural and historical in nature, and we do not anticipate a high degree of environmental fit. What are needed to support efforts to incorporate positive elements of the traditional medical sector into development activities are in depth localized field studies carried out by persons with requisite linguistic competence. Such persons are, in the first instance, to be found within the country itself.

Our first recommendation is for a relatively brief but intensive review of the literature on indigenous medical systems in Niger, with a view to the generation of a standard research protocol to guide the social analyses of specific development proposals in the rural public health sector. The protocol should lead to a description of the traditional health delivery system, with an identification of the incentives and constraints to the participation of traditional practitioners in the new systems. The research would also specify the perceptions of the local populations as to the efficacy of different kinds of curers, and their predisposition to solicit the attentions of one or another type of practitioner. These studies will point out the willingness of local people to pay for treatments and, more importantly perhaps, their receptivity to preventive actions.

The product of this review, which might require six months to a year to complete, would include a manual to guide physicians, paramedics, and development and GON officers on how to anticipate the relevance of the traditional practice and delivery system to programs of the extension of modern medicine to rural areas on a labor-intensive high participation basis. If the GON goes ahead with the establishment of an Institut de Médecine et de Pharmacopée Traditionnelle, this review could be an appropriate inaugural activity.

In one of the first multi-sectoral considerations of the relationships between traditional practice and socio-economic development in the Sahel (Brokensha et al 1977), the authors recommended a field research study in association with the Niger Rural Health Improvement Project, which would have two main objectives:

(1) an intensive assessment of the VHT approach;
(2) the training of a Nigerien medical sociologist (or anthropologist or geographer), to provide a continuing social science competence within the MSP.

The Niger RHIP provides an ideal opportunity to test the relative advantages of working with the indigenous system or creating a parallel, competitive one.

> Two social scientists, at least one of whom is Nigerien and has been selected to continue working with the (MSP) following the completion of the study, working for 18 months to two years each, would study the utilization of health care personnel within the area in which the Project is...active, studying both villages included in the VHT system and those which, culturally and ecologically similar to the former, will not be included, at least not during the early years of the program. The field scientists will describe and analyze the complete health care arena, including the indigenous taxonomy of disease causation and cure, the utilization of different kinds of specialists by different kinds of people (herdsmen, farmers, women, children, etc.). The field research would, in other words, monitor the traditional and modern systems and assess their relative social impacts... The researchers would assess the traditional practitioners strategies for dealing with the new system; do they elect sabotage, avoidance, cooperation? Will the traditional curers attempt to be selected as secouristes? Will they refer patients to the secouristes, or, conversely, will the latter refer to the traditional curers difficult cases which fall outside their ken and the reach of their first aid kits, or will they refer such cases up the ladder to the next official level of health care? Are there specific kinds of traditional curers--by age, sex, specialization--who seem predisposed to participate in or support the new system, and who should be incorporated into it? From the point of view of the local people, the patients, is use made of both systems, in which certain kinds of complaints are brought to the secouristes and others to the indigenous practitioners? Are there differences in the kinds of compensation received by different types of curers (Ibid.:137-139)?

Although it is of course too late to initiate the study in a pristine context, the findings of the recent RHIP evaluation would indicate that its pertinence and utility remain.

ANNEX I

SUBDIVISIONS OF THE MINISTRY OF PUBLIC HEALTH

At the national level, the MSP includes six major divisions (see Figure 1 above):

(1) The DAF - Division d'Administration et Finances, which is responsible for the budget and financial planning for the Ministry;

(2) The DES - Direction des Establissements des Soins, which is responsible for health care facilities througnout the nation. The USAID-funded Rural Health Improvement Project (RHIP) is administered through this office.

(3) The DEESN - Direction de l'Enseignement et de l'Education Sanitaire et Nutritionalle, which is responsible for the training of health personnel; responsibility for the School of Medical Science at the University of Niamey is shared with the Ministry of Higher Education and Research (MESR), however.

4. The DAS/PMI - Direction des Affaires Sociales et de la Protection Maternalle et Infantile, which provides maternal and child health services. PMI services are offered at facilities falling under the DES, down to the level of district dispensaries (although coverage is still imcomplete at this level); some separate PMI centers are also maintained. Pre-natal consultations and well-baby clinics for children through age 2 are major activities.

5. The DHMM - Direction de l'Hygiène et de la Medicine Mobile, which carries out immunization campaigns using mobile equipment (in general immunizations are not available at fixed facilities, although PMI personnel will administer immunizations purchased at government pharmacies).

6. The DIS - Direction de l'Infrastructure et des Statistiques, which is responsible for the collection and analysis of health statistics. Another section of the DIS operates garages and repair facilities for MSP vehicles, and deals with maintenance of medical equipment (Barokas et al 1981:44-50).

In addition to these divisions, the Office National des Produits Pharmaceutiques et Chimiques or ONPPC operates at the national level directly under the MSP. The ONPPC "Has the monopoly to buy and sell all pharmaceutical products, as well as medical and surgical supplies" (Ibid.:44). Products are supplied to the various health-care facilities and health services of the MSP by the ONPPC. In addition,

> The ONPPC maintains lists for all medication used in the country and computerized stocking and disbursement record keeping system. It carefully controls a standard formulary list used at each level: the Departmental hospitals, the arrondissement medical centers; the dispensaries, and finally, at the lowest level, the village health workers (Ibid.:44).

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> The ONPPC has several modern laboratories for quality control and dry analysis.... In adition, the ONPPC prepares sterile parenteral solutions, manufactures a number of drugs, and has a repackaging operation. Another activity is investigation of traditional medicines (Ibid.:46).

In addition to products dispensed through health care facilities, ONPPC products are sold through MSP-sponsored pharmacies (18 across the nation in 1980); a few private pharmacies also exist, but their relationship with the ONPPC is not clear (the implication is that private pharmacies are also required to purchase supplies through the ONPPC).

Other national-level health facilities include two tuberculosis centers, a leprosy center, the two national hospitals (in Niamey and Zinder), and the health personnel training schools. Training facilities include the School of Medical Science at the University of Niamey; the Ecole nationale de la Santé Publique (ENSP); and the Ecole nationale des Infirmiers certifiés et des Aides Assistants de l'Action sociale (ENICAS) (USAID nd:7; République du Niger 1980:370-371).

ANNEX II

Niger Health Data as of December 7, 1982 from Alldata Currently Available on Niger. Economic and Social Data Services Division, Development Information Utilization Service, Bureau for Science and Technology, Agency for International Development.

COUNTRY: NIGER

HEALTH PERSONNEL

W-MW/A : MIDWIF PERS -ASST MIDWIV (WHO)
DEFINITION: PERSONNEL CARRYING OUT MIDWIFERY DUTIES IN NORMAL OBSTETRICS, IN INSTITUTIONS AND OTHER HEALTH SERVICES. IN PRINCIPLE UNDER THE SUPERVISION OF A PROFESSIONAL MIDWIFE. THESE PERSONNEL DO NOT HAVE THE FULL EDUCATION AND TRAINING OF A PROFESSIONAL MIDWIFE. THEY EXCLUDE TRADITIONAL BIRTH ATTENDANTS ANDMAY INCLUDE PRACTICAL AND RURAL MIDWIVES.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
15.0	62	15.0	63	8.0	64	1235.0	76		

W-MW/MW : MIDWIF PERS -MIDWIVES (WHO)
DEFINITION: ALL GRADUATES OF A MIDWIFERY SCHOOL ACTUALLY WORKING IN THECOUNTRY IN ANY FIELD OF MIDWIFERY (INSTITUTIONS, COMMUNITY HEALTH SERVICES, TEACHING, ETC.). THEY NORMALLY HAVE 9-13 YRS GENERAL EDUCATION AND 3-4 YRS PROFESSIONAL TRAINING. THIS CATEGORY OF PERSONNEL INCLUDES NON-NURSE MIDWIVES AND NURSE-MIDWIVES.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
4.0	62	6.0	63	25.0	64	24.0	66	22.0	67
21.0	68	21.0	69	30.0	70	34.0	71	36.0	72
52.0	73	50.0	74	51.0	75	70.0	76		

W-NUR/AN: NURS PERS -ASST NURSES (WHO)
DEFINITION: PERSONNEL PROVIDING GENERAL PATIENT CARE OF A LESS COMPLEX NATURE IN HOSPITALS AND OTHER HEALTH SERVICES. IN PRINCIPLE UNDER THE SUPERVISION OF A PROFESSIONAL NURSE THESE PERSONNEL, SOMETIMES, ARE REFERRED TO AS PRACTICAL NURSES. ASSISTANT NURSES ARE NORMALLY EXPECTED TO HAVE AT LEAST 6-9 YRS GENERAL EDUCATION AND 1-3 YRS TECHNICAL TRAINING.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
357.0	62	362.0	63	500.0	64	431.0	66	404.0	67
475.0	68	461.0	70	569.0	71	648.0	72	564.0	73
714.0	74	68.0	75	1235.0	76				

COUNTRY: NIGER

HEALTH

W-NUR/PN: NURS PERS -PROF NURSES (WHO)
DEFINITION: GRADUATES OF NURSING SCHOOLS WORKING IN THE COUNTRY IN ANY NURSING FIELD (GENERAL, PEDIATRICS, ETC). NURSES WITH MIDWIFERY QUALIFICATIONS ARE INCLUDED WITH MIDWIVES AND NOT WITH NURSES. PROFESSIONAL NURSES USUALLY HAVE 9-13 YRS GENERAL EDUCATION, 3-4 YRS PROFESSIONAL TRAINING. THEY ARE QUALIFIED AND AUTHORIZED TO PROVIDE RESPONIBLE AND COMPETENT SERVICES.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
11.0	62	19.0	63	50.0	64	52.0	66	61.0	67
120.0	68	704.0	69	110.0	70	177.0	71	222.0	72
178.0	73	187.0	74	558.0	75	575.0	76		

W-NURAUX: NURS OTHER -AUXILIARIES (WHO)
DEFINITION: PERSONEL PERFORMING SPECIFIED NON-TECHNICAL TASKS IN INSTITUTIONS OR COMMUNITY HEALTH SERVICES UNDER NURSING SUPERVISION. THESE PERSONNEL USUALLY HAVE ON-THE-JOB OR SHORT TRAINING.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
107.0	63	122.0	64	121.0	66	120.0	67	180.0	76

W-PHYSCN: PHYSICIANS-TOTAL NUMBER (WHO)
DEFINITION: ALL GRADUATES OF A MEDICAL SCHOOL OR FACULTY AT A UNIVERSITY LEVEL ACTUALLY WORKING IN THE COUNTRY IN ANY MEDICAL FIELD. PHYSICANS WHO HAVE SPECIALIZED IN STOMATOLOGY OR DENTISTRYDURING POST-GRADUATE STUDIES AND WHO ARE PRACTICING DENTISTRY, ARE INCLUDED WITH PHYSICIANS, AND NOT WITH DENTISTS.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
34.0	59	35.0	60	39.0	61	41.0	62	40.0	63
50.0	64	60.0	66	66.0	67	68.0	68	69.0	69
69.0	70	69.0	71	97.0	72	100.0	73	105.0	74
83.0	75	110.0	76	114.0	77				

HOSPITAL STATISTICS

W-ADMB/T: ADMISSION PER HOSP BED (WHO)
DEFINITION: DEFINED AS TOTAL NUMBER OF ADMISSIONS TO OR DISCHARGES FROMALL TYPES OF HOSPITALS DIVIDED BY THE NUMBER OF BEDS AVAILABLE IN PUBLIC AND PRIVATE GENERAL, LOCAL OR RURAL AND SPECIALIZED HOSPITALS AND REHABILITATION CENTER. CRIB AND BASSINETSMAINTAINED FOR USE BY HEALTHY BABIES BORN IN HOSPITALS SHOULD BE EXCLUDED IF THEY DO NOT REQUIRE SPECIAL CARE.
UNITS: ADMISSIONS

COUNTRY: NIGER

34.7 66

W HBED/T: HOSP BED -TOTAL
DEFINITION: HOSPITALS ARE DEFINED AS ESTABLISHMENTS PERMANENTLY STAFFEDBY AT LEAST ONE PHYSICIAN THAT CAN OFFER IN-PATIENT ACCOMMODATION AND PROVIDE ACTIVE MEDICAL AND NURSING CARE DATA REFERS TO NUMBER OF BEDS AVAILABLE IN PUBLIC AND PRIVATE GENERAL AND SPECIALIZED HOSPITALS, AS WELL AS OTHER MEDICAL ESTABLISHMENTS WITH BEDS. EXCLUDED ARE OLD PEOPLE'S HOMES ETC.
UNITS: PERSONS

VALUE	YR	VALUE	YR	VALUE	YR				
1303.0	60	1660.0	63	1840.0	64	2553.0	66	2055.0	68
2055.0	69	1805.0	70	2299.0	71	3734.0	74	3401.0	76

NUTRITION

CAL-AN : SUP CAL ANIMAL PROD (/CAP/DAY)
DEFINITION: ENERGY EQUIVALENT OF NET FOOD SUPPLIES FROM ANIMALS AVAILABLE IN COUNTRY PER CAPITA PER DAY IN TERMS OF CALORIES AT THERETAIL LEVEL AND ALLOWING 10% FOR WASTE AT HOUSEHOLD LEVEL.AVAILABLE SUPPLIES COMPRISE DOMESTIC PRODUCTION, IMPORTS LESS EXPORTS, AND CHANGES IN STOCK. NET SUPPLIES EXCLUDE ANIMAL FEED, SEEDS, QUANTITIES USED IN FOOD PROCESSING AND LOSSES.
UNITS: CALORIES

VALUE	YR	VALUE	YR	VALUE	YR				
184.0	61	196.0	66	203.0	67	201.0	68	200.0	69
183.0	70	169.0	71	140.0	72	130.0	73	132.0	74
135.0	75	151.0	76	150.0	77				

CAL-OVEG: SUP CAL VEG PROD (/CAP/DAY)
DEFINITION: ENERGY EQUIVALENT OF NET FOOD SUPPLIES FROM VEGETABLES AVAILABLE IN COUNTRY PER CAPITA PER DAY IN TERMS OF CALORIES AT THE RETAIL LEVEL AND ALLOWING 10% FOR WASTE AT HOUSEHOLD LEVEL. AVAILABLESUPPLIES COMPRISE DOMESTIC PRODUCTION, IMPORTS LESS EXPORTS AND CHANGES IN STOCK. NET SUPPLIES EXCLUDE ANIMAL FEED, SEEDS, QUANTITIES USED IN FOOD PROCESSING AND LOSSES
UNITS: CALORIES

VALUE	YR	VALUE	YR	VALUE	YR				
1939.0	61	1955.0	66	1950.0	67	1947.0	68	1797.0	69
1906.0	70	1915.0	71	1850.0	72	1851.0	73	1715.0	74
1901.0	75	1826.0	76	1990.0	77				

HEALTH

COUNTRY: NIGER

HEALTH

CAL-T : SUP CAL TOTAL (/CAP/DAY) (FAO)
DEFINITION: ENERGY EQUIVALENT OF NET FOOD SUPPLIES AVAILABLE IN COUNTRYPER CAPITA PER DAY IN TERMS OF CALORIES AT THE RETAIL LEVELAND ALLOWING 10% FOR WASTE AT HOUSEHOLD LEVEL. AVAILABLE SUPPLIES COMPRISE DOMESTIC PRODUCTION. IMPORTS LESS EXPORTS AND CHANGES IN STOCK. NET SUPPLIES EXCLUDE ANIMAL FEED. SEEDS.QUANTITIES USED IN FOOD PROCESSING AND LOSSES.
UNITS: CALORIES

VALUE	YR	VALUE	YR	VALUE	YR				
2124.0	61	2151.0	66	2153.0	67	2148.0	68	1997.0	69
2090.0	70	2084.0	71	2004.0	72	1981.0	73	1847.0	74
2036.0	75	1977.0	76	2139.0	77				

CALREQPC: CALORIE REQ / CAPITA (FAO)
DEFINITION: REQUIREMENTS WERE ESTIMATED BY FAO BASED ON PHYSIOLOGICAL NEEDS FOR NORMAL ACTIVITY AND HEALTH CONSIDERING ENVIRONMENTAL TEMPERATURE, BODY WEIGHTS, AGE AND SEX DISTRIBUTIONS OF POPULATION AND ALLOWING 10 PERCENT FOR WASTE IN FOOD PREPARATION AT HOUSEHOLD LEVEL.
UNITS: CALORIES

VALUE	YR	VALUE	YR	VALUE	YR
2350.0	77				

FAO-POP : FAO POP FOR CAL & PROT
DEFINITION: REFER TO DATA USED BY FAO IN THE CALCULATION OF PER CAPITA CALORIE AND PROTEIN SUPPLY. THESE DATA ARE GENERALLY PROVIDED BY THE U.N. STATISTICAL OFFICE. IN SOME CASES, SUCH AS DEVELOPED COUNTRIES, DATA HAVE BEEN ADJUSTED TO INCORPORATE MORERECENT COUNTRIES' OFFICIAL ESTIMATES.
UNITS: THOUSANDS

VALUE	YR	VALUE	YR	VALUE	YR				
3348.0	61	3617.0	66	3713.0	67	3812.0	68	3913.0	69
4016.0	70	4126.0	71	4240.0	72	4357.0	73	4476.0	74
4600.0	75	4732.0	76	4869.0	77				

PROT-AN : SUP PROT ANIM PRD (GMS/CAP/DAY)
DEFINITION: PROTEIN CONTENT OF PER CAPITA NET SUPPLY OF FOOD DERIVED FROM ANIMALS PER DAY. REQUIREMENTS FOR ALL COUNTRIES EST. BY USDA PROVIDE FOR MINIMUM ALLOWANCE OF 60 GR. OF TOTAL PROTEINPER DAY AND 20 GR. OF ANIMAL AND PULSE PROTEIN, OF WHICH 10GRAMS SHOULD BE ANIMAL PROTEIN. THESE STANDARDS ARE LOWER THAN THE AVERAGE FOR THE WORLD PROPOSED BY FAO
UNITS: GRAMS

VALUE	YR	VALUE	YR	VALUE	YR				
12.5	61	13.3	66			13.6	68	13.6	69
12.6	70	11.8	71			9.0	73	9.2	74
9.2	75	10.2	76						

COUNTRY: NIGER

HEALTH

PROT-VEG: SUP PROT VEG PROD (GMS/CAP/PROD)
DEFINITION: PROTEIN CONTENT OF PER CAPITA NET SUPPLY OF FOOD DERIVED FROM VEGETABLES PER DAY REQUIREMENTS FOR ALL COUNTRIES EST. BY USDA PROVIDE FOR MINIMUM ALLOWANCE OF 60 GRAMS OF TOTAL PROTEIN PER DAY AND 20 GRAMS OF ANIMAL AND PULSE PROTEIN, OF WHICH 10 GRAMS SHOULD BE ANIMAL PROTEIN. THESE STANDARDS ARE LOWER THAN THE AVERAGE FOR THE WORLD.
UNITS: GRAMS

VALUE	YR	VALUE	YR	VALUE	YR				
46.0	61	47.6	66	47.2	67	45.3	68	43.4	69
44.4	70	44.7	71	44.7	72	47.6	73	44.8	74
50.6	75	51.5	76	53.2	77				

PROT-PUL: SUP PROT PULSES (GMS/CAP/DAY)
DEFINITION: PROTEIN CONTENT OF PER CAPITA NET SUPPLY OF FOOD DERIVED FROM PULSES PER DAY. REQUIREMENTS FOR ALL COUNTRIES EST. BY USDA PROVIDE FOR MINIUM ALLOWANCE OF 60 GRAMS OF TOTAL PROTEINPER DAY AND 20 GRAMS OF ANIMAL AND PULSE PROTEIN, OF WHICH 10 GRAMS SHOULD BE ANIMAL PROTEIN. THESE STANDARDS ARE LOWERTHAN THE AVERAGE FOR THE WORLD.
UNITS: GRAMS

VALUE	YR	VALUE	YR	VALUE	YR				
5.6	61	7.2	66	8.0	67	5.2	68	7.4	69
6.3	70	6.1	71	7.4	72	12.4	73	11.8	74
14.6	75	18.0	76	16.5	77				

PROT-T : SUP PROT TOTAL (GMS/CAP/DAY)
DEFINITION: PROTEIN CONTENT OF PER CAPITA NET SUPPLY OF FOOD PER DAY. REQUIREMENTS FOR ALL COUNTRIES EST BY USDA PROVIDE FOR MINIUM ALLOWANCE OF 60 GRAMS OF TOTAL PROTEIN PER DAY AND 20 GRAMS OF ANIMAL AND PULSE PROTEIN, OF WHICH 10 GRAMS SHOULD BE ANIMAL PROTEIN. THESE STANDARDS ARE LOWER THAN THE AVERAGE FOR THE WORLD. PROPOSED BY FAO IN THE THIRD WORLD FOOD SURVEY.
UNITS: GRAMS

VALUE	YR	VALUE	YR	VALUE	YR				
58.5	61	60.8	66	60.9	67	58.9	68	57.0	69
57.1	70	56.6	71	55.2	72	56.6	73	53.9	74
59.8	75	61.7	76	63.5	77				

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ANNEX III

Summary Data on Health Infrastructure, 5 Year Plan 1979-1983 from Bilan d'Execution 1979-1981, Direction des Programmes et du Plan, Ministère du Plan, République du Niger, Septembre 1982.

- Exécution physique par source de financement

Formations sanitaires

Réalisations 1979-1980-1981- Plan et Hors-Plan

1) Dispensaires réalisés et opérationnels fin 1981

	1979-80-81		Coût en millions de F. CFA Dépenses effectuées
Financement Public Nal	34	(16)	1.159,4
Financement Extérieur	16	(5)	528,8
Financement Privé Nal	13	(12)	511,1
	63	(33)	2.199,3
Dispensaires en cours d'exécution fin 1981			
Financement Public Nal	12	(8)	243,1
" Extérieur	8	(1)	235,8
" Nal	6	(6)	190,3
	26	(21)	669,2

N.B. (entre parenthèses les nouvelles créations.

2) CM-PMI-Maternités : réalisés au 30-09-81 - (ou en cours)

	Opérationnels	en cours	(coût) Dépenses	
CM	5	4	FNI Fds Publics)	871,1
PMI	5	2		
Maternité	6	5	Extérieur	652,5
Logements S.Femme	2	1		
		12 en cours		

18 ouvrages (1094,9 Ms), 12 (428,7 Ms) 1.523,6

Publics	699,6 + 171,5	= 871,1
Ext.	395,3 + 257,2	= 652,5

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3) CHN/CHD

	Opérationnel	en cours	(coût) - dépenses	
Pavillons	3	2	Fonds publics FNI	688,2
Divers	Bureaux-aménagements équipements-travaux d'assainissement		Extérieur	33,1
	(550,2 Ms)	(171,1 Ms)		721,3
	Publics : 517,1 M	Publics		

4) Pharmacies : Financement ONPPC

Terminées : 4	194,3 Ms	(Ny-Agadez-Arlit-Téra
Divers (équipements)	9,5	
soit	203,8 Millions	

5) Divers

		(Coûts)-dépenses		
Opérationnels : soit 471,2 Ms e fonds publics t 209,5 Fds Ex- érieur.	DDS - Diffa	62,5		
	10 studios étudia ts	79,		
	Garage Santé Ny	358,5		
	Centre Anti-Lèpre	76,0	(Fonds Publics	471,2)
	CNAT Ny	37,0		
	CAT Dosso	34,0	Extérieur	209,5
	Unité Biologie OCCGE Ny	33,7		
En cours	(3 DDS (Az-Mi-Zr)	-	USAID (marchés signé	
	(Laboratoire toxicologie (et Analyses-Ny	320,6	Fonds Publics	
		1001,3	Total partiel	

TOTAL GENERAL	Opérations terminées	en cours	Total %
Fonds Publics	2.847,9 (60 %)	906,3	3753,6 (59,4)
Extérieur	1.166,7 (24,7 %)	493,0	1659,7 (26,3)
Privé Nal	714,9 (15,1 %)	190,3	905,2 (14,3)
	4.728,9 (100)	1.589,6	6318,5 *

* Il n'a pas été comptabilisée la participation du Niger au projet OMS-Santé de base (48,2 Ms) dans les dépenses d'investissements décaissés.

Dispensaires Opérationnels - Réalisations 79-80-81

Départements	1979-1980-1981	Observations
AGADEZ	-3 dispensaires PLAN Reconstructions -2 dispensaires créations H. Plan	Tous opérationnels : dont 2 Postes médicaux (Iférouane et Ingall) et un dispensaire à grande capacité (Fachi) Anou Araren et Tiantoubarak.
DIFFA	-2 reconstructions-Plan - 1 const. nouvelle : Bouti : Plan	Issari (Opérationnel - Baroua (R) et Bouti : non opérationnels
DOSSO	-5 reconstructions-Plan opérationnelles : -2 reconstructions H.Plan -3 créations Plan - Opérationnelles -2 créations Plan non opérationnelles -1 création H. Plan non opérationnelle -1 reprise H. Plan	Dioundiou-Falmey-Harikanassou Matankari - Tibiri Doutchi Dogonkiria-Moussadeye (opérationnel Fabirdji- Koré Méroua - Mokko Ouna - Téssa Dosso quartier Garankédeye (non opérationnels)
MARADI	-8 créations Plan opérationnelles -2reprises plan = opérationnelles -1 reprise Hors-Plan Opérationnelle -2 créations Plan non Opérationnelles -2 créations H. Plan opérationnelles	Awandawaki - Baoudéta - Guidan Sor Kaoutchinkaba - Nièlwa - quartier Serkin Aréwa - Soli Tagriss. Gazaoua - Kornaka Kanambakatché Intuila - Magami Gabi - Tibiri II.
NIAMEY	-5 reprises Plan : opérationnelles -1 reprise plan non opérationnelle -7 créations plan opérationnelles -3 créations Plan non Op. -4 reprises H. Plan Opérationnelles -6 créations H.Plan Opérationnelles -5 créations H. Plan non opérationnelles	Ayorou - Bankilaré - Dargol - Famalé Kirtachi In Atès Bella Koïra - Boukoki II - Dingazi Banda - Chikal - Guéladio - Lazaret Tilea Balleyara (12 lits)- Simiri - Taladjé Abala - N'Dounga - Tamou - Torodi Bolsi - Karma - Komba - Kokorou Poudrière - Tambolé Diagorou - Goudel - Koulikouara Tirégorou - Yatakala

TAHOUA	-1 reprise Plan - Opérationnelle	Kao
	-1 création Plan "	Manzou
	-3 " " non "	Tabotaki - Takanamatt - Tébaram
	-1 reprise H.Plan "	Abalak
	-2 créations H.Plan "	Afalla Wakou - Taza
	-1 reprise H.Plan non Opérationnelle	Tajaé.
ZINDER	-4 reprises Plan-Opérationnelles	Selbéji - Birni Kazoé - Gagawa Kantché
	-3 créations Plan "	Dan Barta - Kringuim - Takiéta
	-3 " " non "	Doungou - Gouchi - Tasker
	-1 reprise Plan non "	Ouacha
	-1 création H.Plan " "	Daoutchia-Koura

TOTAL	Prévus au Plan : 61 constructions - dont créations nouvelles	0

	Exécutées	Reprises	créations	to
	Plan	21	20	41
	Hors-Plan	9	13	22
	"	30	33	63
	Non encore Opérationnels (*)			
	Plan	3	14	17
	Hors-Plan	2	7	9
		5	21	26

(*) soit travaux en cours - soit non encore équipés - soit carence de personnels.

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Réalisation : Année 1979-1980-1981

signation	Financement	Crédits ouverts	Règlements	Reports ou disponible	Observations
. Dispensaires					
rogramme-Plan					
AGADEZ	4ème FED	105,8	79,4	26,4	Iférouane (Poste Médical) reconstruction
. Reconstructions.	FNI 80	110,0	110,0	-	Ingall (PM) reconstruction Fachi-reconstruction-12 lits.
DIFFA					
.Reconstructions	FNI 80	53,2	43,6	9,6	Bouti et Baroua sont non
.création	4ème FED	70,5	70,5	-	opérationnels-Issari est opérationnel
DOSSO				dépassement	
.reconstructions	FNI 79-80	65,0	83,9	19,1	7 Dispensaires opérationnels
	Fds privés	75,3	75,3	-	Matankari (R 12 lits) Harikanassou (R) Doutchi-Mokko-Dioundiou (R) Falmey (R poste médical) Fabirdji
.Créations	4ème FED	82,4	63,2	19,4	
	USAID	55,8	57,2		
	Autres Fds publics	27,1	27,1	-	
MARADI					
.Reconstruc	FNI 79-80 81	291,0	183,4	116,1	10 dispensaires "opérationnels" sur 12 : quartier (Mi-ville) Guidan-Seri-Gazaoua (R-12 lits) - Baoudéta - Kornaka (R)-Kaoutchinkaba- Nielwa Serkin Arewa - Soli Tagris-Awandawaki.
.Créations	F.Privés	39,0	39,0	-	
	autres fonds publics	17,1	17,1	-	
	4ème FED	48,7	32,6	16,1	
	USAID	37,9	37,9	-	
NIAMEY					
.Reconstruc	FNI	185,1	179,4	18,3	12 formations "opérationnelles" Bankilaré (R 12 lits) Ayorou (R) Dingazi Banda - Guéladio-Tiloa-Boukoki II (Ny) Kirtachi (R) Bella Koïra - Dargol (R)-Famalé (R)-Lazaret (Ny) Chikal.
.Créations	Autres Fds publics	48,9	51,4	-	
	FED	127,4	115,5	18,5	
	Fds privés	160,0	160,0	-	
TAHOUA					
.Reconstruc	FNI	160,0	85,7	75,6	2 dispensaires déjà "opérat."
.Créations	USAID	80,6	59,2	21,4	Kao (R) Manzou
ZINDER					
.Reconstruc	FNI	338,9	246,0	93,7	
.Créations	USAID	37,2	24,1	13,1	
	fds privés	28,3	28,3	-	
TOTAL PLAN		2245,2	1869,4	375,2	Dépassement de 52,4 Ms - repris sur le disponible, environ 120 Ms

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Réalisations Hors-Plan					
AGADEZ 2 Créations	Fds privés	50,2	50,2		Anou Araran (Poste médical et Tiantoubarak -Opérationnels
DOSSO 4 Reconstruc. 1 Création	FNI	70,0	37,4	32,6	3reconstructions opérationnelles : Dogonkiria-Tibiri
	Autres Fds publics	63,I	63,I	-	Doutchi-Moussadeye
	Fds privés	25,0	25,0	-	
MARADI 1 Reconstruc. 2 Créations	FNI	30,0	28,6	I,4	Opérationnels : Kananbakat
	Fds privés	I00,0	I00,0	-	ché,. Tibiri II. - Gabi
	4ème FED	2I,4	2I,4	-	
NIAMEY 5.Reconstruc. 11 Créations	Hollande	I39,5	I39,5	-	
	F.Publics	I87,5	I42,9	44,8	
	F.Privés	225,3	225,3	-	
TAHOUA 2 Reprises 2 Créations	F.Publics	I03,3	I03,3	-	3opérationnels : Abalak(R)
	F.Privés	38,3	38,3	-	Afala Wakou-Taza
	USAID.p.m	80,6	59,2	2I,4	p.m. Tajaé-marché unique avec Takanamatt.
ZINDER 1 Créations	USAID	37,2	24,I	I3,I	Daoutchiakoura en cours
Total H.Plan		I09I,0	999,I	9I,9	
Total Général	Dispensaires	3396,2	2868,5	467,I	Programme exécuté à 86,I %.
2 CM-MAT-PMI					
Programme-Plan					
AGADEZ 1 Logement SF 2 CM 1 Maternité	FNI	I80,7	I24,4	56,3	La maternité de Bilma et
	4ème FED	I06,9	I00,9	6,4	le CM de Bilma sont opérationnels.
DIFFA 1 Maternité 1 PMI	4ème FED	I93,I	I32,9	60,2	Opérationnels fin 8I.Diffa
DOSSO 1 CM.2.PMI 2 Mat.1Log.SF	FNI	75,2	84,7	3,9	Mat.Dosso dépassement
	4ème FED	6I,3	6I,3		I3,4 Ms-opérationnelle
	Belgique	I38,0	-	I38,0	CM-PMI-Birni-opérationnels Logt. SF "
MARADI CM-MAT/Dakoro	FNI	72,9	43,8	29,I	CM terminé
NIAMEY 1 PMI CM-MAT/Kolo	FNI	3I0,0			PMI Filingué.Opérationnel
	FPublics	29,2	225,0	II6,3	Aménagements PMI Ny-termin Kolo en cours (160 Ms inscrits FNI 8I. 60 lits de CM - 20 lits de materni

TAHOUA					
PMI	FNI	II0,3	-	II0,3	CM-MAT TchinTabaraden
CM-Mat.Kollo	F.Publics	68,6	68,6	-	en cours - PMI - Tahoua : opérationnelle
ZINDER					
CM	FNI	50,0	50,0	-	CM Tanout : opérationnel
TOTAL PLAN		I396,2	89I,6	505,0	exécution à 63,8 %
Réalisations hors-Plan					
Mat+Logt.SF	4ème FED	35,0	9,2	26,3	Guidan Roumji "en cours"
Ext.Mad.Poudrière Ny/Ville	F.Publics	I82,4	I82,4	-	Opérationnelle 22 lits Supplémentaires
Mat.Illéla	" "	6I,2	6I,2	-	I2 lits-opérationnelle
Mat.Tanout	FNI	3I,5	3I,0	0,5	20 lits- "
Extension CM Téra-Tillabéri	Hollande	I00,4	I00,2	0,2	opérationnels
PMI Lamordé Ny ville	FAC	350,0	248,0	I02,0	en cours - bâtiments terminés
Total hors-Plan		76I,0	632,0	I29,0	Exécution financière 83,0%
Total Général2	PMI/Mat/CM	2I57,2	I523,6	634,0	
B.CHN-CHD Programme-Plan					
AGADEZ	P.m	Tout a été différé - un nouvel hopital est en projet			
DIFFA	financement non acquis - le programme était le suivant : labo-analyses-pédiatrie : 30 lits - ophtalmo : I0 lits - Odonstomatologie : I0 lits - gynéco : 30 lits.				
DOSSO					
Pavillon CHD	FNI 79-pm	50,0	63,4	-	Pavillon transformé en maternité en I980-.
	Programme Plan : Pavillons				pédiatrie-odonstomalogie (I0 + I0 lits)-ophtalmo (I0 lits) ORL (I0 lits) + laboratoire.
MARADI					
Pavillon radiologie	FNI 80	80,0	2I,I	58,9	en cours-commencé fin I980 bâtiment 20 Ms-terminé le 29/9/8I cuisine - banderie (CHD) Labo-Bloc Opératoire au pavillon gynéco.
Programme Plan	p.m.	-	-	-	
NIAMEY					
Etudes Nouvel Hôpital	p.m.	850,0	-	-	études différées-l'unité hospitalière de l'E.S.S. pouvant permettre de décongestionner le CHD de Ny
Construction pavillon de catégorie chirurgie	FNI 80	I50,0	I50,0	-	inscription FNI 82 : I50 Ms Montant du marché : 260 Ms-48 lits de chirurgie.

Extension du pavillon d'hospita. Aménagements Programme-Plan	F.Publics FNI 80 p.m.	50,I 30,0	50,I 29,I	- 0,9	Terminé bureau du Médecin " -entrée clôture-Park: Service de réanimation : 30 lits-service de consultation et soins ophtalmo (I0 lits) - cabinet dentaire complexe labo- Banque de sang (I.200 Ms) en projet.
Tahoua					
Programme-Plan	P.m. non acquis	-	-	-	Pavillons : pédiatrie (40 lits) - prévu en 1980 coût 242 Ms (79) - pavillon gynéco (15 lits) prévu en 1981 : coût 90,8 Ms (1979).
Zinder					
Programme Plan	P.m. non acquis	-	-	-	Pavillons : pédiatrie (50 lits) - ORL (14 lits) ophitalmo (10 lits) odonstomatologie (10 lits) Kinesithérapie gynéco (avec bloc opératoire) Laboratoire - biberderie.
Niger	équipements techniques lourds CHD FNI 79-80-81	300,0	300,0	-	équipements livrés et installés.
TOTAL PLAN		6I0,I	550,3	59,8	Les crédits ouverts ont été exécutés à 90,2 %
Hors-Programme Plan					
AGADEZ					
Pavillon pédiatrie	FNI 77	I7,0	I7,0	-	réalisé en I979
Pavillon radiologie	FNI 78	40,0	40,0	-	terminé en I98I
DIFFA	p.m.FNI 81	50,0	-	50,0	pavillon pour tuberculeux CHD-Diffa crédits prévus initialement pour dispensaire de Tintelloust mais pl disponibles.
DOSSO					
Pavillon tuberculeux	Belgique	27,9	27,9	-	terminé en I980
NIAMEY					
Divers aménagements CHN	Belgique	5,2	5,2	-	terminé en I980
	F.Publics	I6,2	I6,2	-	terminé en I979

ZINDER					
Travaux d'assainissement	F.Publics	64,7	64,7	-	Travaux terminés-FNI 82 complément 23,5 Ms
Total Hors-Plan		I7I,0	I7I,0	-	
Total général3.		78I,I	72I,3	59,8	soit 92,3 % des crédits disponibles
.Pharmacies populaires					
AGADEZ					
Agadez	ONPPC	70,0	45,0	25,0	Agadez: ouverte en Avril 82
Arlit	ONPPC				Arlit " en mai I982
DIFFA					86 Ms dont I8 investis en I978
Diffa	ONPPC	I,0	I,0	-	aménagement d'une locatio
N'Guigmi	ONPPC	20,0	-	20,0	la construction est à l'étude.
NIAMEY					
Boni Aliber	ONPPC	I43,8	I43,8	-	Opérationnelle - coût II8 Ms
Téra	ONPPC	8,5	5,5	3,0	dont 44,2 investis en I978
Usine (Ny)	ONPPC	8,0	8,0	-	Terminée : I,5 Ms investis en I978 - équipement
ZINDER					
Magaria	ONPPC	0,5	0,5	-	petit matériel d'équipement
Total Plan 4	-	25I,8	203,8	48,0	
	soit 80,9% d'exécution en 79-80-8I				
5.Médecine Mobile-Programme - Plan	Action de lement p.m. non acquis	santé primaire-Essentiel des crédits d'équipements et de moyens.			202 ms en 79 - 237 en 80 et I64 Ms en 8I. Aucun financement FNI. Mais des opérations ont été menées sur ressources extérieures.
Total Plan 5.	p.m.	603,0	-	-	p.m.
.Divers Programme-Plan					
.DDS	AFRICARE	62,5	62,5	-	opérationnelle début I980
	USAID	222,7	-	222,7	Agadez-Maradi-Zinder : marchés approuvés.
Santé familiale	N.D.	300,0	-	300,0	Projet - mais devrait démarrer prochainement
Garage SERPA	FNI 79	I00,0	I00,0		
et CERMI(Ny)	FNI 80	260,0	258,5	I,5	Terminé
Labo Analyses et de toxicologie - Ny	FNI 8I	520,0	320,6	I99,4	en cours
INAT Ny	Belgique	37,0	37,0	-	programmé en I982 - dépassement I7,I millions.
Centre de Santé Mentale	p.m.	384,0	-	-	prévu en I980-financement non acquis.
Santé de base MS	FNI	55,0	48,5	6,4	en cours - participatio du Niger.

Ecole des Sciences de la Santé	p.m.BAD + FNI	5038,8	2021,3	3017,5	Construction et équipe FNI : 887,2 Ms payés au 29.Mars 1982.
ENICAS II de Maradi	p.m. FNI 82	300,0	-	300,0	Première tranche programmée pour 81 sur ces crédits Création plus 80 Ms pour équipement du Labo de l'ENSP-Ny.
ENSP Ny	p.m.	80,0	58,4	21	Projet prévu en 1981-Création d'une section de laborantins.
ZNICAS Zinder	p.m.FNI	275,0	239,9	35,1	Section d'assainissement + aménagements - terminée.
TOTAL PLAN		1557,2	827,2	730,0	(dont 17,1 de dépassement) soit 53 %
Programme-Hors Plan					
Studios (10)	FNI 78-79 80	80,0	79,0	1,0	Terminees et équipés - étudiants en médecine.
Centre Anti-lèpre	Fondation Follereau	76,0	76,0	-	Terminé-Lazaret Ny -Opérat.
CAT DOSSO	Belgique	34,0	34,0	-	Terminé
Santé de Base	USAID-DA	pm 774,9	730,3	44,6	Formation-assistance en personnel - sensibilisa éducation sanitaires
Amélioration de la Santé Rurale	USAID-Autres Départements	pm 2522,6	854,9	1667,7	en cours
Unité de biologie (OCCGE)	FNI 78-79	33,7	33,7	-	Terminée - l'extension est prévue
Programme OMS	pm	351,6	351,6	-	Programme 79-81-Assistance médicale
UNICEF	pm	464,7	464,7	-	diverse-matériel-bourses Santé de base-formation et équipement
PAM	pm	250,0	249,3	-	Aide alimentaire aux hospitalisés et écoles de santé
ONG	pm	820,0	820,0	-	Santé de base
BIT	CNSS-pm	11,0	11,0	-	-
FAC-Aide CANADA	la Santé Publique	37,9	37,9	-	-
	Médecine préventive	7,7	7,7	-	1977-80-Terminée
Total Hors-Plan		223,7	222,7	1,0	seuls les investissements ont été comptabilisés
Total Général 6		1780,9	1049,9	731,0	
Récapitulatif					
Plan		6.060,5	4347,9	1718,6	soit 71,6 % des crédits ouverts
Hors-Plan		2.246,7	2024,8	221,9	soit 90,1 % du disponib.
Ensemble		8.307,2	6366,7	1940,5	soit 76,6 %

ANNEX IV

PRIVATE VOLUNTARY ORGANIZATIONS IN THE NIGERIEN HEALTH SECTOR

A small number of private voluntary organizations are active in the Nigerien health sector, supplementing activities funded by the Ministry of Public Health. The Sudan Interior Mission maintains a hospital at Galmi, which provides health services for the surrounding region (Faulkingham 1975:27). Some PVOs provide personnel or other support to MSP facilities. The Groupement des Aides Privées, which is a coordinating agency for the PVOs in Niger, provides some indication of the scope and size of PVO health-related activities (République du Niger 1982b:7, 9, 11, 12, 14):

	(CFA x 10^6)
Croix Rouge Nigérienne	
National Hospital, Niamey	2.07
Mission Catholique	
Barmou Dispensary	2.10
Malbaza PMI	1.30
MISEROR	
Seven "médicins de brousse"	56.00
Sudan Interior Mission	
Galmi Hospital	35.78
Maradi Leprosarium	9.60
Dungass Dispensary	.82
Guecheme Dispensary	1.52
Galmi Area Village Health Program	7.19
Association Française des Voluntaires du Progrès	
Gamkale (Niamey) PMI	5.50

There are surely omissions in the above listing.

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INTRODUCTION *

Education as a "sector" almost defies description, let alone analysis. What is educational clearly includes a range of activities far beyond the jurisdiction of the Ministry of National Education (MEN). In June and July of 1983, an AID Education Sector Assessment mission will be in Niger, and will be considering not merely the formal structure of primary, secondary, vocational-technical, professional, and university schooling, and those "nonformal" activities that are the responsibility of the MEN, such as the literacy program, but also religious (Quranic) and informal or traditional education, including initiation structures, folklore, apprenticeships, and the like. All of these—formal, nonformal, religious, informal-traditional—and their interrelationships constitute the education sector. Thus, the conventional presentation of education in terms of budgets, number of classrooms, rates of scholarisation and attrition, preparation of faculty, and so on, is unduly truncated and fails to give the full picture. It is not difficult to understand why the informal arena is usually omitted, since it is hardly amenable to quantitative evaluation. Yet there is little doubt that the vast bulk of what might be labelled "educational," that is, the trans-generational passing on of skills, knowledge, attitudes, and beliefs about the universe and its operations, occurs outside the formal school system. This is manifest in the large number of alternative pathways leading to different outcomes (or employments) that involve both vertical movements through one component of the system—as in the progression from Ecole Primaire to Collège d'Enseignement Général to Lycée to employment as a middle level civil servant—and horizontal or cross-over movements as, for example, a primary school drop-out who enters the unskilled labor market, attends a literacy training program, moves on to cooperative training, thence to an apprenticeship in a metal-working shop, and finally establishes his own small business. While the government of Niger intervenes mainly in the formal and nonformal subsectors of the system, its policies have impacts throughout.

Peter Easton, who has observed and participated in Niger's education sector since his 1964 arrival as a Peace Corps Volunteer, argues that understanding the sector in its larger context is essential to an assessment of official government objectives and the efficiency, at both micro and macro levels, of the educational system in meeting them. By micro-level efficiency, Easton means the degree to which people are receiving the skills they need to function productively in the economy; by macro-level efficiency, he means the quantitative capacity of the economy to accommodate or absorb those who proceed through the educational system or who leave it at different points. He asks that we critically examine the proposition that formal schooling ill-prepares students for rural life at best, and often renders them actively unfit for it (cf. Hanson 1980). The hypothesis, he suggests, is poorly focused, for it points to the school per se rather than to those policies of government (such as the commitment to low urban food prices) that militate against making farming a worthwhile occupation. In other words, the efficiency of the school should be understood in a broader political-economic context which favors the urban civil service and business sector and discriminates against the rural food-

* The authors acknowledge the kind assistance of Dr. Connie Stephens, USAID/Niamey and INDRAP, and Dr. Peter A. Easton, CFCA, in preparing this section of the Socio-Institutional Profile.

producing sector. Within that context, is it any wonder that the formal school system is less relevant in preparing the majority of Nigeriens to deal with the realities of their lives? Is it any wonder that the schools appear to make only marginal contributions to the government's equity objectives: male-female rural-urban, interregional, inter-ethnic? High attrition rates may reflect not so much a failure of the schools to teach and of the students to learn, as they reflect the quite accurate, if intuitive, assessments of the students that what they are learning will not advantage their economic careers.

To make the point more bluntly, if farming is not viable economically—because of deteriorating soils, the uneconomic cost of fertilizers, a discriminating price policy, and a general allocation of public resources disfavorably in rural areas—there is little the schools can do better to prepare rural students for productive lives. The movement of the educated to the towns is mirrored by a similar migration of the uneducated from the farms to the towns and to the labor markets of the coast; for that is where the opportunities, however few and inadequately remunerative, may be found. All of the reforms currently under consideration—curricular changes, the maternal languages program, ruralisation of primary schools, education for women and girls—are unlikely materially to alter the impoverished economy of rural Niger. This should not be interpreted as an objection to the reforms; on the contrary, they are long overdue. But the equity objectives will not be achieved without major reforms of the overall economy, to provide more income, more return on labor to the food producing majority of the country.

A final point which should be noted is the progressive decline in the status of teaching over the past 20 years. The original political elite at the moment of independence was drawn largely from the ranks of school teachers. Today, with the exception of University and perhaps Lycée faculty, there is a general devaluation of teaching throughout primary and even secondary schools, and many teachers, especially those outside the capital have very little enthusiasm for their work. Teaching as a career is seen as a dead end, and the lack of teacher self-esteem cannot help but be communicated in the classroom.

FORMAL SCHOOLING IN THE COLONIAL PERIOD

For all their self-touted concern for education and for their mission civilatrice, the French put very little effort and finance into teaching Nigeriens during the colonial period. While the rhetoric of broadly based education was repeated in periodic policy statements, in fact mass education was never provided under French rule (Bolibaugh 1964; Hargreaves 1968:128). Indeed, colonial administrators explained their reluctance to commit funds to the education of Africans, expressing the fear that schools would generate unrest in the colony, or render the natives less willing to work than was their natural inclination (Bolibaugh 1964:101-105, 160). Within West Africa in general, only a small number of men were taught to read, and they were then employed in the most junior levels of the colonial administration. In Niger, most of the

African literates in fact came from Christian schools in Dahomey and Togo. One of the first two primary schools that opened in Niamey in 1931 was a mission school for the children of Dahomeans employed in the colony (Van Hoey 1968:25). After the second World War, schools were opened in several of the larger towns that were the seats of administrative cercles, enrolling a miniscule fraction (two percent from 1950 to 1955) of school-aged children. At the moment of independence, elementary scholarisation was at six percent. Secondary school figures were even worse. According to UNESCO, one-tenth of one percent of children of the appropriate ages were enrolled in secondary schools from 1950 to 1955; by 1960, that figure had increased to three-tenths of one percent (Ibid.). In consequence, "Niger has long had the sorry distinction of having the lowest literacy rate of all French West African countries" (Thompson 1966:184). According to the World Bank (IBRD 1980), the adult literacy rate in Niger in 1975 was eight percent, the second lowest indicated among 30 low-income countries. Only Upper Volta, at five percent, reported a lower rate.

Despite the exceptionally modest number of persons who had gone to school in colonial Niger, and despite the fact that these few were disproportionately from the western Songhai-Zarma speaking areas of the country, the content and structure of the French educational system was taken over in its entirety by the independent state and fluency in spoken and written French became the signal mark of the educated person. From 1960 until the very tentative experiments with maternal languages a few years ago, formal education in Niger was conducted exclusively in the colonial language, using metropolitan curricula, following a metropolitan sequence of courses, and, particularly in the post-primary schools, utilizing expatriate teachers.[1] France continues to

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[1] The prominence of expatriates among secondary and post-secondary school faculty is shown in the following figures (République du Niger 1983:18):

	1975-1976		1980-1981	
Title	Total	Nigeriens	Total	Nigeriens
Agrégés	3	0	3	0
Certifiés	50	4	45	4
Chargés d'Enseignment	27	6	107	32
Titres universitaires	70	3	111	16
Professeurs CEG	98	59	183	115
Titres univers. incompl.	59	11	121	62
Prof. EPS	34	28	68	46
Niveau Bac	217	67	636	354
Infér. au Bac	41	29	97	71
Totals	599	217 (39.2%)	1371	700 (51.1%)

provide by far the largest share of external financial assistance for education (République du Niger 1983:20):

Technical Assistance for Education (Millions F CFA)

Source	1979	1980	1981	1982	Total
France	1,745.0	1,845.0	2,100.0	2,205.0	7,895.0
Belgium	282.0	282.0	292.0	303.0	1,159.0
UNESCO (INDRAP)	16.3	20.0	26.0	57.0	119.3
United States			12.2	43.0	55.2
Great Britain	5.0				5.0
Canada		1.5			1.5
Total	2,048.3	2,148.5	2,430.2	2,608.0	9,235.0

THE FORMAL SCHOOL SYSTEM

Since independence, Niger has more than tripled its rate of scholarisation from six percent in 1960 to approximately 21 percent in 1983. Despite the objective of providing "secular, obligatory, and free" education to all children of primary school age, however, the majority of them are not enrolled in classes. The government has pursued a vigorous policy of support for education and, until the fiscal crisis brought on by the sudden declining value of uranium in 1981, education figured prominently in the national budget. The cost of construction, equipping, and operating the schools consumed 17 percent of the national budget in 1978, rising to 18.03 percent in 1979, 22.02 percent in 1980, and 24.57 percent in 1981. This was followed by a precipitous drop to 16.22 percent and a slight increase projected for 1983 of 17.74 percent (République du Niger 1983:19). It is obvious that either vastly increased sums will have to be spent or some radically new approach to education will have to be developed if the rate of scholarisation is to shift to a more favorable ratio. With the probability that for a decade at least Niger's fiscal austerity will continue, increased support for education is unlikely to be found internally. Neither have the donors shown much inclination to increase substantially their contributions to the education sector. Thus, a good deal of the current interest in educational reform is fueled by the notion that somehow ways can be devised effectively to reach more people without major increases in the overall cost. It is sobering to note though that while recent budgets have proposed support for educational reform (1,137.7 million CFA in 1981 and 1,142.2 million CFA in 1982) no such funds were actually expended (Ibid.:22).

There are basic inequities in the regional distribution of educational resources that are reflected in the scholarisation rates for the different departments (République du Niger 1983):

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Percentage of School-Age Children Enrolled in Classes

Department	1978-79	1979-80	1980-81	1981-82	1982-83
Agadez	26,3	27,0	28	26,8	24,0
Diffa	16,2	16,8	19,2	19,2	17,7
Dosso	16,3	18,9	21,5	22,0	21,6
Maradi	15,6	16,4	18,7	18,4	17,9
Niamey	26,7	27,6	28	29,3	29,5
Tahoua	14,1	15,3	16,5	16,4	15,8
Zinder	15,2	16,0	18,2	18,0	17,7
Total	18,2	20,0	20,8	21,4	20,9

The chances of an urban child being enrolled in school are much greater than a rural child; the chances that a child from a sedentary community will be in school are greater than those for a nomadic child. While there has been a slight but steady improvement in the overall rates—granted the expected decline following the budgetary crisis of 1981—the regional disparaties have been sustained. Niamey showed 12.6 percent better scholarisation in 1978-79 than Tahoua; by 1982-83 the gap had increased to 13.5 percent. On the other hand, the student-teacher ratio is much better in Diffa (27:3.1) and in Agadez (33.2:1) than in Niamey (46.6:1) or in Dosso (47.1:1). In the arrondissement of Doutchi, Department of Dosso, there were an average of 56 pupils per class in 1982-83.

Nigerien children enter primary school at the age of seven, and may remain for six years, passing successively through:

Cours Introductoire
Cours Préparatoire
Cours Elémentaire I
Cours Elémentaire II
Cours Moyen I
Cours Moyen II

With the exception of the experimental schools, in which the initial years are taught in the "maternal" language, instruction throughout the primary school system is in French, a language spoken by almost none of the children who enter the school and often spoken uncertainly at best by many of their teachers. Students complete the six year program by examinations: the Certificat du Fin d'Etudes du Prémier Degré (CFEPD), constituting for those who continue to secondary school, the examination for entrance to "Sixième," the first level of Collège d'Enseignement Général (CEG). As can be seen from the following figures, the number who complete the six years of primary schooling is approximately 30 percent of those who enter it (République du Niger 1983:Annex IV):

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Primary School Promotion Rates

Years		C.I	C.P	CE1	CE2	CM1	CM2
73/74/74/75	P	79,6	77,5	77,2	75,0	69,2	
	R	8,3	15,6	18,5	16,1	20,1	39,8
	A	12,1	6,9	9,3	8,9	10,7	60,2
74/75/75/76	P	92,4	70,0	77,9	78,0	75,4	
	R	8,2	11,3	15,0	14,5	19,4	36,4
	A	0,6	18,7	7,1	7,5	5,2	63,0
75/76/76/77	P	85,6	84,0	73,7	80,4	77,0	
	R	4,6	12,0	15,8	14,1	18,7	38,4
	A	9,9	4,0	10,5	5,5	4,3	61,6
76/77/77/78	P	88,6	82,6	77,9	83,0	80,5	
	R	8,0	11,6	13,5	13,9	16,1	36,8
	A	7,4	5,8	8,6	3,1	3,4	63,2
77/78/78/79	P	88,2	80,3	77,1	75,8	82,2	
	R	3,3	12,7	15,3	14,1	17,4	35,1
	A	8,5	7,0	7,6	10,1	0,4	64,9
78/79/79/80	P	95,4	83,0	76,7	74,3	89,1	
	R	2,3	13,0	14,9	14,3	23,4	34,2
	A	2,3	4,0	8,4	11,4	12,5	65,8

P = Promotion
R = "Redoublement," i.e., failure and repition of grade
A = Attrition

Approximately a quarter million children were enrolled in public and private primary schools (exclusive of the madrasa or Islamic schools recognized by the MEN) during the academic year 1982-1983, almost a three-fold increase in slightly over a decade. Despite the objective of expanded girls' access to education, the percentage of girls in primary schools for that same period remains relatively unchanged (République du Niger 1983:15):

	Female		Male		
	Number	Percent	Number	Percent	Total
1970-71	28,660	34.0	55,588	66.0	84,248
1975-76	50,029	35.2	92,153	64.8	142,182
1980-81	80,784	35.3	148,071	64.7	228,855
1982-83	87,965	35.9	156,793	64.1	244,758

Secondary school instruction is divided into first and second cycles. The first cycle of four post-primary years (6ème, 5ème, 4ème, and 3ème) constitute the College d'Enseignement Général, of which there is at least one in each arrondissement. An examination at the completion of these four years awards the Brevet d'Etudes du Premier Cycle (BEPC), and serves as the entry to the second cycle. There has been an almost seven-fold increase in CEG enrollments since the Kountche administration seized power, and while the fraction of boys and girls is better than 7:3 for the academic year 1982-1983, this represents an improvement of about five points from what it was in 1970-1971 (Ibid.:16):

	Females		Males		
	Number	Percent	Number	Percent	Total
1970-71	1,179	22.2	4,130	77.8	5,316
1975-76	3,413	27.9	8,804	72.1	12,217
1980-81	9,708	29.5	23,184	70.5	32,892
1982-83	10,134	27.3	27,028	72.7	37,162

The second cycle of secondary education, available to holders of the BEPC, has three alternative tracks:

1. The Lycée Général, advanced secondary schools with emphases on the liberal arts and sciences. There are four public and two private Lycées Générals in Niger. Enrollments have increased some 13-fold between 1970-1971 and 1982-1983 (Ibid.):

	Females		Males		
	Number	Percent	Number	Percent	Total
1970-71					319
1975-76					1,404
1980-81	1,057	29.2	2,561	70.8	3,618
1982-83					4,140

The three years of Lycée Général—respectively seconde, première, and terminale—are followed by an examination which admits successful candidates to the Baccalaureat (or Bac), and provides entry to the University.

2. The Lycée Technique, a public secondary school in Maradi, with an emphasis on technology and engineering. The Lycée Technique has the smallest representation of girls (Ibid.:17):

	Females		Males		
	Number	Percent	Number	Percent	Total
1970-71	3	1.6	187	98.4	190
1975-76	14	6.0	219	94.0	233
1980-81	31	7.9	363	92.1	394
1982-83					534

3. The Ecoles Normales, or teacher training colleges, of which two, in Zinder and Tillabery, provide four years of training for Instituteurs, and three, in Dosso, Maradi, and Tahoua, Instituteurs-Adjoints. Curiously the proportion of girls in the teacher colleges has actually declined substantially during the past twelve years (Ibid.:16):

	Females		Males		
	Number	Percent	Number	Percent	Total
1970-71	218	46.0	256	54.0	474
1975-76	184	30.3	424	69.7	608
1980-81	525	28.7	1,305	71.3	1,830
1982-83					2,355

Most primary school classes are taught by persons who have not completed the four years of Ecole Normale pour la Formation d'Instituteurs. In 1982-83, only 12 percent of the 5,754 individuals involved in elementary school teaching had the title "Instituteur," and an additional 64 percent were graduates of the two-year Ecoles Normales pour la Formation d'Instituteurs-Adjoints. The remaining 24 percent (Moniteur, Instituteur-Adjoint Auxiliaire, and Moniteur Auxiliaire) have not completed the BEPC. The administrative ranks appear to be open exclusively to Instituteurs: Conseillers Pédagogiques are recruited by competitive examination and have additional training of two years; Inspecteurs de l'Enseignement du Premier Degré again are recruited by examination from the ranks of the Conseillers Pédagogiques, and undergo an additional year's training. The administrators are supposed to provide guidance and periodic seminars—journées pédagogiques"—to the teaching staff (Ibid.:27):

Primary School Teaching Staff

		I. CP.	IA.	IAA	M	MA	Total	Percent
1975-76	Female	26	467	-	37	526	1,056	30.6
	Male	251	1,069	-	160	915	2,395	69.4
	Total	277	1,535	-	197	1,441	3,451	100.0
1980-81	Female	116	839	97	146	475	3,673	30.3
	Male	406	2,381	170	272	599	3,845	69.7
	Total	522	3,220	267	418	1,074	5,518	100.0
1982-83	Female	174	1,078	86	176	336	1,849	32.8
	Male	509	2,588	162	270	376	3,905	62.7
	Total	683	3,666	248	446	712	5,754	100.0

I - Instituteur
IA - Instituteur-Adjoint
IAA - Instituteur-Adjoint Auxiliaire
CP - Conseiller Pédagogique
M - Moniteur
MA - Moniteur Auxiliaire

Note the almost linear correlation between gender and status: women make up 25 percent of the Instituteurs, 29 percent of Instituteurs-Adjoint, 35 percent of Instituteurs-Adjoint Auxiliaire, 39 percent of Moniteurs, and 47 percent of the lowest rank, Moniteurs Auxiliaire. (The distribution of secondary school teachers by rank and by national origin, but not by sex, was presented in footnote one to this section of the Socio-Institutional Profile.) Women are thus disproportionately represented in the lowest ranks, from which promotion to the higher ranks is not possible. Moniteurs and moniteurs adjoints may have as little as six years of education, possessing only the CFEPD. Teachers for the experimental educational television program, which has now been discontinued, were often moniteurs (de Lattre 1970).

Secondary school teachers are supposed to have training beyond the baccalaureat, such as is now offered in the School of Pedagogy of the University of Niamey. The Diplôme d'Aptitude Pédagogique au Professorat des Collèges d'Enseignement Général (DAPCEG) and the Diplôme de Conseiller Pédagogique de l'Enseignement Primaire (DCPEP) both require two years of University study. The University also offers diplomas in science and in literature, following two years of post-bac studies; the license, also in science and in letters, after three years of study; the maîtrise, awarded in science and agriculture, after four years of study; and the doctorat, following six years of study in medicine (World Guide 1982:208-209).

The University of Niamey was founded in 1973. By 1978-1979, it enrolled 939 students of whom 60 percent, or 562, were Nigeriens, and the others mainly from neighboring Francophone African countries. That same year,

719 Nigeriens were enrolled in university-level programs in other countries (République du Niger 1980:357-358), with the largest number in France (313), followed by the Ivory Coast (132) and Senegal (124). A separate Ministry of Higher Education and Research (MESR) is responsible for the University. In 1976, construction began in Say, an old center of Muslim scholarship, on an Islamic University, supported not by the Government of Niger alone, but by the Islamic Conference, an international association with 45 member nations. Construction is several years behind the originally anticipated schedule, and classes have not yet begun.

At the primary and secondary school levels, however, the Ministry of National Education has sponsored a rapid expansion of schools with strong Arabic content, under the supervision of a Direction de l'Enseignement Arabe.[2]

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[2] The Ministry of National Education is headed by a Minister, a Secretary of State, and a General Secretary. Below these officials, are nine Directions, two Commissions, and an Institut, dealing with the diverse substantive and administrative areas of the Ministry:

Direction des Affairs Administratives et du Personnel (DAAP)
Direction des Services Financiers (DSF)
Direction de l'Enseignement du Premier Degré (DEPD)
Direction de l'Alphabétisation et de la Formation Permanente (DAFP)
Direction de l'Enseignement Arabe (DEA)
Direction des Examens et Concours (DEXCO)
Direction de l'Orientation Scolaire et Professionnelle (DOSP)
Direction de l'Enseignement Secondaire et Technique (DEST)
Direction de la Planification de l'Education et des Constructions Scolaires (DPECS)
Commission Nationale de la République du Niger pour l'UNESCO (CN/UNESCO)
Commission Nationale de la Réforme de l'Enseignement (CNRE)
Institut National de Documentation, de Recherce et d'Animation Pédagogique (INDRAP).

Three Inspections supervise work in primary schools, literacy programs, and secondary schools:

Inspection de l'Enseignement du Premier Degré (IEPD)
Inspection de l'Alphabétisation (I/ALPHA)
Inspection de l'Enseignement Secondaire (IES).

Each of the Directions is further segmented in funcational areas. Thus the DEPD includes, in addition to its general administrative staff, the following offices:

Inspection des Jardins d'Enfants et Classes Enfantines
Bureau de la Formation et Perfectionnement
Bureau des Programmes et du Contrôles Pédagogique
Bureau d'Equipment Scolaire
Bureau d'Enseignement Privé.

(continued on next page)

The movement away from purely secular education — "L'Enseignement de base au Niger est laique... (République du Niger 1983:25) — clearly reinforces the political identification of Niger with Arab and Islamic states (as discussed in the section on Islam of this socio-institutional profile). But it also appeals to parents who are reluctant to see their children in the public schools, for fear that they will be inculcated with values alien to the family, the village, and to Islam.[3]

The enabling legislation (005/MEN of 2 January 1966) proposed a full sequence of schooling, from primary through secondary and university levels, with the objectives of (1) teaching in French and in Arabic to promote the physical and intellectual faculties of the students; and (2) to provide students with a solid moral and civic education and with a love of labor.

The first two Franco-Arabic primary schools were begun in Say and in Zinder, on the bases of pre-existing madrasa or Quranic schools. Thompson (1966:182) wrote that the madaaris at Say had an outstanding reputation for Islamic scholarship, and "is slated to be transformed into an institute of Franco-Arabic education modeled after similar schools in Boutilimit (Mauritania) and Abéché (Chad)." Under the Diori government the program grew slowly, and by 1973-1974 there were only 1,255 children in Franco-Arabic primary schools (Rabiou 1975:41). Thereafter these schools enjoyed a rapid expansion:

Year	No. of Schools	No. of Classes	Boys	Girls	Total
1977-1978	21	83			4,023
1978-1979	38	144	4,106	2,041	6,147
1980-1981	44	164	4,698	2,235	6,933
1981-1982	55	193	5,210	2,583	7,793

(1977-1978 data from République du Niger 1980:354; the remainder from République du Niger 1982:2).

Potential students are currently being turned away for lack of places. (These figures do not include the five officially recognized private médersas (French spelling) in Niamey, which in 1981-1982 enrolled 1,467 students in 30 classes.)

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2 (cont'd)

The DAFP, which is responsible for Niger's literacy programs, includes:

Bureau Administratif et Gestion Personnel
Bureau Pédagogique et Production
Bureau d'Evaluation et Programmation
Bureau Matériel et Financier
Bureau Suivi

3 Tensions between the modern school system and the traditional community are explored in Ba Ga Irinta Ba ("There's Nothing Like It"), the Hausa-language play that won the drama prize at the 1980 Nigerien National Youth Festival (Beik 1982).

Arabic secondary education has not kept pace with the expansion of primary schools, and there is a complete lack of qualified administrative personnel—Inspecteurs and Conseillers Pédagogiques—at this level. There are two functioning Franco-Arabic Collèges d'Enseignement Général, one each in Niamey and in Zinder with 624 and 239 students respectively in 1981-1982. The lack of adequate opportunities to pursue the Arabic education at the secondary school level (there is a total absence of Franco-Arabic lycées), may have created certain problems for holders of the CFEPD from a madaaris who move on to a secular CEG. This may reflect the less adequate preparation of teachers in the Franco-Arabic primary schools as compared to those in the secular primary schools (which, as we have seen above, is itself not satisfactory):

Qualifications of Primary School Teachers

	Franco-Arabic (1981-82)		Secular (1982-83)	
	Number	Percent	Number	Percent
Conseiller Pédagogique	8	3.65	683	11.87
Instituteur	12	5.48		
Instituteur-Adjoint	120	54.79	3,666	63.71
Inst.-Adj. Auxiliaire	0	0.00	248	4.31
Moniteur	11	5.02	446	7.75
Mon. Auxiliaire	68	31.05	712	12.37

(République du Niger 1982:3 for Franco-Arabic data; République du Niger 1983:17 for secular data.)

It is not clear from where the additional qualified teachers are to come, since nearly 40 percent of BEPC holders already enter teacher training colleges (République du Niger 1980:358), and competing demands of other sectors for educated personnel make it unlikely that this fraction will increase substantially. The government attributes the poor performance record on certificate examinations to the inadequate training of the instructional staff (Ibid.). With the overall slowdown in the economy and the extreme budgetary constraints throughout the government, improvements in the quality and quantity of the staff may have to be deferred. Public sector employment for all school graduates is no longer feasible, but the political implications of this contraction of opportunity are likely to be severe, as these graduates join the ranks of the urban unemployed.

It is interesting to note that in the official documentation from the Direction de l'Enseignement Arabe, the religious content of the Franco-Arabic schools is not only understated, but a clear effort is made to distinguish these schools from Quaranic learning in the informal or traditional sector (République du Niger 1982:4):

> Comme on le vois, il ne s'agit point de donner aux enfants un enseignement ésotérique qui en ferait des marabouts fanatiques ou des déracinés culturels. Au contraire, l'enseignement arabe est du nature à briser ce déracinement culturel, car l'introduction de l'arabe à fortement influencé la plupart de nos langues nationales. De ce fait, elle n'est nullement incompatible avec l'enseignement de ces langues nationales.

NONFORMAL EDUCATION

With only six percent of school-aged children actually in classes when Niger became independent in 1960, the government became involved quite early in the attack on illiteracy. Yet by 1978, some 90 percent of the population remained unable to read or write (République du Niger 1980:381). With assistance from UNESCO, the literacy program began in 1962, giving rise to the Service de l'Alphabétisation the following year. For most of its existence, the Service de l'Alphabétisation—now known as the Direction de l'Alphabétisation et de la Formation Permanente (DAFP)—has been attached to the Ministry of National Education, and staffed by personnel drawn from that Ministry. But it has also spent short periods under the Ministère de la Promotion and the Ministère de l'Information and, most recently, the Ministère du Développement Rural has been broached.

At least until recently, the DAFP's position in the MEN was somewhat uncomfortable, considered by some ministry personnel as a second-rate form of education, partly because of its use of African languages, rather than French. Since literacy in rural areas is necessarily very closely associated with other local development concerns, like cooperatives, agricultural extension, and animation, there have been recurrent moves to transfer the DAFP to the responsible ministries, with the result that it has at times become a minor political football. With current increased interest in African language education and integrated rural development, the status of DAFP—both within the Direction and to outsiders—seems to have risen slightly, although changes in its administrative location remain possible. In his address to the nation of 18 December 1982, President Senyi Kountche made passing reference to the advisability of regrouping UNCC, Animation, and Alphabétisation under the same ministerial framework to harmonize "interventions en milieu rural."

By 1964, 100 literacy centers had been opened, and by 1974 there were 443. In 1982, the total number of centers, including those in urban areas, was 980. Attrition rates are high. In 1977, of the 11,700 students enrolled in 621 centers, only 5,800 completed the program, of whom half were classified as "literate" by the end of the campaign (République du Niger 1978:27). Given the spotty nature of literacy evaluations and particularly the lack of methods within the DAFP for determining the cumulative effects of its programs, official figures must be regarded with considerable doubt. In general, attrition appears to approach 50 percent of initial enrollment. Of those remaining, about one or two in ten attain test levels of literacy. The remainder are "beginners," "on their way," "quasi-literate," but not "literate" at the end of the campaign. Quantitative data for the end of the 1980-1981 campaign confirm the approximately 50 percent dropout rate and the "success" rate (i.e., those who test as literate) of 10 percent of those who originally enrolled in the program and 20 percent of those who completed it (République du Niger 1981 I:8-15):

Department	Number of Centers	No. of Adults Enrolled	No. of Adults Tested	No. Tested as Literate
Dosso	52	1691	763 (45%)[1]	161 (21%, 10%)[2]
Maradi	202	3925	2487 (63%)	445 (18%, 11%)
Niamey	44	887	5[illegible] (60%)	93 (17%, 10%)
Niamey commune	71	2752	618 (22%)	43 (7%, 2%)
Tahoua	122	2295	1037 (45%)	99 (10%, 4%)
Totals	687	15331	7[illegible]90 (48%)	1431 (19%, 9%)

Notes: 1. $\frac{\text{No. of Adults Tested}}{\text{No. of Adults Enrolled}}$

2. $\frac{\text{No. Tested as Literate}}{\text{No. of Adults Tested}}$, $\frac{\text{No. Tested as Literate}}{\text{No. of Adults Enrolled}}$

Available information from earlier years reveals only the number of centers and number of persons tested as literate at the end of the campaign, but not overall attrition or success rates (République du Niger 1981 II:12):

Campaign Year	No. of Literacy Centers	No. Tested as Literate
1964-1965	185	1489
1969-1970	252	548
1975-1976	[illegible]32	958
1979-1980	9[illegible]6	1744

DAFP has a small permanent staff (in 1977-1978 there were 46 professionals and 65 aids), with intermittent teaching staff and other personnel recruited as needed for each campaign (République du Niger 1978;27). A training center for literacy agents, Centre de Formation des Cadres de l'Alphabétisation (CFCA), was created in 1977 adjacent to INDRAP in Niamey. CFCA is slated to become a regional training center for higher level literacy agents from a number of Francophone African countries. The new Centre Régional de Formation des Cadres d'Alphabétisation (CERFOCA), is sponsored by the Comité Régional de l'Education des Adultes en Afrique (CREAA), an inter-governmental entity currently seeking UNESCO support. CFCA offers a three-year program for students holding the BEPC; a one-year professional upgrading program for persons experienced in the literacy service; and a two-year cycle supérieur for students recruited at a higher level who are preparing for literacy work as cadres supérieurs. In 1982-1983, the cycle supérieur included students from Congo, Mali, and Togo, as well as from Niger. Local level supervision is provided through regional and departmental literacy inspections, and training sessions (stages) are offered at these levels. DAFP has organized a session dealing with literacy programs for women, and in 1982-1983 this section had five women on its staff. (CFCA has no special women's program.) Alphabétisation feminine offers literacy training at health centers—Protection

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Maternelle et Infantile—where women congregate. Apart from this special program, several hundred women routinely pass through literacy classes each year as part of the "farmer couples" trained by the various Productivity Projects in Niger. According to the UNESCO statistical Digest for 1981, 99.5 percent of Nigerien women are illiterate.

Adult literacy in rural Niger has been closely associated with rural development programs, such as the organization of village marketing and credit cooperatives and larger cooperative groups. A government report identified its objectives as: (1) teaching adults to read, write, and calculate; and (2) involving them in rural development efforts. "In the rural arena, the essential objective is to increase popular understandings of [improved] agriculture and cooperatives" (République du Niger 1978:27). Reading materials provided emphasize recommended agricultural techniques and improved village hygiene. In the urban literacy centers, where reading competence in French rather than in one of the national languages is stressed, the content varies considerably from that in the rural areas. Especially in Niamey, there are both "public" and "private" sector centers. The March 1982 Zinder Conference on the Nigerien School specifically recommended:

> l'application rigoureuse d'une législation faisant obligation à toute entreprise implantée sur le territoire national de procéder à l'alphabétisation de son personnel analphabete (République du Niger 1983:30).

Peter Easton points out that there are alternative strategies involved in the literacy campaigns, which sometimes are competitive and sometimes complementary. These are:

(1) Traditional literacy - which involves the establishment of centers and the training and remuneration of instructors for villages which request to be included in the literacy campaign, within the material possibilities of the Literacy Service. Recruitment is random and courses are generally held nightly during the dry season months for a period of two to four years. Curriculum focuses on the "3 R's," though notions of improved agriculture, public health and cooperative organization may be introduced.

(2) Functional literacy - though the term has been greatly abused, "functional literacy" in Niger generally refers to training sessions organized, often on an intensive basis (e.g. two weeks straight at several different periods during the year) in connection with some rural development activity to teach a specified group of adults the particular literacy and technical skills necessary for mastery of the activity.

(3) Extension education ("vulgarisation") - referring to instruction in the basic technical packages of other rural development agencies with the support of demonstrations and audio-visual materials, but not necessarily of literacy instruction.

(4) Massive literacy ("alphabétisation de masse") - a term of more recent vintage in Niger used to designate an intensive and politically-supported effort to make the majority of people in a given area minimally literate within a short lapse of time.

To these is added:

(5) Post-literacy - not a competing approach but a complement to any of the above. It most often involves the provision of reading material to newly literate adults, but may also involve their employment in the local management of rural development activities and the institution of a series of opportunities for "advanced" training in technical specialities for the new literates.

Each of these strategies leads to somewhat different projects of personnel needs in terms of quantity, quality and rate of change. Traditional literacy implies a gradual extension and intensificiation of staff and facilities across the country as warranted by demand. Administratively and conceptually it is based on the primary school model and requires personnel with general teacher-training competence and different pedagogical specializations.

Functional literacy requires focusing training activities on areas where other significant rural development projects are underway and the integration of the teaching program into the overall strategy of economic and social change. Staff for functional literacy campaigns must not only have pedagogical competence, but must be conversant with the programs and technical concerns of other rural development specialties like agriculture, livestock, health and cooperative management in order to help the related services devise training programs to transfer these skills and responsibilities to local participants.

Massive literacy, on the other hand, supposes a major short-term effort to cover an entire country or region with literacy staff and to mobilize both the population and government services. The organizational strategy is based on the notion of a chain reaction or self-sustaining propagation. Newly literate groups or individuals train others in turn. Literacy personnel for such an effort must generally have strong organizational and administrative capacities and political training, as well as skills in pedagogy and the functional applications of literacy.

To date, extension education has been largely handled by each of the concerned rural development agencies individually, though efforts have been made to integrate it with literacy training both within the framework of the cooperative movement and in the regional productivity projects. Available evidence suggests that literacy and adult education centers contribute most to the work of extension not simply by creating another facility for one-way dissemination of new methods, but by providing a context within which villagers can receive and modify proposed technical packages and manage the distribution, retail and credit functions entailed.

A more general integration of extension education with literacy would require that the geographical strategy of the Literacy Service be carefully harmonized with that of the other rural development agencies.

Finally, "post-literacy" implies a more intensive and long-lasting approach to the campaign, in which the concern is not simply to make specific percentages or segments of the population minimally literate at a given point in time, but to provide for the productive employment of their new skills and to furnish them with opportunities to maintain or improve their training levels. It necessitates therefore a gradual extension of the campaign not only geographically but organizationally into new levels and types of adult education and puts a premium on the periodic retraining of staff.

Over the years the Literacy Service published a number of limited circulation national language newspapers. Today there are about 20 regional national language journals, mimeographed by regional literacy inspections. There is also the nation-wide Gargas, produced at DAFP offices, and the weekly Sahel Hebdo has national language pages. The regional publications appear sporadically, depending on available resources. About 300 village libraries and permanent adult education centers have been established to provide "post-literacy" follow-up.

The national television network puts another potential tool at the disposition of the literacy program, particularly since about 1,800 villages in 1982 were equipped with solar battery-powered receivers. To date, programs are rudimentary and aimed more at teaching civil servants to write in their mother tongues than at instructing illiterates, and there has been no persuasive assessment of their effectiveness.

Many Ministry of Education personnel regarded the literacy program with an ambivalence at best, and, for some, a hostility paralleling the sentiment of some trained medical persons towards the village health teams with their often illiterate paramedical staffing. It is therefore not without irony that it is the literacy program which is now having an impact on the formal school curriculum. The educational reforms that were the subject of a national debate in March 1982 proposed utilization of national languages in the first two years of primary schooling as a means of adapting the curriculum to local needs. This is a small step, but the first genuine break with the rigid, centrally-imposed school curriculum inherited from the French. USAID has supported this shift through the Maternal Languages Text Preparation Project, which seeks to produce and evaluate first and second grade readers, the texts of which are drawn from Hausa, Zarma, FulfulDe, Tamasheq, and Kanuri oral traditions. Under this program, formal tuition in French is deferred to the third year of primary school. Although implementation of the reform is new, following several years of experimentation, cries for change, for substantial modification of the French system, date to the immediate post-independence period:

> The reform of education in Niger has been gathering momentum for two decades. The need was raised by a teacher's congress in 1962, and the effort was first institutionalized by the Diori Hamani regime in 1972 with the creation of the National Commission for the Reform of Education and Scholastic Planning (composed largely of national ministers) and a supporting technical committee (composed of educators). President Kountche's government has retained these structures and sponsored national and pan-African seminars on education reform at increasingly shorter intervals in 1975, 1979, 1980, 1981, and 1982. A permanent secretary for the reform of education was incorporated into the Ministry of National Education in 1980. Niger's experimental primary schools, responsible for testing curricular changes, have been increased from one in the early 1970's to 19 this year [1982]. President Kountche first addressed the question himself in his Republic Day speech, on December 18, 1981. In citing the government's increasingly heavy expenditures for education (21 percent) of the 1982 general budget, excluding higher education and nine of the 26 billion CFA of the National Investment Fund, he called for a national debate on the problematical Nigerien school... The reform of education is apparently to be encompassed by the umbrella of the development society, since the national debate called for in December was organized by the Committee for the Institution of the Development Society (USAID 1982).

The proposed educational reforms encompass a good deal more than the maternal language instruction approach, and include a greater emphasis on applied and vocational training. The rationale for introducing primary school children to formal instruction in their own language is not merely a belated independence from French colonialism and a celebration of Nigerienness. The argument is that the environment for learning will be enhanced by the use of the language already familiar to the children, and that subsequent study of French will be facilitated by having become literate in one's own tongue. Furthermore, the absolute inability of parents to participate in their children's education when that education takes place in an alien language will be ended. Finally, for the large numbers of students who leave formal schooling after a few years, maternal language literacy will serve them outside the school, while the smatterings of French that have been acquired disappear quickly.

It is clear that improved pedagogical methods, more financial and professional support, and an expansion of the literacy centers across the country may result in more people being able to read. But to what end? What are the payoffs from being literate in national languages? What opportunities are available to the nationally literate that would otherwise be denied them (cf. République du Niger 1980:383; Easton 1983)? The issue hinges on the willingness of the authorities genuinely to transfer—perhaps through the framework of the Société de Développement—economic and managerial responsibilities to local groups and individuals. Until then, literacy may be a dead end, since

there is a dearth of written material in African languages and the various rural development agencies have shown a reluctance to delegate managerial responsibility for programs at the local level to newly literate villagers.

ISLAMIC EDUCATION

We have already mentioned Arabic education under the auspices of the Ministry of National Education. The bulk of Islamic learning occurs, however, outside the formal structure of the state. Basic religious instruction is offered in the home, and by the large numbers of malami or Quranic scholars who teach and preach throughout the country. Some malami have only the most rudimentary knowledge of Arabic and the Quran, and provide instruction to a few children from the neighborhood. Such individuals teach by rote, and most boys who study with them do not surpass the level of memorizing essential prayers in Arabic without any comprehension of what the prayers literally mean. Other malami are widely known for their scholarship and erudition, having themselves studied with learned men in Niger, Nigeria, North Africa, and even Cairo or the Middle East (often in association with the pilgrimage to Mecca). These scholars may supervise large schools, attracting both boys and men from a wide area. In many rural farming villages, a few months spent with a Quranic teacher constitutes the totality of formal education of any kind that a person receives in his life. During these months, boys who are without relatives in the village wander from house to house following the evening meal, punctuating the air with cries of Allaaro, Allaaro, and beg for food. (Quranic study in Niger resembles that described by Wilks (1968), Santerre (1973), and Brown and Hiskett (1975) for other parts of West Africa.)

Those who show a flair for Arabic, who can commit to memory the entire Quran—or at least major segments of it—pass on to serious study with a learned scholar. In Hausa, the recitation of the entire Quran by heart occasions the celebration of "putting down of the Quran" (sabka korani), and continued study. At the advanced level, students learn not only the Quran but also other sacred texts, the hadith, religious tracts, and legal commentaries. Religious scholars have long managed their own "maternal languages" programs, translating these texts into Hausa, Zarma and Tamasheq, using Arabic script (adjami) for the first two and Arabic and Tifinagh for the latter.[4]

Girls generally receive a far more limited exposure to Islamic learning than boys, and most girls receive no formal religious instruction outside the home, although a few of the larger traditional madrasa have classes for girls. Nonetheless, some women have reputations for learning that exceed those of most men, and Saunders reports that two women in Mirria, both closely related to Quranic scholars, were said to have completed the sabka korani level, that is, to have memorized the entire Quran. 'Usuman dan Fodio, the

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[4] See Annex I.

leader of the early 19th century jihaad that created the Sokoto Caliphate, specifically called for religious instruction for women (Ogunbiyi 1969), and Trevor reports (1975:252) that elite women in Sokoto today pursue religious educations by marrying Quranic scholars and studying at home.

The establishment of Arabic study in the formal school system is bound to have impacts on traditional learning, especially if these schools begin to attract both students and teachers who would otherwise pursue their studies in the religious sector. The former scribe and religious advisor in the Customary Tribunal in Maine-Soroa, El Hadji Malam GiDaDo, was named principal of the madaaris of that town and subsequently of the much larger madaaris of Goure. If other prominent marabouts move from the religious to the formal school structure, especially in supervisory positions, one can expect a progressive weakening of the purely secular nature of public sector education.

EDUCATIONAL REFORM

The National Debate on the Reform of Education took place in Zinder in March 1982. But a "debate" on the appropriateness for Niger of an educational system that is French in content and in structure has been going on since the early days of the Republic. The reformers argued that the French curriculum, with its classical and theoretical emphases, was irrelevant to the needs of Nigerien development, that it created a few bureaucrats at enormous cost and left the rest of the population with a worse than useless education, for it not only did not prepare them for rural living, it alienated them from it. The opposing position based its claim that French (or European education, in general, for similar arguments were raised in the ex-British African colonies) education—like French medicine and French industry—was the best in the world, and that in emulating it, Nigeriens were demonstrating their equality with their former colonial masters. It should be noted that both the defenders and the critics were products of the same system, and that the critics tended to argue its irrelevance not for themselves or for other members of the urban, literate, civil service elite, but for the mass of rural food-producers. For the latter, a more vocational practically oriented curriculum was appropriate, to make them better farmers, herders, and craftsmen, and, for the urban lower classes, to teach them useful technical skills (v. Heyneman 1971; LeVine 1968; Moumouni 1968; Dumont 1969).

The reform argument was ventilated at a teacher's congress in 1962, and ten year later the Diori government established an inter-ministerial National Commission for Educational Reform and Scholastic Planning to provide the discussions with input at the highest levels. But in fact little was done to reform either the content or the structure of the schools, and such experimentation as was carried out was mainly in the use of television to reach a larger

number of children with quality teaching (de Lattre 1970).[5] The military government has taken a more vigorous interest in educational reform, and has sponsored a series of national and African conferences on the topic. In 1980, a Permanent Secretary for Educational Reform became part of the Ministry of National Education, and conferences were held yearly thereafter. To the initial motivations for the reform—the need to make education more effective and more relevant to Nigerien development—the Kountche regime added, following the budgetary crisis of 1981 engendered by the declining price for uranium, the need to reduce its costs. In his address to the nation on 18 December 1981, the President pointed out that the government could ill afford the heavy drain that education placed on the national budget, some 21 percent in 1982.

The major component of the reform to date has been the introduction of instruction in "maternal" languages (Hausa, Kanuri, Zarma, Tamasheq, and FulfulDe) in some 20 experimental schools. USAID actively supports that program through its Maternal Languages Text Project. First and second graders are taught to read and write in their own language, before being exposed to French in the third grade. This is an abrupt break with the cold turkey approach used in all the other schools, in which French is the exclusive medium of instruction from the beginning of Cours Introductoire. It is supposed that literacy skills are more manageable in one's own language; that parental participation in their children's education will be facilitated; and that students who drop out of the formal school system will retain literacy skills in their own language whereas they would quickly forget what French they had learned.

The debates on educational reform—by being linked to the notion of the Société de Développement—seem to be opening a whole other arena of criticism: that the traditional educational system is heavily class-biased, and reinforces elite control and the exclusion of the (mostly rural) masses from effective participation in economic decision-making. The existing educational system serves to maintain the class structure, by discarding most of those who enter and rewarding, with public sector employment, the relatively small number that graduates from the first or second cycle of secondary school. Yet the budgetary crisis has raised a new problem. The public sector can no longer afford to absorb all holders of the Bac and BEPC, but these latter do not have the skills to be employed usefully in the private sector (even if a sufficient number of jobs were available). Thus, not only must education be made relevant to the needs of persons who will remain in the food-producing sectors of the economy, it must also provide the technical and manual skills needed in the industrial, urban, and commercial sectors.

Source of demand? Value of output

To achieve these objectives, the reformers are discussing the democratization and decentralization of the educational bureaucracy, accompanied with

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5 Despite generally favorable evaluations and the development of some innovative programming, the use of television for teaching proved simply too costly, reaching approximately $1,700 per pupil annually in the late 1960s (de Lattre 1970:105).

the assumption of a greater share of the costs of education on the part of its recipients. While the means to achieve greater democratization and decentralization are somewhat vague in the discussions, mainly tied up in invocations of the "Société de Développement," there is greater specificity on the matter of financing the system. New taxes and user fees are proposed, with the government progressively withdrawing financial support in student housing and other stipends. The risk here is, that despite rhetorical claims that fees will be charged only from those who can afford to pay, once the principle is established, it will be even more difficult for the poor to send their children to school, while the affluent will readily be able to assume the increased costs. Thus, rather than democratizing and opening-up education to the rural poor, the risk is that they may be further excluded from it.

The public discussions about the nature of Nigerien schools are positive, because they encourage examination of a system that has obviously failed to provide meaningful education to the vast majority of the population. The schools have failed to serve the economy, and have been kept in business by the government's willingness to employ all graduates (a willingness that will not be sustained). It has failed to achieve any of its stated equity objectives: to reduce the imbalances between urban and rural areas; between males and females; between sedentary and pastoral peoples. The fundamental question is: will those reforms proposed to date do much better?

We return here to the larger economic and political context mentioned in the beginning of this discussion. The reform of education, welcome as it is, will be truly successful only if there are fundamental modifications in the overall economic situation of the country. If small-scale food-producing activities remain nonremunerative, no amount of education oriented toward farmers and herders will make much difference. If there is no expansion in employment opportunities for women, no amount of literacy in maternal languages will improve their status. If the urban industrial sector cannot meaningfully employ newly educated craftspeople, vocational training will not be much more beneficial than Latin. The debate is a step in the right direction. It should move from the schools to the political-economy within which the schools operate.

ANNEX I

The Literacy Service has produced quite a bit of teaching materials in the national languages, many of them providing practical information for farmers, such as on the use of fungicide, methods for cultivating cereals, groundnuts, and cotton, how to transplant trees, etc. A representative listing of these materials is given in Painter's report on the Maradi Functional Literacy and Cooperative Education Project (1974).

Because of the wide familiarity with written Arabic in Niger, there are literacy training materials that predate the establishment of the Literacy Service. Many Nigeriens read Hausa written in adjami or Arabic script. There is a substantial Hausa adjami literature published in Northern Niger and sold in Nigerien markets, often in association with religious material.

The following are pages from Mahamed al-Awal's "The Two Languages of Hausa and Arabic," a book published in Kano in 1961 designed to teach his "fellow countrymen" (i.e., Hausa-speakers) to read their own language. In the concluding section of the booklet, al-Awal begs forgiveness from the truly learned for his errors of orthography, of which the use of the inadvertant substitution of the fā for the qāf in the Arabic baqarah ("cow") and the Hausa raqumi ("camel") are instances.

عربية ٤ هوسا

الدرس الأول			ذرس الأول فركوا
الأسماء			سونايبى
	جمل		رافى
	ناقة		ناعر ماتز رافى
	ثور		بكر بكر بيه لله
	بقرة		سايياه
	كبش		كرو راغو

عربية ٢٦ هوسا

الدرس الخامس		درس بيزه
١	مدرسة	مكرنتا
٢	سبورة	بيغز اللوا
٣	كتاب	لتاب
٤	محبرة	تودا
٥	قلم	الكلمي
٦	نشافة	مطوكر ربوة
٧	قلم رصاص	فنسل

ANNEX II

Training Institutions in Niger Not Under the Supervision of the MEN

Several ministries other than the Ministry of National Education and the Ministry of Higher Education and Research maintain specialized training programs. Some of these are outlined in the Five Year Plan (République du Niger 1980:369-379):

A. Rural Development

1. Institut Pratique de Développement Rural de Kolo (IPDR). IPDR was created in 1963 to train agricultural extension officers, recruited mainly from holders of the BEPC and also by competition from among agents of the Service de l'Agriculture and Service des Eaux et Forêts. IPDR has attracted a good deal of donor support, with FAO playing a lead role. USAID has provided a number of faculty members to the school, mainly in Rural Sociology and Agricultural Economics. An "assessment" of the program was undertaken in the Spring of 1982 (Lerner 1982).

2. Ecole des Assistants et Agents Techniques d'Elevage (EAATE). Created in 1971, EAATE offers two- and three-year training programs for Livestock Service agents.

3. Ecole des Surveillants d'Elevage de Maradi (Ecole des Cuirs et Peaux). A one-year program for moniteurs trained in tannery operations, the school recruits from students having completed two or three years of CEG.

4. Farmer and farm couple training centers, providing instruction in animal traction, in various cultural techniques associated with the productivity projects, and in literacy. There are a number of different emphases and curricula content among them, but they share in a recruitment from the "traditional" food-producing sector:

a. Centre de Formation des Jeunes Agriculteurs (CFJA)
b. Centre de Promotion Rurale (CPR)
c. Centre de Perfectionnement Technique (CPT)

B. Health

1. Ecole des Sciences de la Santé (ESS). This is actually the Medical College of the University of Niamey, and hence under the supervision of the MESR. The first 12 physicians, among whom there were seven Nigeriens, graduated in 1981.

2. Ecole Nationale de Santé Publique (ENSP). ENSP was inaugurated in 1960 to train certified nurses. Since 1964, it has trained diploma nurses as well, and a mid-wife training program was added in 1971.

3. Ecole Nationale des Infirmiers Certifiés et des Aides-Assistants de l'Action Sociale de Zinder (ENICAS). ENICAS assumed the certified nurse training program from ENSP in 1975, and also offers a one-year training program for health extension workers (moniteurs de la promotion humaine and aides-asssistants an action sociale.

4. Ecole Nationale des Infirmiers de Maradi (ENI/Maradi). To begin in 1980.

C. Administration

1. Ecole Nationale d'Administration (ENA). Modelled after the famous school for higher level bureaucrats in Paris, ENA was founded in 1960 to prepare Nigeriens for careers in public administration and management, recruiting minimally at the BEPC level. In 1978, ENA had 650 students in its elementary, intermediate, and superior cycles, and 239 in its special programs.

D. Mining and Industry.

1. Ecole des Mines de l'AÏr (EMAIR). Created in 1976, EMAIR provides instruction for mining and public works technicians. The first 40 graduates completed the program in 1979.

2. Centre de Formation et de Perfectionnement Professionel de Niamey (CFPP), offers a three-year training program for automobile mechanics, electricians, construction metal workers, and general mechanics, plus short-term training in masonry, welding, and carpentry.

3. Institut de Maitrise Industrielle, proposed in the Five Year Plan.

E. Miscellaneous Training Programs

1. Centre National d'Instruction des Postes et Télécommunications (CNIPT), created in 1969.

2. Ecole Africaine de la Météorologie et de l'Aviation Civile (EAMCA). A regional school located in Niamey that trains air traffic controllers, weather observers, and aircraft maintenance personnel. In 1978, 10 Nigeriens were being trained among the 172 students at the school.

3. Centre de Formation aux Techniques de l'Information (CFTI). Created in 1978 to train radio, television, film, and press personnel, recruiting students both at the Bac and BEPC levels. In 1982-1983, 145 students were enrolled in CFTI.

4. Centre de Formation de la NIGELEC. Created in 1965 as an internal training program for electric and water utilities personnel.

5. Centre de Formation des Agents Techniques des Travaux Publics. Provides one year of training for auto electricians and mechanics.

6. Center de Formation aux Techniques des Transports Routiers. Offers a six-week training program for truck drivers.

7. Institut National des Sports (INS), proposed in the Five Year Plan for training of physical education personnel.

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STRUCTURE OF GROSS DOMESTIC PRODUCT BY SECTOR, 1977-1981
(In billions of CFA francs at Current Market Prices)

	1977	1978	1979	1980	1981
Rural Sector	143.1	174.5	197.6	229.0	278.7
Agriculture	(76.1)	(95.7)	(105.4)	(120.8)	(152.0)
Livestock	(51.9)	(61.4)	(72.2)	(85.2)	(100.3)
Forestry and Fishing	(15.1)	(17.4)	(20.0)	(23.0)	(26.4)
Mining	23.2	36.0	61.6	65.6	54.3
Industry, Handicraft and Energy	17.7	19.8	23.4	27.9	36.0
Manufacturing	(3.7)	(4.0)	(5.7)	(6.3)	(7.5)
Handicraft	(12.5)	(14.6)	(17.1)	(20.0)	(23.4)
Water and Energy	(1.5)	(1.2)	(0.6)	(1.6)	(5.1)
Construction and Public Works	11.7	19.5	29.7	37.2	34.0
Commerce, Transport, and Services	58.7	70.3	79.9	101.1	120.9
Commerce	(34.4)	(39.6)	(46.1)	(52.7)	(65.2)
Transport	(10.4)	(14.1)	(17.4)	(21.5)	(25.5)
Services	(13.9)	(16.6)	(16.4)	(26.9)	(30.2)
Government	21.0	25.4	30.4	38.6	45.4
Import Taxes and Duties	12.6	16.6	20.0	29.1	28.3
GDP at Current Market Prices	288.0	362.1	442.6	528.5	597.6
GDP at 1976 Prices	249.6	270.4	307.1	322.2	325.7
Memorandum Items					
Nominal GDP Growth Rate	19.4	25.7	22.2	19.4	13.1
Real GDP Growth Rate	3.5	8.3	13.6	4.9	1.1
Implicit GDP Deflator	115.4	133.9	144.1	164.0	183.5

(USAID 1983b)

STRUCTURE OF GROSS DOMESTIC PRODUCT BY SECTOR, 1977-1981 (continued)
(In percent)

	1977	1978	1979	1980	1981
Rural Sector	49.7	48.2	44.6	43.3	46.6
Agriculture	(26.4)	(26.4)	(23.8)	(22.9)	(25.4)
Livestock	(18.0)	(17.0)	(16.3)	(16.1)	(16.8)
Forestry and Fishing	(5.3)	(4.8)	(4.5)	(4.3)	(4.4)
Mining	8.1	9.9	13.9	12.4	9.1
Industry, Handicraft and Energy	6.2	5.5	5.3	5.3	6.0
Manufacturing	(1.3)	(1.2)	(1.3)	(1.2)	(1.3)
Handicraft	(4.4)	(4.0)	(3.9)	(3.8)	(3.9)
Water and Energy	(0.5)	(0.3)	(0.1)	(0.3)	(0.8)
Construction and Public Works	4.0	5.4	6.7	7.0	5.7
Commerce, Transport, and Services	20.3	19.4	18.1	19.2	20.2
Commerce	(11.9)	(10.9)	(10.4)	(10.0)	(10.9)
Transport	(3.6)	(3.3)	(4.0)	(4.1)	(4.3)
Services	(4.8)	(4.6)	(3.7)	(5.1)	(5.0)
Government	7.3	7.0	6.9	7.3	7.6
Import Taxes and Duties	4.4	4.6	4.5	5.5	4.8
GDP	100.0	100.0	100.0	100.0	100.0

(USAID 1983b)

EXTERIOR COMMERCE: 1972 to 1980 (in millions CFA Fr)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Exports	13,711	13,817	12,621	19,556	31,901	39,335	63,706	106,000	121,600
Uranium	2,370	5,428	6,322	11,882	20,476	27,750	53,400	84,800	96,300
Livestock	3,139	3,106	2,889	4,113	5,485	4,263	7,854		
(percent)	(23)	(22)	(23)	(21)	(17)	(11)	(12)		
Agriculture	6,892	3,803	1,483	1,793	5,128	4,402	920		
(percent)	(50)	(28)	(12)	(9)	(16)	(11)	(14)		
Imports	16,576	19,098	23,144	21,890	30,348	48,221	68,896	118,000	151,400
Food imports				3,238	3,064	5,939	11,868		
(percent)				(15)	(10)	(12)	(17)		
TOTAL BALANCE	-2,864	-5,281	-10,525	-2,333	+1,553	-8,886	-5,190	-12,700	-29,900
Balance Agriculture Sector				+2,668	+7,639	-221	-3,094		
Cereal Imports (1000+)									
Rice	1.0	-	-	14	2	12	20	19	27
Wheat	5.6	8.6	10.7	8.3	10.9	17.4	13.8	8.4	16.9
Total	6.6	8.6	10.7	22.3	12.9	29.4	33.8	27.4	43.9

(OCDE/CILSS 1982:74)

NIGER: GOVERNMENT REVENUE, 1978-1983

	Fiscal Years (October 1 - September 30)					
	1978	1979	1980	1981	1982	1983
	(In billions of CFA Francs)					
Tax Revenue	34.2	47.1	59.2	59.5	61.6	67.0
Taxes on Income and Profits	11.0	16.5	21.0	15.4	12.6	13.5
Taxes on Goods and Services	6.2	10.4	12.8	15.9	17.0	17.5
Taxes on International Trade	14.2	17.0	22.1	25.0	28.2	32.1
Stamp Taxes	2.8	3.2	3.3	3.2	3.8	3.9
Nontax and Other Revenues	9.2	12.2	12.9	21.1	32.3	14.2
Total Revenue	43.4	59.3	72.1	80.6	93.9	81.2
	(As percentage of Total Revenue)					
Tax Revenue	78.8	79.4	82.1	73.8	65.6	82.5
Taxes on Income and Profits	(25.3)	(27.7)	(29.1)	(19.1)	(13.4)	(16.6)
Taxes on Goods and Services	(14.3)	(17.5)	(17.8)	(19.7)	(18.1)	(21.6)
Taxes on International Trade	(32.7)	(28.8)	(30.6)	(31.0)	(30.0)	(39.5)
Stamp Taxes	(6.5)	(5.4)	(4.6)	(4.0)	(4.1)	(4.8)
Nontax and Other Revenues	21.2	20.6	17.9	26.2	34.4	17.5

(USAID 1983b)

FOREIGN ECONOMIC ASSISTANCE 1979

Donor	Value (in millions CFA Fr.)	Percent of Total
Multilateral Aid:		
FED	3,458	13.3
UN	2,058	7.9
Bilateral Aid:		
France	8,587	32.9
Germany	3,394	13.0
USA	2,189	8.4
Belgium	1,395	5.3
Canada	1,327	5.1
China (Peking)	720	2.8
Libya	493	1.9
Great Britain	408	1.6
Netherlands	286	1.1
Switzerland	236	0.9
Other Countries	663	2.5
Nongovernmental Organizations	845	3.3
TOTAL	26,059	100.0

(Afrique Industrie 1981:49)

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BUDGETARY EXPENDITURE, 1978-1983

	Fiscal Years (October 1 - September 30)					
	1978	1979	1980	1981	1982	1983
	(In billions of CFA francs)					
Current Expenditure	30.4	37.4	46.1	54.6	67.9	74.2
Public Debt	2.3	3.3	4.2	8.7	16.6	19.9
Wages and Salaries	10.9	12.8	18.3	19.1	23.1	23.6
Materials and Transfers[1]	8.7	12.0	12.1	13.4	14.7	16.8
Investment Expenditure	8.5	9.3	11.5	13.4	13.5	13.9
Total Budgetary Expenditure	13.0	21.9	26.0	26.0	26.0	7.0
	43.4	59.3	72.1	80.6	93.9	81.2

Source: Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO), and Ministry of Finance. The data from FY 1978-1982 are taken from BCEAO; the data for FY 1983 are from the Ministry of Finance. The data from these two sources are different slightly from those published by the IMF. The IMF data ended with FY 1981; both the FY 1980 and FY 1981 data are, however, provisional.

[1] It includes other expenditures not included in wages and salaries or materials and supplies.

(USAID 1983b)

SELECTED BUDGETARY EXPENDITURE ALLOCATIONS
BY FUNCTIONAL CLASSIFICATION, 1978-1983

	1978	1979	1980	1981	1982	1983
			(as billions of CFA francs)			
Rural Development	1.3	1.6	2.0	2.3	2.5	2.1
Public Works	3.3	2.8	3.1	3.6	3.7	4.0
Education	4.9	5.8	7.7	10.0	10.7	12.6
Health	2.2	2.6	3.0	3.4	3.8	4.4
Defense	2.2	2.6	3.0	3.7	4.0	4.4
			(as percentage of total budget)			
Rural Development	3.0	2.7	2.7	2.8	2.6	2.6
Public Works	7.6	4.7	4.3	4.5	3.9	4.9
Education	11.3	9.8	10.7	12.4	11.4	15.5
Health	5.1	4.4	4.1	4.2	4.0	5.4
Defense	5.1	4.4	4.1	4.6	4.2	5.4

(USAID 1983b:23)

COMPARISON OF PLANNED AND REALIZED FNI
(Fonds National d'Investissement), 1977-1983
(in billions of CFA Fr)

Year	National Budget	Planned FNI	Realized FNI	Realized FNI as % of budget
1977	34.1	8.0	10.0	29
1978	43.4	13.0	18.1	42
1979	59.3	21.0	24.1	41
1980	72.1	26.0	24.6	34
1981	80.6	26.0	13.0	16
1982	93.9	26.0	10.4	11
1983	81.2	7.0	na	na

(USAID 1983b:22)

COMPARISON BETWEEN PLANNED AND REALIZED PUBLIC INVESTMENT, 1979-1981
(In billions of CFA francs)

	Planned[1] 1979-1983	1979 Planned	1979 Realized	1980[2] Planned	1980[2] Realized	1981[2] Planned	1981[2] Realized	Ratio of Realized to Planned Investment 1979-1981
Directly Productive Sector	176.0	20.6	12.0	34.0	20.4	47.3	24.7	0.56
Agriculture	69.2	9.3	6.5	14.0	10.3	18.1	11.9	0.69
Livestock	18.5	3.3	1.2	4.5	1.7	5.8	1.6	0.33
Forestry and Fisheries	4.4	0.6	0.2	1.1	0.7	1.1	0.9	0.64
Manufacturing	13.7	1.5	1.1	2.8	1.9	3.0	1.1	0.56
Mining	39.5	0.1	0.4	3.9	1.6	11.0	1.2	0.21
Energy	16.9	2.8	0.9	4.2	2.6	3.6	6.9	0.98
Commerce	5.3	2.1	0.8	1.8	0.4	0.9	0.6	0.38
Tourism	8.5	0.9	0.9	1.7	1.2	3.8	0.5	0.41
Economic Infrastructure	92.1	7.9	8.3	14.8	21.3	27.0	38.3	1.37
Roads and Transportation	55.0	4.5	4.2	8.1	11.7	14.4	17.8	1.25
Telecommunication	12.7	0.6	1.7	2.9	6.6	4.6	16.1	3.01
Waterworks	24.4	2.8	2.4	3.8	3.0	8.0	4.4	0.67
Social Infrastructure	90.1	9.3	11.6	21.8	22.3	29.4	20.3	
Health and Nutrition	19.0	1.5	1.2	4.5	2.0	5.8	3.5	0.56
Education and Training	50.0	4.1	6.7	11.1	11.7	16.3	11.6	0.93
Youth, Sports, and Information	15.9	3.1	2.9	4.3	2.6	5.9	2.3	0.58
Urban Development	5.2	0.6	0.8	1.9	6.0	1.4	2.9	2.49
Administrative Infrastructure	26.3	4.8	5.3	6.6	6.5	7.2	12.7	1.32
Total Investment	384.5	42.6	42.8	77.4	70.5	110.9	96.0	0.91

[1] Planned investment for the whole period (1979-1983) is expressed at 1979 prices.

[2] Planned and actual investments for 1980 and 1981 are expressed in current prices. Planned investment figures are adjusted by using a twelve percent rate of inflation.

Source: Ministry of Planning, Bilan d'Exécution, 1980, 1981

(USAID 1983b)

EXTERNAL DEBT, 1977-1983
(in billions of CFA Fr)

	1977	1978	1979	1980	1981	1982
External Debt	63.0	83.0	105.0	183.0	214.0	300.0
Debt Service Payments (Interest and Amortization)	3.0	2.4	3.2	6.5	12.0	20.0
Export Earnings	46.8	72.4	107.4	120.3	123.6	125.0
Debt Service Ratio	4.9	3.3	3.0	5.4	9.7	16.0

(USAID 1983b:17)

ESTIMATES OF RECURRENT COSTS OF MAJOR INVESTMENT PROJECTS UNDER THE FIVE-YEAR PLAN
(in millions of CFA francs)

	Est. Proj. Cost During Plan Period	Recurrent Cost Coefficient	In 1979 Prices	In 1982 Prices
Agriculture			4,904	6,864
Productivity project				
Maradi	5,066	0.2	1,013	1,418
Dosso	4,377	0.2	875	1,225
Niamey	2,000	0.2	400	560
Rural Dev. Say	2,907	0.2	581	813
Rural Dev. Zinder	2,209	0.2	441	617
Fertilizers	3,000	0.2	600	840
Cereal Prodn.	2,970	0.2	594	831
Stock Facilities	2,000	0.2	400	560
Livestock			1,283	1,795
Livestock Dev.				
Maradi-Zinder-Diffa	4,749	0.14	664	929
South Tamesna	1,293	0.14	181	253
Niger Range and Livestock Project	1,269	0.14	177	248
Fodder Ranch, Tiaguirire	1,870	0.14	261	365
Transport			2,811	3,934
Highway Constr.	25,553	0.05	1,277	1,787
Secondary Roads	12,352	0.1	1,235	1,729
Rural Roads	2,990	0.1	299	418
Education			6,141	8,597
Primary	8,440	0.2	1,688	2,363
Secondary	19,747	0.13	2,567	3,594
Higher	12,573	0.15	1,886	2,640

Note: The recurrent cost coefficients are based on estimates from the Recurrent Costs of Development Programs in the Countries of the Sahel (prepared for CILSS and the Club du Sahel by Harvard Institute for International Development).

(USAID 1983b)

1981 PROJECTION OF PUBLIC INVESTMENT
IN INDUSTRY 1981-1985

(in millions FCFA)

Industry	1981	1982	1983	1984	1985	1980/ 1986	1986/ 1990
Food	390	920	830	530	530	3200	6000
Construction Material	350	1250	1000			2600	6000
Other	350	350	350	950	950	2950	3000
TOTAL	1090	2520	2180	1480	1480	8750	15000
(Acquired Financing)	(1090)	(2200)	(1980)	(380)	(-)	(5650)	(-)

(Afrique Industrie 1981:55)

1981 PROJECTION OF INDUSTRIAL PRODUCTION 1979-1990

Products:	Unit	1979	1985	1990
Food Industries				
Groundnut Oil	tons	5700	8500	17000
Oil Cakes	tons	9850	10600	21200
Beer and Carbonated Beverages	1000 hl	140	290	450
Sugar	tons			24000
Tomato Concentrate	tons		1800	4000
Dehydrated Onions	tons	3200	1000	1600
Rice	tons		8000	16000
Animal Feeds	tons		10000	15000
Textile and Leather Industries				
Cotton Fiber	tons	1500	4000	8000
Cloth	km	17000	20000	30000
Tanned Leather	1000 U	650	1300	1500
Chemical Industries				
Soaps	tons	4230	6500	10000
Perfumes	1000 U	3600	5400	8000
Medicines	1000 U	39000	50000	100000
Batteries	1000 U		26000	26000
Construction Material				
Bricks	tons	27000	60000	90000
Cement	tons	34000	100000	400000

(Afrique Industrie 1981:55)

GROSS EARNINGS & STATE RECEIPTS FROM URANIUM MINING OPERATIONS
ACTUAL 1971-1978, PROJECTED 1979-1990

(billions of FCFA)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1990
Somair	2.0	1.5	5.0	6.4	14.0	21.0	28.4	42.0	45.0	51.0	55.9	55.9	55.9	
Cominak								8.2	42.5	53.5	53.5	53.5	53.5	
S.M.T.T.												6.1	36.5	
Abkorum-Azelik												2.3	15.4	
TOTAL	2.0	1.5	5.0	6.4	14.0	21.0	28.4	50.2	87.5	104.5	109.4	117.8	161.3	216.0
of which State Receipts					4.3	7.4	[illegible]	[illegible].8	31.2	35.8	35.8	37.9	48.8	53.7

Note: Estimated increase in unit price, 4.3% annual, here 1979 constant prices; SOMAIR state receipts at 40%, others 25%.

(Enger and Smale 1979 Vol. II:29a)

URANIUM PRODUCTION AND SALES, 1977-1981

Year	Production (tons)	Sales (tons)	Sales (in millions CFA Fr.)
1977	1,441	1,466	28,421
1978	2,109	2,249	52,352
1979	3,540	3,404	83,399
1980	4,129	4,005	97,104
1981	4,366	4,585	91,645

(BCEAO 1982:16)

1981 PROJECTION OF URANIUM PRODUCTION AND VALUE 1981-1990

	Annual Average 1981-1984	1985	1990
Production (tons)	4,300	5,600	10,600
Production capacity (tons)	4,500	7,000	11,500
Value added (FCFA 1980)*	37,000	48,000	146,000
Value of exports (1981 price) *	86,000	112,000	271,000

* millions FCFA

(Afrique Industrie 1981:51)

GOVERNMENT URANIUM REVENUES, 1977-1982
(in millions CFA Fr)

Year	Uranium Revenues	Percent of National Budget
1977	10,000	29
1978	18,100	42
1979	24,100	43
1980	24,600	34
1981	13,000	16
1982	11,000	12

(Toh 1982:1)

MINIMUM WAGE PER HOUR 1963-1981

(F CFA/hour)

Year	Wage
1963	27
1964	27
1965	27
1966	27
1967	27
1968	27
1969	27/30 (1-10-69)
1970	30
1971	30
1972	30
1973	30
1974	30/48 (1-7-74)
1975	48
1976	48
1977	48/58.21 (1-5-77)
1978	58.21/75.67 (1-5-78)
1979	75.67/99.11 (1-5-79)
1980	99.11/109.01 (1-10-80)
1981	109.02

(BCEAO 1982:19)

CONSUMPTION OF ELECTRICITY AND PETROLEUM PRODUCTS 1976-1980

	1976	1977	1978	1979	1980
Electricity (1000 kwh)	68,379	87,685	95,318	100,365	133,663
Petroleum Products (M^3)					
Jet Fuel	10,680	13,493	20,792	19,252	16,338
Gasoline (Airplane)	2,835	3,445	3,066	3,251	1,800
Gasoline (Auto)	28,712	33,922	36,192	41,761	46,822
Kerosene	4,228	4,165	4,455	5,237	5,609
Diesel	74,578	77,871	102,471	124,322	127,535

(BCEAO 1982:17)

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MOTOR VEHICLE REGISTRATION 1973-1980

	1973	1974	1975	1976	1977	1978	1979	1980
Motorcycles	766	897	934	1,259	1,899	2,634	3,273	4,090
Automobiles	7,756	8,598	9,414	10,139	11,419	12,627	14,362	16,367
Pick-ups/Vans	5,382	5,779	6,133	6,709	7,406	8,123	9,124	10,151
Trucks	2,456	2,672	2,923	3,089	3,321	3,597	4,038	4,403
Buses	249	317	386	475	542	646	865	1,131
Trailers	535	588	639	748	908	1,093	1,307	1,471
Tractors:								
Road	590	665	784	909	1,115	1,402	1,652	1,842
Agricultural	62	65	69	74	75	75	84	96

(BCEAO 1982:17)

1981 RURAL WATER SUPPLY INVESTMENT PROJECTIONS 1981-1990

Program	1981-1985	1986-1990	Totals	
Village Wells	2,991	2,500	5,491	15,753
Boreholes	5,612	4,650	10,262	
Investment*	37,055	35,375		72,430

* In millions FCFA

(Afrique Industrie 1981:59)

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ANNUAL RAINFALL DURING PERIOD 1968-77 COMPARED TO 30 YEAR AVERAGES

Station	Ave. Yearly Rainfall (mm) 1948-1977	Ave. Yearly Rainfall (mm) 1968-1977	Number of Days of Rainfall 1948-1977	Number of Days of Rainfall 1968-1977
Niamey	599.0	518.2	56.4	51.5
percent change	100	-13.5	100	- 8.7
Dosso	613.9	498.9	42.2	36.2
percent change	100	-18.8	100	-14.3
Tahoua	420.8	352.0	48.5	44.8
percent change	100	-16.4	100	- 7.6
Maradi	580.2	460.1	49.3	43.7
percent change	100	-20.7	100	-11.4
Agadez	150.7	97.4	25.9	22.6
percent change	100	-35.4	100	-12.7
Zinder	501.1	373.8	44.8	40.8
percent change	100	-25.3	100	- 8.9
Goure	357.4	239.0	30.6	25.8
percent change	100	-33.1	100	-15.9
N'Guigmi	228.4	144.0	20.0	14.2
percent change	100	-36.9	100	-29

(Enger and Smale 1979 Vol II:C4)

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AVERAGE FARM INCOMES IN RELATION TO RAINFALL

Areas	Districts	Crop and Livestock Income (000 CFAF/head, 1977)
Above 750 mm/year	Gaya	31.6
650-750 mm/year	Madarounfa	21.0
550-650 mm/year	Dosso	17.8
	Doutchi	16.7
	Birni	16.3
	Guidan Roumji	16.3
	Aguie	14.3
Less than 550 mm/year	Loga	16.6
	Tessaoua	13.4
Pastoral zone (less than 350 mm/year)		24.5

(IBRD·1981:46)

FOOD NEED INCREASES

	Population	Population Growth Over Preceding Year *	Cereal Needs in MT	Additional Food Needs in MT
1974	4,500,000		1,125,000	
1975	4,621,500	+ 121,500	1,155,375	30,375
1976	4,746,280	+ 124,780	1,186,570	31,195
1977	4,874,429	+ 128,149	1,218,500	32,037
1978	5,006,038	+ 131,609	1,251,209	32,902
1979	5,141,120	+ 135,163	1,285,280	33,790
1980	5,279,930	+ 138,850	1,319,982	34,702

* Rate of Annual Growth - 2.7%

(Enger and Smale 1979 Vol. II:83)

PRICES PAID TO PRODUCERS FOR AGRICULTURAL PRODUCTS 1970-1982
(CFA Fr/kg)

Product	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	1976/ 1977	1977/ 1978	1978/ 1979	1979/ 1980	1980 1981	1981/ 1982
Millet/White Sorghum	12.5	12.5	25	25	25	25	25	30	40	40	40/45	70/60
Red Sorghum	10	10	10	20	20	20	20	20	35	35	35/40	50
Unshelled Groundnuts	15.25	16	18	30	40	40	40	40	45	45	50	50
Shelled Groundnuts	23	24	24	45	55	55	55	69	75	75	75	77
Cow Peas	20	25	20/25	30	40	40	30	30	30	45	45	55 65/150
Rice	21.5	21.5	21.5	30	35	35	39	39	45	45	65	70
Cotton (Ist Crop)	32	32	37	47	47	47	47	55	62	62	62	80

(OCDE/CILSS 1982:106)

RETAIL PRICES FOR SELECTED STAPLE FOODS 1977-1981
(CFA Fr/kg)

Product	1977	1978	1979	1980	1981
Sugar	200	200	200	250	330
Rice	156	159	158	162	200
Millet	63	85	91	102	188
Cow Peas	87	100	104	133	235
Bread	134	166	166	166	203
		(CFA Fr/Liter)			
Groundnut Oil	250	250	250	250	288

(BCEAO 1982:19)

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CROP AREAS, 1968-1977
(Area in 1000 ha and Yield in Kg/ha)

Crop		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Millet	ha	1895	2272	2310	2356	2194	2008	2230	1693	2527	2728
	Kg/ha	387	482	377	407	390	312	395	343	403	407
Cowpeas	ha	744	968	980	1000	921	832	919	839	837	726
	Kg/ha	100	86	86	72	136	112	144	260	260	285
Grain Sorghum	ha	596	595	593	579	567	448	548	791	616	723
	Kg/ha	386	486	380	461	344	282	404	320	465	466
Peanuts	ha	432	320	358	394	418	364	256	320	164	174
	Kg/ha	584	647	572	650	385	212	504	130	483	472
Voandzou	ha	48.3	60.2	56.3	56.3	50.8	24.7	23.2	26.5	11.7	37.7
	Kg/ha	546	723	522	588	419	889	533	480	498	422
Manioc	ha	26.3	27.5	24.3	24.3	18.5	23.8	31.2	34.9	22.0	20.7
	Kg/ha	7379	7165	7480	6860	5120	6558	6420	5000	8960	8690
Cotton	ha	17.3	20.2	19.9	20.6	15.9	10.1	15.2	16.4	12.4	10.4
	Kg/ha	405	626	526	436	382	352	520	676	571	609
Rice	ha	15.3	15.5	16.4	17.1	17.2	17.8	14.8	17.2	21.7	23.0
	Kg/ha	2553	2521	2259	1595	1407	2605	2037	1820	1320	1155
Corn	ha	3.6	2.8	2.7	2.9	3.7	5.2	6.0	8.0	15.8	7.7
	Kg/ha	494	542	585	670	457	495	668	460	757	725
Wheat	ha	0.6	0.2	0.4	0.3	0.3	0.8	1.6	1.4	0.9	1.2
	Kg/ha	1000	990	900	900	818	935	1000	1360	1500	1650
Onions	ha	1.8	1.7	1.9	2.1	1.5	1.7	2.6	2.6	2.8	2.0
	Kg/ha	21003	16524	16430	17025	13530	6974	16900	27698	28400	31140
Okra	ha	1.0	2.5	3.0	3.6	2.7	3.0	2.6	2.8	1.7	0.5
	Kg/ha	491	380	293	300	245	544	500	340	385	562
Sweet Potato	ha	1.2	1.3	1.3	1.4	1.5	1.9	1.2	1.1	7.5	6.3
	Kg/ha	8012	6952	6450	6800	7003	2373	6090	11670	7325	6500
Sugar Cane	ha	1.3	1.4	1.4	1.5	1.5	2.1	1.4	4.3	2.5	2.7
	Kg/ha	19124	18280	26555	36700	31130	37357	52400	31320	42700	48910
Fonio	ha	-	-	0.8	0.8	0.9	0.9	-	3.2	4.3	2.5
	Kg/ha	-	-	644	656	660	920	-	295	300	410
Sesame	ha	-	-	0.2	0.3	0.1	0.3	0.4	0.7	0.6	0.6
	Kg/ha	-	-	236	250	370	257	300	180	340	270
Tomato	ha	0.5	0.4	0.3	0.3	0.3	0.4	1.6	0.9	0.9	0.9
	Kg/ha	9578	8074	7490	7740	10839	9589	1000	15700	14100	7800

(Enger and Smale 1979 Vol. II:C35-36).

NATIONAL FERTILIZER CONSUMPTION 1971-1981

Year	Tons
1971-73 (Ave.)	919
1974	488
1975	2,079
1976	4,500
1977	5,164
1978	4,049
1979	5,008
1980	5,916
1981	11,654

(OCDE/CILSS 1982:54)

LABOR INPUT BY FARM

Village	Zone	Area (ha)	No. of Family Members	No. of Family Workers	Area Per Worker (ha)	Hours of Family Labor	Hours Per Worker	Outside Labor Hours*	Outside Labor Hr/Ha*	Family Hr/Ha	Family Hrs/ Worker/Ha
Doumba	6	4.0	7	1	4.0	1186	1186.0	0	0	296.5	296.5
		12.0	8	5	2.4	4435	887.0	300	25.0	396.4	73.9
Sakoira	6	3.0	8	3	1.0	2352	784.0	521	173.6	784.0	261.3
		4.75	18	7	0.68	4535	648.0	63	13.3	954.7	136.4
Rouga	6	4.2	3	2	2.1	1492	746.0	0	0	355.2	172.6
		5.4	10	3	1.8	1630	543.0	37	6.9	301.8	100.6
Say	6	3.5	4	2	1.75	1170	585.0	?	?	334.3	167.1
		4.6	8	4	1.15	1927	482.0	?	?	418.9	104.8
Dalkaina	6	5.0	4	2	2.5	1072	536.0	564	112.8	214.4	107.2
		10.5	14	4	2.6	2570	643.0	284	27.0	244.7	61.2
Tessa	6	6.0	4	2	3.0	1596	798.0	297	49.5	266.0	133.0
		33.0	26	8	4.1	6045	756.0	115	3.5	183.2	22.9
Bengou	3	0.6	5	2	0.3	388	194.0	108	18.0	646.6	323.3
		3.75	9	3	1.25	1365	455.0	192	51.2	364.0	121.3
Kara Kara	3	2.24	5	3	0.75	3221	1074.0	100	44.6	1437.9	479.5
		4.8	12	6	0.8	4582	764.0	570	118.8	954.6	159.2
Kornaka	3	1.6	3	2	0.8	522	261.0	?	?	326.3	163.1
Matankari	4	6.64	7	3	2.2	3383	1128.0	?	?	509.5	169.9
		11.7	14	4	2.9	4380	1095.0	320	27.4	377.4	93.6
Dogueraoua	5	15.0	7	4	3.75	5524	1381.0	1040	6.9	368.3	92.1
		8.0	10	6	1.3	6054	1009.0	910	113.8	756.8	126.1
Ibouhamane	5	2.5	7	3	0.83	1406	469.0	250	100.0	562.4	187.6
Sabon Sara	5	2.5	7	3	0.83	1406	469.0	250	100.0	562.4	187.6
Taboyé	5	6.2	8	3	2.1	2994	998.0	2159	348.2	482.9	161.0
		10.4	15	8	1.3	10796	1350.0	6868	660.4	1038.1	129.8
Dogo Dogo	2	5.8	4	4	1.5	3527	882.0	?	?	608.1	152.1
Madarounfa	2	5.0	4	3	1.7	2384	795.0	250	50.0	467.8	159.0
X		6.76			1.97					534.9	200.9
SD		6.17			1.05					294.2	187.0

* Labor hired to supplement family labor

(Enger and Smale 1979 Vol. II:B25)

EVOLUTION OF CEREAL CROPS 1960-1981

	1960-1967	1968-1975	1976-1981
Surface Area Cultivated (1000 ha)			
Millet	1,780	2,120	2,843
Sorghum	479	586	769
All Cereals (including corn, fonio, wheat, rice)	2,272	2,750	3,650
Average Yields (Kg/ha)			
Millet	495	390	425
Sorghum	615	400	445
All Cereals	525	400	435
Total Production (1000 t.)			
Millet	882	833	1,204
Sorghum	296	226	343
All Cereals	1,195	1,098	1,589

(CCDE/CILSS 1982:34)

CALCULATED NET DOMESTIC PRODUCTION OF MILLET AND SORGHUM IN NIGER 1961-1979

Crop Year	Estimated Production[1] (1000 MT) (1)	Calculated Seed Needs[2] (1000 MT) (2)	Calculated Losses[4] (1000 MT) (3)	Calculated Net Prod[5] (1000 MT) (1-2-3=4)	Population[6] (1000's) (5)	Available Net Prod Per Capita (kg) 4÷5
1961	1056	10.7	52.8	992.5	3327.6	298.3
1962	1249	10.7	62.5	1125.8	3417.5	344.1
1963	1330	10.1	66.5	1253.4	3509.9	357.1
1964	1328	10.3	66.4	1251.3	3604.7	347.1
1965	1055	10.3	52.8	991.9	3702.2	267.9
1966	1121	11.0	56.0	1054.0	3802.2	277.2
1967	1350	11.3	67.5	1271.6	3905.0	325.6
1968	948	13.0	47.4	887.6	4010.5	221.3
1969	1385	13.2	69.3	1302.5	4118.9	316.2
1970	1101	13.3	55.1	1032.6	4230.2	244.1
1971	1226	12.6	61.3	1152.1	4344.5	265.2
1972	1127	11.2	56.4	1059.4	4462.0	237.4
1973	753	12.6	37.7	702.7	4582.6	153.3
1974	1102	11.3	55.1	1035.6	4706.4	220.0
1975	835	14.4	41.8	778.8	4833.6	161.1
1976	1306	15.6	65.3	1225.1	4964.2	246.8
1977	1477	15.8	73.8	1382.4	5098.4	272.1
1978	1452	15.5	72.6	1363.9	5236.2	260.5
1979	1438	15.5	71.9	1350.6	5377.7	251.1

(1) Government of Niger, Rapport Annuel, Tome II, Statistiques, 1967-1977 Issues, Direction de l'Agriculture, Ministère du Développement Rural, and University of Michigan, Marketing Price Policy, and Storage of Food Grains, Volumes I and II, CRED, CILSS, Club du Sahel, August 1977.

(2) Marchés Tropicaux et Méditerranéens, Niger, 1980, Special Issue in English, 1751, 1 June 1979.

(3) Based on following year acreage.

(4) Calculated at a 5 percent loss rate.

(5) Sahel Hebdo, Issue of 22 October 1979. Referred to as disposable production!

(6) Table 1, Borsdorf.

(Enger and Smale 1979 Vol. II:87)

AVERAGE MONTHLY PRICE OF MILLET, NIAMEY MARKET
(CFA/kg)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1961	16	18	20	31	28	25	23	18	16	21	17	13
1962	16	19	18	22	25	17	21	20	18	15	17	20
1963	16	15	15	15	15	16	23	20	20	16	14	13
1964	14	15	14	16	16	16	19	17	15	15	15	15
1965	14	14	14	16	18	17	18	19	17	15	17	22
1966	24	27	31	35	40	42	54	43	38	26	20	17
1967	22	22	22	22	23	21	23	23	23	20	15	17
1968	17	14	16	16	15	15	-	-	-	-	-	-
1969	22	44	47	-	24	-	-	-	-	-	-	-
1970	23	22	27	26	26	29	16	32	32	26	22	22
1971	20	26	26	29	29	31	31	35	24	27	28	27
1972	28	26	30	31	32	32	32	37	35	35	32	36
1973	39	40	47	54	64	61	58	60	51	55	61	44
1974	45	44	43	51	42	38	38	43	37	31	31	33
1975	30	46	40	43	37	43	39	40	39	33	32	38
1976	39	48	54	48	57	60	47	50	47	50	63	60
1977	51	57	65	61	59	67	72	76	60	68	63	63
1978	73	75	83	85	92	64	107	19	98	87	83	85
1979	85	83	83	-	-	-	-	-	-	-	-	-

(Engers and Smale 1979 Vol. II:F80)

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SEASONAL MARKET PRICE OF MILLET IN SELECTED LOCATIONS
(CFA Fr/kg)

Region and Year		May	July	October
Kao:	1978	100	110.	47.5
	1980	-	75.5	58.7
	1981	113.9 (April)	175. (June)	110. (Sept.)
	1982	240	-	186
Taborka:	1978	-	-	215. (Nov.)
	1979	85. (Feb-Mar)	95.	-
	1980	73. (June)	-	-
Tahoua:	1979	84. (2nd qtr)	-	70. (2nd qtr.)
Maradi:	1979	72. (2nd qtr)	-	50 (4th qtr)
Niamey:	1978	92.	107	87
	1979	94.	98	91. (Sept.)

(USAID 1983a:440)

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EVOLUTION OF COTTON PRODUCTION 1960-1981

	1960-62	1965-67	1969-71	1973-75	1976-78	1979-81
Surface Area (1000 ha)	8	16.6	20.2	14	10.7	3.8
Average Yields (kg/ha)	400	400	530	540	560	735
Total Production (100 t.)	3.3	6.6	10.7	7.5	6.5	2.8

(OCDE/CILSS 1982:43)

EVOLUTION OF COW PEAS, GROUNDNUT AND VOANDZOU PRODUCTION 1960-1981

	1960-1967	1968-1975	1976-1981
Surface Area Cultivated (1000 ha)			
Cow Peas	491	900	967
Groundnuts	333	357	183.6
Voandzou	29	50	20.5
Average Yields (kg/ha)			
Cow Peas	120	125	265
Groundnuts	680	500	515
Voandzou	730	575	465
Total Production (1000 t.)			
Cow Peas	58	113	257
Groundnuts	226	178.5	95
Voandzou	21	29	9.5

(OCDE/CILSS 1982:39)

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PROJECTION OF PRODUCTION AND DEMAND FOR FOOD CROPS 1975-2000

	PRODUCTION		PROJECTION				
Production (1000 MT)	1975	1976	1980	1985	1990	1995	2000
Millet-Sorghum-Corn	839	1503	1650	1850	2100	2400	2700
Rice	29	20	50	100	150	200	250
Niebe-voandzou	231	238	275	300	325	360	400
Peanuts	42	95	240	260	280	300	330
Tubers	200	215	240	275	300	350	400
	1341	2080	2455	2785	3165	3610	4080
Demands (1000 MT)[1]							
Millet-Sorghum-Corn	1420	-	1663	1900	2171	2480	2834
Rice	-	-	-	-	-	-	-
Niebe-voandzou	100	105	120	140	160	180	200
Peanuts	60	65	80	100	120	140	[illegible]
Tubers	189	200	240	275	310	350	
	1769	370	2103	2415	2761	3150	3
Deficit (1000 MT)							
Millet-Sorghum-Corn	-581	-	+13	-50	-71	-80	80[3]
Population (1000)[2]	4600	4746	5385	6153	7030	8031	9176

(1) Demand: calculated at 260 kg/per. (it would appear that their calculations included the need for some level of carry-over stocks ranging from about 200,000 MT to 450,000 MT).

(2) Population: based on 2.7 percent annual increase.

(3) Appear to be in error; deficit should be 134,000 MT.

(Enger and Smale 1979 Vol. II:B6)

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GENERAL BUDGET OF THE LIVESTOCK SERVICE 1978-1980
(in millions CFA Fr)

	1978	1979	1980
Personnel	271.9	301.0	347.7
Equipment and Materials	42.0	49.0	49.5
Operation and Maintenance	92.7	62.6	63.9
Other Costs	20.5	19.1	17.6
TOTAL	427.1	431.7	478.7

(USAID 1983a:151)

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Adegbola, O.
1977 New Estimates of Fertility and Child Mortality in Africa, South of the Sahara. Population Studies 31(3):467-486.

A population analysis was done to update information contained in "The Demography of Tropical Africa". The original method of calculating fertility and mortality estimates for the nations and a number of subnational areas in tropical Africa is explained. These new estimates are improved because new data have come to light and because a modification of the original estimating method is used. Mortality and fertility estimates for all tropical African countries are presented. Diagrams show the differences between unadjusted and adjusted data for Swaziland. Maps are used to present the regional variations in both mortality and fertility. The final estimates must be considered with reservations due to the fact that censuses on which the rates were based occurred several years previously.

Key Topics: Demography; population; fertility; morbidity and mortality.

Alatine, Ag Arias and Edmond Bernus
1977 Le jardin de la sécheresse, l'histoire d'Amurnenag Amastan. Journals des Africanistes 47(1):83-93.

This article reports the recent history of a Tuareg, Amumen Ag Amastan, and his family in the region of Azelik, central Niger. Amumen represents many Tuareg individuals who, having lost their herds during the Sahelien drought of 1972-1974, were forced to undertake cultivation in order to survive. Amumen created a small irrigated garden in a region not conducive to this activity. Nevertheless, he was able to hold on for two or three seasons until he had regained a small herd and could resume pastoralism. The authors conclude that this case represents the ability of nomads to provisionally alter their production systems during times of hardship. However, a return to nomadic pastoralism remains the ultimate goal.

Key Topics: Livestock, nomads and pastoralism; socio-economic data; ecology.

Anonymous
1979 Family Planning Policies and Availability of Abortion. People 6(4):7.

Family planning policies and the availability of abortion are presented in table form for the following countries: Afghanistan, Algeria, Bahrain, Bangladesh, Chad, Egypt, Gambia, Guinea, India, Indonesia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, Mauritania, Somalia, Sudan, Syria, Tunisia, Turkey, Uganda, United Arab Emirates, Union of Soviet Socialist Republic, Yemen Arab Republic, and the People's Democratic Republic of Yemen. Abortion laws vary widely from country to country, and there is frequently a substantial gap between law and practice. In most countries abortion is available where there is risk to the woman's life.

Key Topics: Population; family planning.

Arnould, Eric J.
n.d. A Cure for Idle Talk: Periodic Markets in Zinder Province, Niger Republic.

In this paper, a regional systems analysis is conducted using price and locational data collected in 1978-1979. The annual behavior of monthly prices between 13 pairs of periodic markets for over 20 products is described to generate hypotheses about overall market structure and efficiency. Different structures and efficiencies in handling different products are revealed. Data on inter-market relationships drawn from two types of interview sources is compared and local market subsystems among the 70 regional periodic markets identified. The identification of market structures and efficiencies is suggested as a tool both for planning and evaluation.

Key Topics: Markets and marketing; trade and exchange; economics.

Arnould, Eric J.

n.d. Marketing and Social Reproduction in Zinder, Niger Republic. In Households: Comparative and Historical Studies of the Domestic Group, Robert M. Netting, Richard R. Wilk, and Eric J. Arnould, eds. Los Angeles, CA: University of California Press.

Household form and tasks in three Hausa communities along a rural-urban continuum are examined. Vital notes, marriage patterns, divorce, household size and composition are compared. Factors contributing to the variability in household task performance in the areas of production, distribution, transmission, pooling, reproduction and co-residence are discussed. Data from Zinder is compared with similar materials collected in Niger and northern Nigeria. A redefinition of gandu, gida, gamana, and iyali, based upon emic concepts of household form and function is proposed.

Key Topics: ***Family and household; production factors; social organization; urban and regional studies.***

Arnould, Eric J.
n.d. The Market is a Game of Chance. Mobile Traders in Zinder. Manuscript.

The study describes the social origin, and trading practices of a group of about 1400 periodic market traders interviewed in 1978-1979. A regression analysis of the possible determinants of trader profits is reported. It shows an inverse relationship between length of time trading and profitability and positive relationships between rapidity of inventory turnover, livestock sales, and profitability among other factors. Average profit was about 16 percent. The study contradicts research which posits a large class of merchant middlemen who extract surplus from the rural peasantry. Data from Zinder shows that most traders are in fact farmers and few realize windfall profits from their commercial ventures.

Key Topics: Markets and marketing; social stratification; socio-economic data; trade and exchange.

Arnould, Eric J.
1981 Petty Craft Production and the Underdevelopment Process in Zinder, Republic of Niger. Dialectical Anthropology 6(1):61-70.

This paper reports on the impact of the modern capitalist economy upon petty commodity production in Zinder, a regional capital in southcentral Niger. Traditional conclusions about the inclusion of indigenous economies into metropolitan economies assume that craft production will be eliminated, or will expand due to new markets, communications, and transport. In this case, however, within a landscape of overall stagnation in craft production, the situation of particular crafts varies depending upon the forms of their resistance to, inclusion within, adaptation to, or competition with the capitalist economy.

Historically, Zinder has been a large market servicing the trans-Sahara trade and, more recently, it has become the departmental locus of export agricultural production. Because of this area's reliance upon small peasant producers rather than large plantations, crafts which serve the agricultural community have survived due to their low cost compared to imported goods. The absence of an entrepreneurial class capable of investing in light industry, also has allowed the retention of craft productions with low manufacturing overheads. Other crafts such as jewelry, tourist goods and weavings continue to exist because they are highly regarded or have secured a specialized niche.

On the other hand, those crafts which compete directly with cheap or efficient European goods such as textiles and mining commodities have all but ceased to exist. The article concludes that interventions designed to revitalize many of these crafts are doomed to fail and any programs should combine indigenous skill with more modern equipment, markets, and techniques.

Key Topics: Arts and crafts; development; markets and marketing; small-scale enterprise and micro economic studies.

Arnould, Eric John
1982 Regional Market System Development and Changes in Relations of Production in Three Communities in Zinder Province, The Niger Republic. Ph.D. dissertation, Anthropology Department, University of Arizona.

(Author's abstract, pp. xix-xx in dissertation):

A model for the explanation of socioeconomic change in West Africa is presented, and tested with data from Zinder province, Niger Republic. A Marxist social formation analysis provides a model of change and continuity in peripheral, precapitalist modes of production, and economic causality. A regional marketing systems analysis elaborates on the effects of exchange systems upon production systems and suggests quantitative data by which the Marxist model is tested.

Marketing arrangements in Niger are discussed. An analysis of the Nigerien economy is presented. The way French, EEC, and Nigerien government policies have shaped the extraversion, mercantilism, and dependence of the economy is clarified. Then, the manipulation of exchange and production within Niger by state marketing agencies is explored.

A regional systems analysis of marketing in Zinder province is carried out, including the system's history since precolonial times. The modern systems are described with price correlations, commodity flows, mobile trader circuits and strategies, and consumer behavior.

Marketing and relations of production and reproduction in three communities, an agricultural village, a pottery-producing one, and a handicraft tannery were linked. Variations in household morphology and task performance, in gandu and master-apprentice workshop organization, in specialization in output, and in exchange and distribution of resources are related to the hierarchical position and functions of markets in which each community has participated historically.

The key hypothesis was confirmed: local modes of production are now articulated with the modern world system. However, local modes have not been completely transformed from their antecedents. The structure of exchange makes it advantageous for foreign entrepreneurs and the Nigerien government to allow local modes to persist, while decapitalization, and tenacious political and reproduction relationships discourage transformation analysis, a rich and testable description of the factors both facilitating and impeding changes in articulated modes of production was obtained.

Key topics: Markets and marketing; production factors; economics.

Arnould, Eric J. and Helen K. Henderson
1982 Women in the Niger Republic. Working Paper No. 1. Women in Development Program, Office of International Agriculture Programs, University of Arizona.

A preliminary report prepared for the Consortium for International Development/ Women in Development Project (AID/OTR-g-1871). The report is divided into three sections which correspond to the three main regions of Niger for which information about women is available. The three regions are: the Western, or Niger River Region; the Northern Region; and the Center and Ader-Doutchi-Majia Region. Eight topics are discussed under each section: agricultural production; local manufacture; commerce and professions. Discussion of each topic includes women's access to resources and government policies and programs affecting women. The report divides the Nigerien society into five major ethnic groups: Zarma-Songhai; Hausa; Kanuri; Fulani; and Tuareg. The report is useful in that it synthesizes information available on women in Niger.

Key Topics: Women in development; agriculture; small-scale enterprise and micro economic studies; social organization.

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Baier, Stephen Brock

1974 African Merchants in the Colonial Period: A History of Commerce in Damagaram (Central Niger), 1880-1960. Ph.D. dissertation, The University of Wisconsin.

(Author's abstract):

The trade of precolonial Damagaram, a state of the Central Sudan, took place in two largely separate spheres. The first form of long-distance trade, the internal exchange of staples, depended on the seasonal participation of both nomadic and sedentary peoples. The second, the trans-Saharan trade, was in the hands of North African expatriates who broke bulk and collected products for export. Local merchants also took part in trans-Saharan trade, though they lacked the capital of the North Africans and operated on a smaller scale.

European capital entered the trading network at Tripoli, where wholesale firms accepted merchandise on credit and loaned it out to Berber traders from Ghadames who ran caravans across the desert. The volume of trade between Tripoli and Damagaram decreased after 1900, and trade ended in 1911 when the railway arrived in Kano, cutting transport costs south toward the coast. As trans-Saharan trade ended, the structure of credit collapsed along with it, depriving Damagaram's merchants of an important source of trade capital. North Africans, living in Damagaram had particularly difficult adjustments to make.

The decade of 1910-1920 was a time of hardship for the merchants of Zinder, the capital city. A famine followed the end of the trans-Saharan trade, and restrictive policies of the colonial government, such as forced labor, requisitions, forced military opportunity in Nigeria attracted immigrants from Niger, and harsh French rule drove trade and markets across the border. Most damaging was colonial monetary policy, which encouraged speculation in currency. Into this situation stepped a French merchant, who set up a distribution system built upon a network of African client traders.

Meanwhile, local trading networks were evolving in response to changing patterns of demand. A serious disruption in trade along the desert edge occurred in 1916 with the revolt of the Tuareg of the Air. The salt trade, encouraged by particularly favorable terms of trade, recovered in the 1920's and 1930's. The livestock trade expanded rapidly after 1900, drawing new groups of merchants into the trading network. Before 1940 cattle traders typically had small-scale, seasonal enterprises, but recently professional merchants from towns have dominated the trade. Despite the efforts of Europeans to gain a foothold, the livestock trade remained in the hands of Africans. In general, family firms in Damagaram failed to last beyond a single generation, except among the North Africans. In interviews traders

blamed the high level of risk in the cattle trade, since most rurally-based merchants participated in this form of commerce at some point in their careers. Another reason was the structure of the kinship system. Rather than taking some into their enterprises, traders recruited junior partners among their clients and controlled them through arranged marriages. Traders preferred to have their own daughters marry their clients.

An interesting example of a trader who was able to prosper in competition with European oligopoly is the case of Al-Hajj Moctar bin Sharif, a Ghadamsi merchant of Zinder. Key elements in his success were diversification, a far-flung distribution network, and his ability to draw upon local, North African, and European commercial traditions. Few local merchants were as lucky as Moctar; most had to assume subordinate roles in the commercial hierarchy dominated by expatriate firms. Nevertheless local merchants made modest gains in the export trade just before independence by using their newly-won political influence, and they continued the process of expansion and adaptation in the internal trade which they began many decades earlier.

Key Topics: Markets and marketing; trade and exchange; colonization; language and ethnicity; nomadic-sedentary relationships.

Baier, Stephen
1980 Long-Term Structural Change in the Economy of Central Niger. In West African Cultural Dynamics, B. K. Swartz and Ray Dumett, eds. Pp. 587-602. The Hague: Mouton.

This useful paper looks at long-term changes in patterns of interaction between sedentary agriculture, pastoral nomadism, and commerce as economic sectors in central Niger (Zinder and the Air) and places them within the context of the larger regional economy. Baier covers the precolonial Tuareg-dominated economy, regional economic growth to 1900 (impact of the Sokoto caliphate), the economic crisis of the early colonial era in central Niger, and the eventual growth of new Tuareg and Hausa commercial networks based, as in the past, on clientage.

Following Frederick Barth, Baier suggests that some of the differences between a "volatile" pastoral economy and a stagnant agricultural economy stem from the nature of their basic productive resources: herds (which reproduce themselves but are also perishable), versus land (which could be "increased"—i.e., more land brought into production—only through access to additional labor). Baier argues that agricultural production can "bounce back" more quickly after drought, while pastoral production recovers slowly through the slow regrowth of herds. In the pre-colonial era the Tuareg therefore spread their risks by investing some of their pastoral profits in sedentary agriculture (such as estates of settled dependents of servile classes) and in commerce.

The French conquest devastated the Tuareg economy and destroyed Tuareg military power by about 1918. Meanwhile better conditions in British ruled Nigeria stimulated migration of sedentary peoples to the south as well. A period of drought in about 1911-1914 added to the local crisis in Niger.

French monetary policy caused further hardships in the first 30 years of colonial rule: "local people devalued silver of large denominations because of the scarcity of small coins", and paper currency due to termite risks as well as the small coin problem, creating a brisk black market from which the French administrators and military personnel profited (p. 595).

As conditions improved in the 1920s, both Tuareg and Hausa traders (in the Zinder/Air regions) created commercial firms based on the use of non-kin clients. Patrons used arranged marriages to further integrate "trustworthy" clients into their households (a well-known "traditional" Hausa way of creating commercial firms—e.g., see Abner Cohen on Hausa traders in Ibadan). In a significant contrast with the agricultural and pastoral sectors, these trading firms provided a means of passing on capital from one generation to another: a patron's personal wealth tended to become tied up as trading capital for his clients/junior partners—usually <u>not</u> own sons—and hence to

avoid being distributed among his legal heirs (as prescribed by locally practiced versions of Islamic law, favoring male kinsmen) when a senior partner died.

Baier notes that one important change since the pre-colonial era is the increasing difficulty of moving resources (labor and capital) back and forth among the three sectors (agriculture, pastoralism, and commerce).

Key Topics: Nomadic-sedentary relationships; trade and exchange; colonization; economics; language and ethnicity; social organization.

Baroin, Catherine
1977 Effets de la colonisation sur la société traditionnelle Daza (République du Niger). Journals des Africanistes 47(2):123-131.

The Teda-Daza ethnic group occupies a territory on both sides of the Niger-Chad border near Lake Chad. This article outlines the effects of colonization on the society. Although the precolonial society was not very well known by westerners, the author uncovers certain characteristics such as: a segmentary lineage spatial organization; unstable political power based on warfare capabilities; and the relationship between the Daza and their socially integrated blacksmiths the Aza, who depended upon the Daza for protection and subsistence.

The French profoundly transformed the traditional system. Under pacification the spatial organization of the clans disappeared and was replaced by an administration created by the French. The relationship between the Daza and the Aza has become a commercial rather than a patron-client one, reflecting the monetarization of the entire economy. The Daza have retained many of their traditional customs although their significance is more symbolic than real.

Key Topics: Colonization; social organization; socio-economic data.

Barou, Jacques
1976 L'émigration dans un village du Niger. Cahiers d'Etudes Africaines 16(63-64):627-632.

(Author's abstract):

The economy of the formerly agricultural Hausa village of Affala is now based on wages remitted by young male migrants. Three types of migrants can be distinguished: short range, to urban centers in the Niger Republic itself; middle range, to big West African cities (Dakar, Abidjan); and long range, to France. The migrants re-group and organize according to village affiliations and tend to keep aloof from the foreign milieu.

Key Topics: Socio-economic data; migration, settlement and resettlement; social organization.

Beauvilain, Alain

1977 Les Peul du Dallol Bosso. Niamey: Institute de Recherche en Sciences Humaines. Etudes Nigériennes No. 42.

This volume of the research series, Etudes Nigériennes, is an ethnographic study of the Fulbe people of Dallol Bosso. Located about 100 km east of Niamey, Dallol Bosso is a heavily populated valley stretching over 300 km, north to south, between the borders of Mali and Benin. Easy access to abundant water on the valley floor allows the region to support a population of over 180,000 people. The author examines the interaction between the 33,000 Fulbe pastoralists and agropastoralists and their interaction with the more numerous sedentary cultivators in the valley. After detailing the climatic and ecological nature of the valley and its surrounding area, the author examines the Fulbe through three different but complementary approaches: (1) their place in the historical, political, migratory and demographic aspects of the region; (2) the agricultural practices of the Fulbe in specific locations; and (3) their pastoral activities and economic processes of the nomadic-sedentary relationships. Of particular interest is the detailed analysis of the migratory behavior of over 50 Fulbe units. Accompanied by maps and charts, the analysis relates herd and herder demographics with ecological and economic factors to present the strategies individual family groups follow during the course of the seasons.

Included in this study is an account of the behavioral alterations undertaken by the Dallol Bosso Fulbe in reaction to the conditions during the Sahelian drought of 1973-1974. Overall, the region lost almost 75 percent of the animal population, making it impossible for many families to remain in pastoral production. The drought forced all families to adjust their seasonal movements in accordance with the changed climatic conditions.

Key Topics: Agriculture; nomadic-sedentary relationships; ecology; migration, settlement and resettlement.

Beauvilain, Alain

1977a Les Peul du Dallol Bosso et la sécheresse 1969-1973, Niger. In Stratégies pastorales et agricoles des Sahéliens durant la sécheresse 1969-1974, Jean Gallais, ed. Bordeaux: Centre d'Etudes de Géographie Tropicale (CNRS).

(Editor's summary):

In the Dallol Bosso, a fossil valley to the east of Niamey, and following the famine periods of 1900-03, 1911-14, 1926-27, 1930-31 and 1954 which produced serious demographic consequences, the drought of 1969-73 struck a region that is overexploited both as respects agricultural as well as pastoral activities.

For a number of years, the lack of sufficient rainfall has severely--and the effects will linger for some time to come--affected the planted vegetation. On the other hand, the capacity of recovery of the herbaceous pastures aided, beginning in 1974, a return to a normal situation.

The drought has shown that by fertilizing their fields the Peul farmer-animal raisers experienced a lower rate of reduction of their output while their animals continued to provide a steady source of income. The cattle losses, close to 90% near the Mali frontier but dropping sharply towards the South to attain but 10 to 20% near the Niger river, have created a range of reactions that are appropriate to their amplitude and which are based on the traditional forms of the raisers.

Food distribution, effectively put into operation beginning in 1974, enabled the population groups that were the hardest hit to survive and limited the number of forced migrations.

Key Topics: Drought; mixed farming; relief actions.

Beauvilain, Alain

1979 Eleveurs et élevage le long du fleuve Niger dans le département de Dosso (Niger). Cahiers d'Outre-Mer 32(125):66-102.

The twice annual rising of the river and the large areas flooded during the dry season give the Niger valley in the Dosso Department a rich natural potential. This sparsely populated valley attracts many Fulbe herders who follow the river into two fossil valleys and up onto the plateau in order to procure year round green forage. The quality of the animals and the proximity of regions lacking in meat renders this activity profitable.

As an answer to drought, a large dam accompanied with agricultural projects is planned to be constructed up river from Niamey. This article argues that for the entire region not to be upset, local flooding should be allowed to continue and the project should encourage associated development of agriculture and animal raising for the benefit of all.

Key Topics: Development; ecology; production factors.

Beik, Janet

1982 National Development as Theme in Current Hausa Drama in Niger. Paper presented to the Annual Meeting of the African Studies Association, Washington, D.C.

This paper includes a 10-page analysis of the play Ba Ga Irinta Ba ("There's Nothing Like It") which deals with problems of modern schooling in Nigerien society, and a 12-page analysis of Dan Kwangila ("The Contractor"), which deals with a corrupt contractor and thus with corruption in modern government, as well as nationalization of the labor force and related issues. The first play won first prize in a drama at the 1980 Festival National de la Jeunesse; it was presented by the Zinder theater troupe. The second play won first prize in drama for 1981; it was presented by the Maradi troupe.

Key topics: Education and extension; national government and state formation.

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Belloncle, Guy

1980 Femmes et Dévéloppement en Afrique Sahélienne. L'expérience Nigérienne d'animation feminine (1966-1976). Collection Développement et Civilisations. Dakar: Nouvelles Editions Africaines (also Paris: Editions Economie et Humanisme). Les Editions Ouvrières.

Although published in 1980, this volume is based on a report prepared by Belloncle with World Bank funding in 1975 entitled "Problèmes posés par la promotion de la femme rurale en Afrique de l'Ouest. Les leçons de l'expérience nigerienne d'animation feminine", 1975, in French and English, IRAM and World Bank. The 1980 volume includes some material, notably a 39-page summary of "promotion feminine" activities in Mali.

Belloncle begins with a brief history of the operations of the animation feminine program and a summary (pp. 26-44) of "the situation of Nigerienne women." In Part II, pp. 55-104, four chapters describe programs undertaken in the four major areas: (1) health (training of "matrones;" nutrition and weaning; anti-malaria); (2) elevage (a poultry program and a goat program); (3) agriculture; and (4) water and wood.

In part III, pp. 105-182, a number of animation feminine training materials, questionnaires used in village level surveys on women's concerns, etc. are presented (references to these are found in the earlier chapters). The book concludes with the summary of "promotion feminine" activities in Mali referred to above.

Belloncle argues (pp. 99-104, Conclusions) that animation feminine activities up through 1975 resulted in several positive outcomes: (1) a sound knowledge of the real situation of women in Niger, on the basis of which both future programs and action and the training of personnel can be more soundly based; (2) through trial and error, animation feminine has arrived at some workable methods--among which it is worth noting that the Nigerienne program did <u>not</u> depend on functional literacy programs as a first step for improving the situation of women (p. 100).

Belloncle also argues that a structural change would work to the advantage of animation feminine programs: he suggests removing it from the service of Promotion Humaine (where animation programs for men and youth are also found), and moving the program instead "aux structures chargées de promouvoir le développement rural" (p. 103).

The chapter on animation feminine actions in the area of agriculture (pp. 90-98) is of special interest. Belloncle notes the serious problem of maintaining soil fertility under traditional land use patterns in Niger; he notes the extensive involvement of women in livestock activities (see preceding chapter); and he calls for a new effort to maintain soil fertility through

"mixed farming," with animals kept penned or staked, year around, in the agricultural zone. He notes that women are unwilling to take on the additional labor this would entail (carrying food, watering animals, caring for them, etc.) without some renegotiation of the distribution of benefits between the sexes--for example rights to the use of manure for fertilizer.

Key Topics: ***Women in development; education and extension; health and nutrition; agriculture; livestock, nomads and pastoralism.***

Belloncle, Guy and Georges Fournier
1975 Santé et développement en milieu rural africain: réflexions sur l'éxperience nigérienne. Paris: Les Editions Ouvrières.

An essential history and evaluation of the attempts to introduce village health teams in Hausa-speaking rural Niger in the 1960s. Belloncle is a specialist in rural animation, having been involved for many years in the cooperative and literacy programs in Francophone West Africa. Fournier is a physician, who was Maradi Department Health Director in the early 1970s. From their consideration of the experiments during the Diori administration, the authors respond positively to the question: Is it possible to achieve enduring and effective sanitary protection in rural areas of African countries given the economic impossibility of markedly expanding capital intensive health facilities and professionally qualified health personnel. It is significant that the policies which informed the secouriste-matrone program in the 1960s are identical to those elaborated in the current Five Year Plan:

(1) The priority is to be on the rural milieu rather than the urban.
(2) Priority is on public health (medicine de masse) rather than on individual.
(3) Priority is on preventive rather than curative actions.
(4) Priority will be given to health education (p. 26).

The authors note that for the program to succeed there must be effective collaboration between personnel in the health and animation administrations at all levels, and they do not underestimate the difficulties involved in achieving it. This little book should be required reading for persons responsible for design, implementation, and evaluation of rural health programs in Niger. It makes no mention, however, of the potential contribution of the traditional health delivery system, an assessment that remains to be made.

Key topics: Education and extension; health delivery systems.

Bellot, Jean-Marc
1980 Les femmes dans les société pastorales du Gourouol. Cahiers d'Outre-Mer 33(130):145-165.

This study examines the social and economic role of Fulbe and Bella pastoral women in the northwest corner of Niger bordering Mali and Upper Volta. Although the Islamic tradition of these societies associates a woman's status with that of her father and, later, her husband rather than her own economic activities, the day-to-day existence of their respective groups depends partly on the income women derive from their craftsmanship and commerce. Any interventions to increase animal milk production will enhance womens' important role in the familial economy.

Key Topics: Women in development; social organization; livestock, nomads and pastoralism.

Belsey, M. A.
1976 The Epidemiology of Infertility: A Review with Particular Reference to Sub-Saharan Africa. Bulletin of the World Health Organization 54(3):319-341.

Epidemiological aspects of infertility in sub-Saharan Africa are reported. In many areas of the region, as many as 40% of the women complete their fertile life without having given birth. The explanation of childlessness in terms of primary and secondary infertility, fetal loss, and infant and child mortality does not sufficiently reveal the scope of the problem. It appears that the principal underlying cause for this high degree of infertility is obstructive azoospermia and tubal occlusion resulting from Neisseria gonorrhea infection. Systemic infections and infections following abortion and pregnancy may figure importantly in childlessness in some areas. The data reveal differences in patterns of fertility and fetal loss and between etiologic agents and processes in the various areas.

Key Topics: Health and nutrition; fertility.

Benyoussef, A. and H. Zollner
1974 Health, Population and Development Health Service Delivery in the Third World. In Demographic Aspects of Socio-Economic Development in Some Arab Countries. Research Monograph Series No. 5. Pp. 57-80. Cairo, Egypt: Cairo Demographic Centre.

Health, preventive medicine and health care services, is an important part of the development process. In many developing areas the health situation is desperate. In tropical Africa the expectation of life at birth is only 45 years; in southern Arab countries the life expectancy was only 42 years from 1965-69. Mortality in the 0-5 years age group accounts for the major share of overall mortality. Better health means an increase in the rate of population growth. Rural-urban migration can be the cause of chronic physical diseases and mental disorders. Nomads, migrant workers, and tourists are often carriers of special diseases. Stable government, progress in education, and road communication are the most important factors in developing health care delivery systems. Safe drinking water, nutritious food, better sanitation, and more recreational facilities contribute to good health. Country illustrations of health care systems are given for Niger, Egypt, Tanzania, Venezuela, and China. In one generation China has made the greatest gains by building up public health and primary medical care services in rural areas. Health care is regarded as part of overall development planning.

Key Topics: Health and nutrition; health delivery systems.

Bernus, Edmond
1963 Quelques aspects de l'evolution des Touareg de l'ouest de la République du Niger. Etudes Nigériennes No. 9.

This report on a seven month study, August 1962 to March 1963, describes the changing social, political, and economic institutions of the Kel Tamachek Tuareg in the Sahel region of western Niger. The author finds the extremely hierarchical Tuareg in full revolution as a result of the accelerated emancipation of enslaved classes by French colonization. Among the Tuareg, this volume distinguishes pure nomads, subsisting entirely from pastoral activities, from semi-nomads, who participate in pastoral and agricultural practices, and the sedentarized groups who have abandoned nomadism for village cultivation.

Addressing the societies' internal problems of transforming a feudal system within a modern state and external problems of increased contact with other nomads and sedentary cultivators, Bernus finds that the different Tuareg classes react to changing conditions in different ways. Upon leaving their masters, many of the 'Iklan', enslaved classes, found themselves without animals and in need of locating fields to cultivate. On the other hand, many groups with animals were taking advantage of new, permanent wells installed in the area, spending more time at one location with the increased danger of overgrazing. The author concludes that it is important to note that there is not one, single solution to the problems facing the various Tuareg groups. Every group and region must be studied individually to find the most economically and socially feasible solutions to the problems of transformation.

Key Topics: Social organization; nomadic-sedentary relationships; social stratification; development.

Bernus, Edmond

1975 Les composantes géographiques et sociales des types d'élevage en milieu touareg. In Pastoralism in Tropical Africa, T. Monod, ed. Pp. 229-244. London: Oxford University Press for International African Institute.

(Author's abstract):

The territory inhabited by the Tuareg is extensive, extending from North to South across the Saharan, Sahelian, and Sudanese climatic zones. Thus geographical conditions vary considerably within the area, and Tuareg pastoral society has had to adapt its way of life, and its animal-raising techniques in particular, to these different conditions.

Geographical constraints

Rainfall declines from Nigeria to the Ahaggar, with the most irregular rainfall in the driest areas. The plant cover, which is relatively unbroken in the Sudanese zone, withdraws in the Sahelian zone into the valleys and low-lying areas between the dunes, and disappears almost completely in the Saharan zone, providing only short-lived and irregular pasture, both in time and in space. Apart from the southern zone this territory is inhabited exclusively by nomadic shepherds.

In the far north, in the Ahaggar, only goats can be raised; camels are restricted to a small number of transport animals. Thus the great herds of camels and sheep have to remain far from their owners, much farther south in the Tamesna, on the borders of norther Niger.

The Sahelian zone is the favoured area for raising camels and cattle, camels generally speaking where rainfall is between 100 and 200 mm., and cattle where rainfall is between 200 and 350 mm.

South of the 350 mm. rainfall-line annual crop-raising competes with stock-raising, and little by little the areas suitable as pasture for the four kinds of stock-raising are taken over by fields. Animals remain a serious threat to the crops, however, and have to be carefully controlled and periodically removed from the agricultural zone.

Social factors

The camel has always been associated with the image of the Tuareg. In fact Tuareg society, which is complex and hierarchical, used to be dominated by an aristocratic group (the Imajeghen) for whom the camel was part and parcel of their warrior traditions. The Imghad or vassal groups, who used to pay tribute to the Imageghen, are associated with goat-raising, and are often called Kel Ulli ('They of the goats'). Tuareg society has brought together in political federations men of widely differing backgrounds, by giving them a common language and culture.

This heterogeneity can be seen in animal-raising traditions, in social organization, and notably in the composition of marriage payments (taggalt), which in theory should consist of exactly the same number of animals for a daughter as for her mother. Among the Imajeghen it is obligatory to pay it in camels, without considering whether the zone of residence favours the raising of camels. Among the tributary (Imghad) and religious groups (Ineslemen) marriage payments are sometimes composed of camels in order to conform to the example set by the overlords. In many cases, however, camels may be replaced by cattle or by sheep and goats in accordance with a codified system of equivalence. Among former captives the taggalt is almost always made up of small livestock.

Current development

After resisting the European advance at the beginning of the century, and rising in revolt against the colonizing power in 1917, the warrior Tuareg society had to adapt itself to a new framework imposed from outside. Old political structures were deprived of their content and the influence of the Imajeghen over their dependants was weakened. The former political tribute (tiuse) could no longer be extracted by the overlords, since in the absence of war the protection offered in return had no value. The tiuse was replaced by a tax paid to the colonizing power by everyone, without distinction. The ancient bonds of dependence loosened; the Imajeghen could no longer regard themselves as the true owners of all the animals. Every group, every tribe, every family had from that time onward to provide for its own upkeep in its own way. The religious groups, the Ineslemen, profited from this development: they were granted chieftaincies which tradition had closed to them, while the religious tithe (tamasedeg) continued to be paid to them. This combination of religious and political roles sometimes resulted in the accumulation of wealth, and certain of the Ineslemen have built up considerable herds in this way.

Animal-raising became less rigidly specialized, each tribe attempting to acquire several sorts of animal. But if the Imajeghen have lost their power, they have retained much of their prestige, and remain the model towards which all social categories strive: thus former captives can be seen buying camels to bring themselves closer to this ideal model.

This diversification of stock-raising has led to a considerable increase in the size of the herds, and though one could mention qualitative changes, they are more noticeable in the quantitative level: with the progressive disappearance of shepherds of servile status, a shortage of manpower has become the most common problem. Differences of wealth are discernible between families, between tribes and between tribal confederations, and the concentration of some herds in a very few hands is a noticeable fact. Within tribes, inequalities of wealth are compensated for by the loan of dairy animals.

Though the privileged association between camels and warrior overlords can be found everywhere, social specialization in the kinds of animals raised was always most marked in the central Sahara, where the geographical constraints

were strongest. Now the opening of wells or bore-holes in the sahelian zone is counteracting the natural limitations of the environment by giving access to new pastures.

In the Sudanese zone, stock-raising on a large scale is only possible with careful organization, and has necessitated integration into a money economy: it is in this zone that the concentration of wealth in a few hands is most noticeable.

In this new setting, where geographical and political constraints are not as harsh as they once were, Tuareg society is attempting to preserve the framework of its institutions by giving them a new content.

Key Topics: Livestock, nomads and pastoralism; social stratification.

Bernus, Edmond
1975a Famines et sécheresses chez les Touaregs sahéliens. Africa 50(1): 1-7.

(Author's summary):

In periods of drought the shortage of forage foods has serious consequences for levels of nutrition. The basic foodstuffs of the Tuareg of the Sahel are milk and millet, in proportions that vary according to the time of year. The preparation of dishes, culinary techniques and customs surrounding meals do not differ at all throughout Tuareg country. In times of shortage, however, the basic rules of hospitality are threatened and dietary practices modified: millet bran is used, leaves and the fruits of certain trees are eaten and the seed of short-lived grasses that are resistant to drought are sought after. The temporary absence of the most commonly gathered foods forces nomads to fall back on those few plants that have not disappeared: alternative foods allow them to survive until better years return.

Key Topics: Pastoralism; drought; famine; food production.

Bernus, Edmond
1977 Les tactiques des éleveurs face à la sécheresse: le cas du sud-ouest de l'Aïr, Niger. In Stratégies pastorales et agricoles des Sahéliens durant la sécheresse 1969-1974, Jean Gallais, ed. Bordeaux: Centre d'Etudes de Géographie Tropicale (CNRS).

(Editor's summary):

The specific and differentiated reactions of nomad animal raisers confronted with the same problem, drought, and in a similar context and setting, the plateaux of the southwestern sector of Aïr, are here analyzed. The Wodaabe Peul left the region in 1971, while the Kel Tamasheq remained and continued to occupy the area in spite of the departure of some families. An attachment to the traditional physical conditions of life, adherence to an aristocratic form of society--to a centralized chieftancy as regards the Kel Tamasheq, who have their own ideas concerning the employment of space--define these opposite types of comportment and account for the great ability of the Peuls to adapt to a new situation. The animal raisers who remained in place had to confront the famine by making use of the vegetation that was still available: those who possessed herds of mixed animals, camels and goats, were able to continue to migrate, while those who were the most poorly equipped were grouped in distribution centers. Some animal raisers sought replacement solutions: business reconversion for the Arabs belonging to groups having an allegiance to the Touaregs, attempts at irrigated agriculture near the stagnant pools and wells for the Kel Tamasheq. With such attempts, often of a temporary nature, these animal raisers manifested their desire to seek solutions without waiting passively for aid.

Key Topics: Drought; pastoralism; livestock; ethnicity.

Bernus, Edmond

1979 Le contrôle du milieu naturel et du troupeau par les éleveurs touaregs sahéliens. In Pastoral Production and Society, L'Equipe Ecologie et Anthropologie des Sociétés Pastorales, eds. Cambridge: Cambridge University Press.

(Editor's summary):

This text shows how the Twareg herdsmen developed a rational exploitation of their sahelian pastoral milieu, taking into account the discontinuities of its potential in space and in time.

One can distinguish stable resources and variable resources in the domains of forage and of water. In the former category belong the arboreal pastures and the permanent surface waters (rivers, lakes, springs) or deep underground waters (wells). The latter consists of herbaceous pastures, composed in the majority of "annual" species and surface waters (ponds) or shallow underground waters (draining wells) that reflect the conditions of rainfall throughout the year and therefore vary in time and in space. During two months of the rainy season the nomads exploit pastures with high but ephemeral yield, and mineralized waters ("salt cure") in a micro-region that can receive, during a brief period, innumerable herds while the ponds have water. For the other nine to ten months, they exploit pastures with a lower yield, but whose arboreal resources permit a permanent utilization.

Twareg herd management is the result of choices that are reflected in the types of stock adopted, the variety of animals sought by means of more or less supervised crossbreeding, and the prestige accorded to the camel. The births of small stock are controlled according to pastures and movements. Twareg herd management, rich in diversity, allows for a good reconstitution of the ecosystem (after the recent drought), better than would a total restriction of access.

Key Topics: Pastoralism; ecology; range management.

Bernus, Edmond and Suzanne
1972 Du sel et des dattes, introduction a l'étude de la communauté d'In Gall et de Tegidda-n-tesemt. Etudes Nigériennes No. 31.

A preliminary assessment of the sedentary towns of In Gall and Tegidda-n-tesemt which subsist on the production and marketing of date and salt within a pastoral region. Study of the townspeople often has been neglected by researchers, who have favored working in the nomadic community. When they have dealt with the town dwellers, researchers often have referred to them as the descendents of captured slaves, accepting without question the nomadic-pastoralists' view of them.

However, the history of the communities remains unclear. Considerable archaeological and historical research is imperative before anything definite can be said. This study of the organization of palm groves and salt production and the exchange of dates and salt on the local market attempts to create a starting point for works to come which will provide more information about the ancient history of the region.

Key Topics: ***Production factors; trade and exchange; nomadic-sedentary relationships.***

Bernus, Suzanne
1969 Particularismes ethniques en milieu urbain: l'example de Niamey. Paris: Institute d'Ethnologie.

This book questions the traditional conclusion that non-western people lose their ethnicity when living in large cities in close contact with westerners and members of other ethnic groups. Bernus argues that the process of social change in cities is much more complicated with some traits being lost, some transformed, and some remaining intact. Taking the example of the city of Niamey, she examines its geography and history, urban economy, differential ethnic adaptation, and the interaction between groups. She concludes that ethnicity remains a very important factor in determining lifestyles, the degree of westernization, and socio-professional stratification.

Key Topics: ***Language and ethnicity; social stratification; urban and regional studies.***

Bonte, J. and A. Kuhner
1971 Recent Levels, Characteristics and Trends of Mortality in Africa. Paper presented at the United Nations Economic Commission for Africa, African Population Conference, Accra, Ghana.

The crude birthrate in Africa is estimated at 45/1000; the crude death rate is estimated at 21/1000. Both rates are the highest in the world. Mortality in Africa is regarded here as a public health problem rather than as a demographic issue. Emphasis is on analyzing causes of death. Generally, mortality estimates in Africa are too low than too high. Western and Central Africa have the highest mortality. The individual countries in these two regions show crude death rates of more than 25/1000 population. Crude mortality in North Africa is almost as high as in Western and Central Africa. East Africa occupies a middle position, with an estimated crude death rate of 17/1000 population. The mainland countries--with the exception of Ethiopia and the two Somalias, for which there is no information--have a mortality of about 20/1000 population. The estimated crude mortality for Southern Africa is 16/1000 population. Except for a few countries, the data relate to the 1950s and early 1960s. The scanty data on male and female mortality suggest higher death rates for men than for women. In all countries except a few islands, at least 120 out of every 1000 live-born children die before age one year. Between 28 and 107 children per 1000 within the one to four year age group die. Very little information exists concerning African causes-of-death patterns. The leading causes of death among infants and children ages one to four are congenital malformations, enteritis, infectious respiratory diseases, malaria, malnutrition, measles, and tetanus. Among the remainder of the population, the leading causes of death are accidents, heart diseases, (infectious) hepatitis, infectious respiratory diseases, malaria, malignant neoplasms, maternal mortality, and trypanosomiasis.

Key topics: Demography; morbidity and mortality.

Bonte, Pierre

1979 Segmentarité et pouvoir chez les éleveurs nomades sahariens. Eléments d'un problématique. In Pastoral Production and Society, L'Equipe Ecologie et Anthropologie des Sociétés Pastorales, eds. Cambridge: Cambridge University Press.

(Editor's summary):

The pastoral nomadic Saharan societies present segmentary forms of organization often associated with a complex social stratification and with a developed political centralization. In this essay, data gathered from within these societies will be approached with reference to the theoretical mode of "stateless" societies in which the political structure is identical with the lineage relations of complementary opposition. This theory reduces kinship structures to the relations of descent exercising this political function, neglecting other factors and confusing the systems of complementary opposition established by lineal exogamy with the systems of competitive opposition peculiar to lineal endogamy ("Arab" marriage). Failing to pose clearly the problem of the pluri-functionality of the kinship structures which, aside from their proper functions, regulate relations in production, political relations, etc., it looks for the characteristics of political organization outside of kinship and stumbles upon the transformations of this political organization. This "theory of segmentarity" leads to the accentuation of the features of balanced functioning in these societies and even masks social stratification and political centralization where they exist. In the emirates of Adrar, the Kel Gress Twareg; two strongly stratified populations with non-identical degrees of centralization, the segmentary structures are transformed while continuing to subsist. In the case of the Kel Gress Twareg, certain structural characteristics of kinship (utilization of two forms of descent) appear to be an obstacle to political centralization. In the Moorish emirates, on the other hand, the mechanisms of segmentarity appear to be determined by centralized political structures.

Key Topics: ***Pastoralism; social organization; political organization; stratification.***

Bouchardeau, A.
1979 Rapport de mission au Niger, 13-25 février (pour aider à l'exécution du projet NER-79-006, approvisionment en eau). New York: United Nations Development Programme.

Report on mission to the Niger to help with the execution of a project (temporarily suspended until the Government sets up an appropriate administration) for the development of the country's water resources. Emphasizes the need for establishing a strong national water policy and for national and regional planning. Includes recommendations and notes on establishing institutions to manage water resources, formulating water policy and drawing up plans. Also reports briefly on a meeting of international experts concerned with policy in the use of water for agriculture and stock breeding in arid and semi-arid zones (Abstract from IESA/ISU Development Information System).

Key topics: National government and state formation; production factors; urban and regional studies.

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Bourgeot, André
1978 Les échanges transsahariens, la Senusiya et les révoltes twareg de 1916-17. Cahiers d'Etudes Africaines 18(1-2):159-185.

The institutional restructuralization of the Tuareg society by the French colonialists at the end of the 18th and early 19th centuries eventually resulted in the revolts against the colonial power in 1916 and 1917. In a race with the British for territory and control of the transsaharan commerce, the French seized the area between Senegal and Chad, controlling the caravan centers and the land needed for any transsaharan railroad. Their occupation ended the Tuareg domination of much of this area and over the trade which passed through, effectively undermining the protection payments and pillage which generated much of the wealth of the pastoral nomads.

A second structural change was the French insistence upon eliminating the traditional system of slavery among the Tuareg, thus threatening the political, military and economic superiority of the aristocratic lineages, and the transformation of the political system by appointing chiefs who would yield power, collect taxes and represent the administration.

Internal antagonisms erupted among the Tuareg with one group favoring peace and acceptance of domination by the French while the other adopted war, resistance and a return to their rightful place.

In the early 1900s the Islamic sect Senusiya, based in Libya, was attempting to expand its influence both religiously and politically; its goal was to create a new empire of African muslims and eliminate the less orthodox tendencies of Islam common to Africa. In the beginning, few Tuareg had heard of the Senusiya as their Islamic tradition rested with the Qadiriya sect and its system of Koranic schools. As the disenchantment of the Tuareg grew, the Senusiya leaders, having cultivated a taste for commerce and politics, knew to exploit the situation and sway many of the nomads with a platform for Islamic unity. Under the influence of religious warriors such as Kaosen, Firhun and Tegama, many Tuareg revolted against the French in Mali and Niger, hoping to internally and externally decide the future path of the area's political, economic, and military power.

Bourgeot concludes that by encompassing the Senusiya to revolt against the French, the Tuareg inserted themselves into the confrontation between the imperialist powers of the moment. Had the rebels won, the lines of power within the Senusiya would have passed control to the leaders in Libya and denied the Tuareg the independence they had been searching for.

Key Topics: Social change; colonization; trade; religion.

Bourgeot, André

1979 Structure de classe, pouvoir politique et organisation de l'espace en pays touareg. In Pastoral Production and Society, L'Equipe Ecologie et Anthropologie des Sociétés Pastorales, eds. Cambridge: Cambridge University Press.

(Editor's summary):

The purpose of this article is to analyse the utilization and organization of space in Saharan and Sahelo-Saharan Twareg societies with respect to ecological, technical, social, and ideological constraints.

The utilization of space is a fundamental part of the actualization of the process of production and intervenes simultaneously as one of the elements of the structure of this process that takes form through the social organization. Access to natural resources refers to two strategies. One is characterized by competition manifested at the level of the descendance group or at that of the political group. This sytem is based on a peaceful coexistence, on cooperation reinforced by unitary ideology and by the existence of areas of communal nomadisation. The other strategy is characterized by the transformation of competition into cooperation, implying the existence of relations of dependence and of classes. This transformation is realized either in the relations between ethnic groups with contradictory political and economic interests, or within the same ethnic group in which certain factions quarrel with one another over power.

Cooperation aims at political expansion and the generation of relations of dependence that are consolidated through the structure of the process of production, characterized, notably at its ultimate moment, by the social appropriateness of the product (collection of tribute).

A series of examples drawn from Twareg societies with comparable social structures, evolving under different ecological conditions, confirms that social organization is not determined by ecological conditions, but that the latter are integrated into the social relations of production and utilized politically. In the Twareg region, spatial segregation responds to the conditions of the control of space by the aristocrats, and one of its explanations lies in the necessity of exerting political and economic control over the dependents, which corresponds to one form of appropriation of space.

Key Topics: Pastoralism; stratification; social organization; political organization; ethnicity.

Bouvier, L. F.
1975 Africa and Its Population Growth. Population Bulletin 30(1): 1-28.

The economic growth; Africa--the continent; population growth; some views from Bucharest; family planning; and outlook for Africa are discussed in this bulletin. A table depicts the population of Africa, Europe and Asia in 1650, 1850, and 1900. A second table shows Africa's population in 1975 by country. Family planning in separate countries is discussed by the regions of Northern Africa, Western Africa, Eastern Africa, Middle Africa, and Southern Africa. Under Northern Africa, Algeria, Egypt, Morocco and Tunisia are included. Dahomey, Gambia, Ghana, Liberia, Mali, Nigeria and other Western Africa Francophone nations are discussed under the heading of Western Africa. The Eastern Africa discussion includes Ethiopia, Kenya, Malawi, Mauritius, and Tanzania; and Middle Africa includes Gabon and Zaire. Botswana and the Republic of South Africa are discussed under the heading of Southern Africa.

Key topics: Population; fertility; family planning.

Brenez, J. P.
1972 Some Thoughts on Demographic Surveys Among Nomadic Populations. In Population in African Development, P.Cantreile, ed. Vol. I:211-219. Dolhain, Belgium: Ordina.

The thoughts presented are based on the experience of conducting a demographic sample survey in the Islamic Republic of Mauritania in 1965. The intention is to extract from the experience some general solutions which could be applied to the collection of data from nomadic populations. In terms of the sampling plan, it is first necessary to state objectives and to make certain that there will be no major political, religious, or ethnic problems which would interfere with the proper conduct of the survey. It needs to be noted that it may take considerable time to complete a sampling plan. In settled areas the sampling units usually correspond to a unit which can be identified in everyday life, but the choice is more difficult in nomadic areas. Among the different methods which could be used are: sampling of tents, sampling of encampments, sampling of waterholes, and sampling of groups. In the Islamic Republic of Mauritania the sampling frame chosen consisted of a list of fakhads--fakhad is the smallest social unit with a truly autonomous customary organization--and the sampling unit was the fakhad. It was finally decided to study a chosen fakhad in its entirety, regardless of its size or the number of locations which had to be investigated. In terms of the psychological preparations for the survey, the objective was to put the population into a receptive frame of mind, to allay the fears that might arise, and to inform them of the objectives of the inquiry. The actual system of conducting the Mauritanian survey was extremely complex and, consequently, only an outline is provided in this report. This survey in Mauritania lasted about a year, from January to December 1965, and the enumeration included about 100,000 individuals. Although the results of this first national large-scale inquiry to be conducted in a Francophone country could have been better, it did provide proof that satisfactory statistical inquiries can be conducted in nomadic or semi-nomadic populations as long as certain conditions are fulfilled.

Key Topics: Demography; livestock, nomads and pastoralism; socio-economic data.

Cantrelle, P.
1975 Mortality: Levels, Patterns and Trends. In Population Growth and Socioeconomic Change in West Africa, J. C. Caldwell, ed. Pp. 98-118. Published for the Population Council by Columbia University Press.

Although there is still a lack of precise West African mortality data, the following general features are beginning to become clear: (1) a high level of mortality due to a very high mortality in childhood; and (2) large differences in the levels of mortality according to environment. The crude death rates in tropical Africa, which range from 15-40/1000, are among the highest in the world. Certain African data are compared with data of the same quality from other nonindustrialized societies. Statistics are given for death rates, probabilities of dying and mortality rates by age/1000 children. Causes of death are set forth, including accidents, mortality or obstetric mortality, smallpox, measles and diarrhea. Indicators of mortality rate, age-specific mortality, and the annual number of deaths from infectious diseases per 100,000 persons. However, few of the indicators can be justified on grounds of international comparability, so the best useful indicators are rates or probabilities of mortality during the second year of life. Information is finally provided on mortality variations according to environment, including agricultural production, climate, urbanization, and medical services.

Key topics: Demography; population; morbidity ard mortality; health and nutrition.

Cantrelle, P., B. Ferry and J. Mondot
1978 Relationships Between Fertility and Mortality in Tropical Africa. In The Effects of Infant and Child Mortality on Fertility, S. H. Preston, ed. Pp. 181-205. Academic Press.

Retrospective surveys provide the principal data for examination of cross-sectional relations between mortality and fertility for several African countries. In addition, the length of periods of lactation and postpartum amenorrhea are examined as influences on fertility and mortality. Analysis of this data confirms the absence of a strong positive relationship between the total fertility rate, infant mortality rate, and second-year mortality rate in tropical Africa. A systematic inventory of currently available quantitative knowledge relative to intermediate variables such as length of breast-feeding and postpartum amenorrhea, and to pathological factors such as infection and nutrition, is highly desirable. It is probable that control of infectious diseases in tropical Africa would result in a rise in fertility, while the influence of nutrition factors on fertility remains in the realm of hypothesis. The importance of lactation is stressed, since it has an influence on fertility, on childhood health, and therefore on mortality. Available survey data are presented on duration of breast-feeding and postpartum amenorrhea, and between duration of breast-feeding and birth intervals. It is concluded that it does not currently seem possible to assess the strength of mortality-fertility relationships in tropical Africa. New research needs to be undertaken to supplement present knowledge of the variables, and to assess their relative weight in the relationships considered.

Key topics: Population; fertility; morbidity and mortality.

Chaïbou, Dan-Inna
1978-79 La Théâtralité en Pays Hawsa. Mémoire de Maîtrise, Université Nationale de Côte d'Ivoire.

Janet Beik cites this unpublished thesis in a footnote with the following description:

"This unpublished Master's thesis, the only work I could find on Hausa drama in Niger, gives a good survey of the types of traditional, colonial, and post-independence dramatic activity in the country." (Beik 1982:23).

Key topics: Language and ethnicity; arts and crafts.

Charlick, Robert Barry
1974 Power and Participation in the Modernization of Rural Hausa Communities. Ph.D. dissertation, University of California, Los Angeles.

(Author's abstract):

This thesis examines one aspect of the question, "How is mass political participation related to rural economic modernization?" It concentrates on investigating the theoretical and empirical basis for the view that participation can be a causal or facilitating factor in the process of economic, and specifically of agricultural, modernization. The empirical setting for this investigation is the rural Hausa community in the Republic of Niger.

A theoretical discussion identifies one type of rural development strategy, which we call "the induced participation approach." It situates this strategy in terms of policy and ideological statements of a number of Third World leaders, as well as in a broad social science literature drawn from American political theory, political economy, industrial psychology, and humanistic psychology. The development strategy of the Republic of Niger, at least for the period from 1963-1970 is shown to be based on a type of "induced participation approach" called "animation rurale".

The substantive sections of the dissertation are devoted to describing the manner in which this strategy has been implemented in a pilot region of Niger, and to testing the theoretical propositions of the "induced participation approach" which are relevant to this case experience. The primary method employed for testing hypotheses is the comparison of villagers from experimental and control villages. This natural laboratory situation was made possible by the uneven implementation of the "induced participation" and agricultural modernization programs within a single county. Some longitudinal analysis is also presented, based on a comparison of social and economic studies predating the inception of the participatory programs and our own studies of the social, economic, and political dynamics of four Hausa villages.

A number of findings emerge form this study. First, it is clear that the structural effects of "induced participation" vary with the type of political activity implied, and with the prior political experience of individual community members. Induced participation programs have intensified both "symbolic" and "shared influence" types of political activity, but the structure of access to influence has been modified only to a very limited extent.

A second finding indicates that the attitudinal effects of induced participation, viewed either in terms of "personal efficacy" or in terms of a sense

of "satisfaction" and "integration" are extremely weak. If a rapid modification of small-scale farmer economic behavior is contingent upon the development of these attitudes the induced participation strategy, at least as it was implemented in Niger, seems to hold little promise.

The relationship between "induced participation" and the modification of economic behavior measured in terms of the adoption of specific "modernizing" agricultural innovations is shown to be quite complex. On the whole, responsiveness to induced participation opportunities is a poor predictor of individual economic modernization decisions. The main effect of the programs seems to be the forging of an improved structural linkage between the pilot villages and the technical services. This may have facilitated adoption of innovations which are dependent in large measure upon direct governmental intervention. For the most part, however, the relationship between innovative economic behavior and political involvement can be understood by a classical model of the change process. In such a model both political behavior and economic response can be accounted for by a set of prior social and economic characteristics. The difference in personal economic well-being, whether defined in objective or subjective terms, is the single most powerful predictor of individual decisions to modernize agriculture. In comparison with the effects of considerable economic inequality shown to exist at the village level, differences in the level of response to induced political activities appear to be of minor importance in rural economic change.

Key topics: Politics and popular participation; economics; socio-economic data; agriculture; urban and regional studies.

Ciobotaru, I.

1972 Rapport final d'activité pour la période octobre 1971-octobre 1972; les grandes lignes d'une stratégie et d'une politique possible dans la République du niger en ce qui concerne l'aménagement du territoire, la planification urbaine et rurale, et l'habitat. New York: United Nations Development Programme.

Final report on a one-year mission to Niger to study the problems of regional, urban and rural planning. Finds insufficient data on population for planning purposes. Uses various hypotheses to estimate population size and growth. Discusses rural and urban settlement patterns and recommends regrouping of settlements around those villages that are best equipped. Recommends analysis of present settlements to determine which villages should be developed for this purpose. Other recommendations include the carrying out of population censuses and population studies; preparation of model housing plans and housing cost estimates; studies on construction materials; creation of institutions necessary to formulate and carry out planning; and the setting up of appropriate legislation. Includes tables showing approximate population by region. (Abstract from IESA/ISU Development Information System.)

Key topics: Population; urban and regional studies.

Clairin, R.
1971 Les niveaux et les facteurs de la fecondité dans les pays africains francophones. In International Union for Scientific Study of Population (IUSSP), International Population Conference, Vol. I. Pp. 760-770. Liege, Belgium: IUSSP.

Statistics on fertility in French-speaking African countries are presented and analyzed. There appear to be considerable variations in fertility levels among countries, and total fertility rates sometimes show eight children per woman in some areas and half as many in others. Part of the differences may be attributable to recording errors; however, there appear to be real differences among regions and ethnic groups, although available statistical data are insufficient to determine them accurately. It is also still unknown whether such differences are social or biological in nature, or attributable to involuntary sterility (which in low birthrate areas is found to reach an exceptionally high level, as in the case of Gabon or among certain Moslem populations of Cameroon), or related to marriage customs (age at marriage), or to sexual taboos concerning the lactation period, varying in duration in different ethnic groups. Fertility appears to be lower among nomadic populations, and among Moslem as compared with pagan or Christian populations, again for unknown reasons. There appear also to be differences between urban and rural areas, although the trends of such differences are not uniform in all countries. Therefore, on the basis of available data, it is impossible to state definitely whether urbanization constitutes an important factor in reducing fertility in Africa. Further systematic research on different ethnic groups and areas is required to answer these.

Key topics: Population; fertility; religion.

Clarke, Peter B.
1982 Integration through Conflict? An Assessment of the Aims of Islamic Fundamentalism in Contemporary Northern Nigeria. Paper presented to the Society of African Studies Conference, June.

This paper examines the 'force' and 'scope' of current Islamic fundamentalism in northern Nigeria. In particular, it focuses on the views and attitudes held by influential Muslim spokesmen and groups towards the Muslim brotherhoods. Some of the fundamentalist movements, such as the Yan Izala, seem to be relatively recent phenomena although in many respects continuations of a long tradition of reformist movements in this region.

During the past decade, the dichotomy between the northern Nigerian and southern Nigerian Islam has been distinctly reduced with the development of national Muslim organizations and closer ties with the wider Muslim world. Obstacles to this integration, represented particularly by the brotherhoods, remain. Past attempts to eliminate differences between the two largest brotherhoods, the Qadiriyya and the Tijaniyya, have often succeeded in creating even greater support for the specific, distinctive elements.

The author concludes that the current resurgence of Islamic fundamentalism is a response to the present economic, social and political conditions in Nigeria. The rapid industrialization fueled by the oil boom and characterized by foreign dependency has bewildered the population and left the vast majority no better off than they were. Fundamental Islam provides a 'pure' set of instructions for life, ensuring well-being, security and peace. By distorting true Islam, the brotherhoods stand in the way of this presentation of Islam and the creation of an authentic, integrated Muslim community.

Key Topics: Religion; social change.

Clarke, Thurston
1978 The Last Caravan. New York: G. P. Putnam's Sons.

This book is a collection of experiences and incidents that happened to Tuareg individuals and groups before and during the Sahelian drought of 1968-1974. For the Tuareg, the most devastating years of the drought were the last two, September 1972 to September 1974. Of the four major ethnic groups in Niger, Hausa, Zarma, Fulbe and Tuareg, it was the Tuareg who suffered and were transformed the most by the losses of livestock and human lives. The social, technological and economic transformations which had occurred in the Sahel over the 25 years prior to the drought (i.e., population growth, introduction of cash crops, northward expansion of agriculture, soil erosion and well construction) increased the extent of the disaster caused by lack of rains. With many of their traditional resources undermined, thousands of people fled the nomadic areas attempting to find relief in the towns, cities and internationally organized refugee centers.

In 1975 the author went to Niger and interviewed many Tuareg about their experiences. Without any marketable skills, many of the Tuareg have remained in the urban areas employed as very low paid, unskilled laborers. Half of the 100,000 Tuareg who fled Mali during the drought went to Niger because of the proximity of Niamey as a relief center and due to the strained relations which had existed for years between the Tuaregs and the Bambara functionaries. Rumors of relief grain hoarding in Mali and the depressing conditions of Malian refugee camps contributed to the exodus and the fact that thousands of Malian Tuaregs have remained in Niger since the drought.

Although the rains have been satisfactory since 1974, thousands of once pastoral Tuareg remain scattered throughout the cities and sedentary regions of West Africa. Of those who have returned to the pastoral zone, few have been able to rebuild their herds to a subsistence level. The author estimates that 50 to 75 percent of the Tuareg people were drastically uprooted by the drought and the most seriously affected areas were entirely depopulated. The traditional way of life for the vast majority of a once extremely proud and power people has been altered.

Key Topics: Livestock, nomads and pastoralism; social change.

Cohen, M. A. et al.
1979 Urban Growth and Economic Development in the Sahel. World Bank Staff Working Paper No. 315, Washington, D.C.

The intention of this paper is to suggest a framework for policy discussion concerning urban development in the Sahelian countries of West Africa (Chad, Mali, Mauritania, Niger, Senegal, and Upper Volta), the poorest and most rural countries of the world. Their populations live primarily in rural areas, depend on agriculture and livestock for food and income, and have remained traditional in their culture. An increased pace of urbanization over the past two generations has led to three major forms of differentiation: (1) economic; (2) social; and (3) political. Past urban bias in public investment, and the inadequacy of rural development efforts in harsh natural conditions, have made Sahelian cities relatively privileged consumers in an environment of extreme scarcity and deprivation. If the Sahel countries are to improve their incomes, there must be a more equitable distribution of natural resources between rural and urban areas. Focus in this discussion is on a framework for analysis, urban development, patterns of urban growth in the past and the future, conditions in the rural sector, the absorptive capacity of urban centers, uncertainty and factors influencing urban growth and objectives for an operational strategy for the urban sector. Between 1975 and the year 2000 the urban population of the Sahel is expected to triple. Under present conditions such an increase cannot be absorbed. The majority of urban residents depend directly or indirectly on government employment, which has been a major stimulus for urban growth, but is not likely to expand rapidly. There are serious constraints on the large scale expansion of industry. Employment in the informal sector, particularly the processing of agricultural products, must be stimulated. The majority of urban residents have low levels of services, largely reflecting a lack of coherent policies toward urban growth. Urban sector analysis, within macro-economic planning, needs to identify and encourage activities in secondary towns which will support rural development.

Key Topics: Urban and regional studies.

Collins, John Davison
1974 Government and Groundnut Marketing in Rural Hausa Niger: The 1930s to the 1970s in Magaria. Ph.D. dissertation, The Johns Hopkins University.

(Author's abstract):

The local groundnut markets of Magaria have been the scene of continuous State interest and action since the middle 1930s when trading companies purchasing groundnuts for the European market first entered the region in large numbers. These markets thus provide a single context both for assessing the cumulative impact on the local socio-economic system of State intervention, and for studying the effect on State behavior of changes in policy, resources, and institutions. A focus on a single area of State activity over time also forces consideration of the importance of past involvement. Indeed, the experience and prerogative gained from past action can itself be considered an independent variable affecting both the ability and decision to act.

Many of the problems for which marketing cooperatives might be thought an appropriate remedy had already been solved by the time the first groundnut marketing cooperatives were created in Magaria in 1963. This pre-cooperative period of marketing reform can be understood in large part by a growing administrative capability at the district level in the last decade of colonial rule. There were, however, limits beyond which even the most zealous colonial official could not infringe upon the activities of the powerful private trading companies. The ability and desire to act at the local level did not always produce action.

The creation by State edict of new groundnut markets in rural Magaria in the middle and late 1950s benefited producers over the private companies. This action by the State can be fully understood only with reference to changes taking place in regime orientation, and the political process, in the last years of colonial rule. Equally, the establishment of State control in the early 1960s over exports, producer price, and the profits of private buying companies, were measures which, although at the time implemented with ease, would have been deemed neither desirable nor politically feasible only a few years earlier. This partial nationalization of groundnut marketing benefited the State at the expense of both the private buyers and the producer. However, attempts by the State in the 1960s to artificially lower producer price were often frustrated by the factor of competition and alternative choice introduced into the marketing system as a result of near-by groundnut markets in Nigeria.

The initial cooperative period (1963-1965) brought little change in either the organization or operation of local groundnut markets. This can be explained both by the accomplishments of the past, and by the initial approach

to development taken by the national cooperative agency, the Union Nigérienne de Crédit et de Coopération (UNCC).

In the period after 1965 the pattern of State involvement in markets on Magaria changed dramatically. A reorganization of the cooperative markets now became the principal interest and activity of UNCC. This reorganization of the cooperatives which led to the establishment of "self run" marketing cooperatives cannot be explained in terms of a single development policy. For some in UNCC this reorganization became a means to solve the Agency's problem of limited manpower, limited capital, and unpaid credit. For others it represented the first step in a long term commitment to increased education and extension work at the local level. While for many agents in the field, cooperative reform had as its purpose the freeing of the rural peasantry from its political and economic domination by a feudal aristocracy.

The real significance of the period of cooperative reform is not found in the minimal accomplishments evident in a comparison of cooperative markets and the private markets of the post-1963 reform period. The importance of this period lies rather in the fact that it represents the most recent episode in a long history of State involvement in the markets. This State involvement has seldom been motivated solely by the desire to benefit the producer. It has nevertheless gradually and over a long period of time had a marked impact on the process by which groundnuts are marketed in Magaria.

Key Topics: ***Markets and marketing; economics; national government and state formation; small-scale enterprise and micro economic studies.***

Corrèz, Annette and Vicky Barres
1978 Besoins et participation des femmes rurales au Niger. Carnet de l'Enfance 41:74-92.

This article describes some aspects of a methodology of research-participation undertaken to identify the needs expressed by rural women in Niger. Three outcomes of this approach are illustrated: (1) the operation of a village grain mill; (2) the retraining and support of traditional mid-wives; and (3) the operation of a flavoquine program to prevent malaria.

Before the introduction of the specific programs the authors conducted a survey of the region to gather background information. This entailed finding out the most important needs as expressed by the rural women themselves. Secondly, the villagers were organized into autonomous cooperatives through which interventions were to be introduced and administered. Finally, the specific projects were started.

Initially, programs were financed through loans from the government of Niger and outside aid but, the continued operation and repayment of the loans were to be covered by the fees charged for the services. The three programs have been functioning in a number of villages since 1975 and, although there have been some problems, the fact that the women themselves helped to plan and currently operate the programs has helped guarantee their success.

Key Topics: Women in development; development; development policy; health and nutrition.

Dankoussou, I., et al.
1975 Niger. In Population Growth and Socioeconomic Change in South Africa, J. C. Caldwell, ed. Pp. 670-693. Published for Population Council by Columbia University Press.

Much of Niger, although vast in size, is sparsely inhabited. Population is unevenly distributed (mean population density, eight persons/square mile) because of natural (extreme aridity in desert zone, infertility of soil) and socioeconomic (ethnic and linguistic differences) factors. Nine-tenths of its population is rural; urbanization is fairly recent, although rapid. General fertility rates in Niamey, the capital, are relatively high, 207/1000 (based on crude birth rates and general fertility rates obtained from the 1967 registration data from Mairie, the city administration) crude birth rate is 49, and mortality is quite high (Table 33.2). The projected growth rate of 15% per quinquennium in the 1970s is expected to adversely affect the rural resources, especially farm land; education (over crowding in classrooms); and rate of urbanization.

Key topics: ***Socio-economic data; demography; population; fertility; morbidity and mortality.***

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de Jaureguiberry, A.
1974 Maternal Obstetric Emergencies in Rural Africa. Children in the Tropics (92):3-20.

In Africa the future mother and the mother in labor continue to be very much at risk. Thus far it has been impossible to obtain accurate maternal death rates. The results of hospital practice limited to the West African Sahel (Senegal, Mauritania, Niger) for more than 10 years is the focus. Attention is on two types of emergency--major dystocia and ruptured uterus--because of their frequency and their sequelae. These emergencies are resented by surgeons who believe that obstetrics should not be a matter of last resort hysterectomies and futile attempts to repair torn bladders and rectums. In developing countries these emergencies should be a major concern of the health service, because of the extent to which they continue to be a threat to mother and child. These emergencies are discussed at length in terms of dealing with them at the curative level, at the preventive level, and the obstetric risks. At the curative level they require prompt surgical care in easily reached centers with good equipment and staff. At the preventive level there is greater chance of effective prevention by screening and systematic antenatal supervision. The obstetric risks could be reduced in all African mothers if a suitable action program was adopted.

Key topics: Morbidity and mortality; health delivery systems; health and nutrition.

Diarra, S.
1979 Les stratégies spatiales des éleveurs-cultivateurs peul du Niger central agricole. In Maîtrise de l'espace agraire et développement en Afrique tropicale. Pp. 87-91. Paris: ORSTOM.

The study deals with the change of the subsistence activities of some Fulbe communities in central Niger from pastoralism to a combination of pastoralism and farming. Three patterns of land use have evolved. Moving from south to north they are: (1) a combined system of herding and farming in areas in close proximity to wells; (2) strip-farming in the groundnut zone; and (3) pioneer colonization in the Sahel borderland. Although these land use patterns have worked for years, they are increasingly threatened by the combined effects of climatic factors, human and livestock population increase, and pressures from politically better organized peasant communities.

Key Topics: Nomadic-sedentary relationships; migration, settlement and resettlement; ecology; rural production systems.

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Donaint, Pierre
1975 Les cadres géographiques à travers les langues du Niger. Contribution à la pédagogie de l'étude du milieu. Etudes Nigériennes 37.

An examination of how the five principal languages of Niger (Hausa, Zarma, Tamasheq, Kanuri and FulfulDe) constitute and express the components of time and space. Charts and tables provide language by language analyses of the following topics: (1) orientations on the ground and among the constellations: (2) systems of weights and measures; (3) minerals, metals, and topographical conditions; (4) hydrological distinctions and concerns; (5) meteorological and seasonal classifications; and (6) categorizations of time. Following each topical section is a collection of relevant proverbs and representative photographs. Together they enrich the simple translations provided by the charts and better illustrate the way in which the people who speak each language relate to the world around them.

The imposition of a French educational system by the colonial power not only involved a new language, a second one for all Nigeriens, but also alien methods of categorizing, classifying and passing on the details of the Nigerien experience. The second portion of this volume promotes a new educational approach for Niger. Procedures to "Nigerienize" the educational system are outlined. Retaining French as a unifying mechanism, traditional conceptions could be incorporated into the modern educational system without undermining it. Primary instruction would commence with the build up to the culturally established base rather than beginning with alien western concepts. By complementing rather than opposing the rural way of life this method, the author suggests, would improve the educational system in Niger.

Key Topics: Language; education.

Dupire, Marguerite
1962 Trade and Markets in the Economy of the Nomadic Fulani of Niger (Bororo). In Markets in Africa, P. Bohannan and G. Dalton, eds. Pp. 335-362. Northwestern University Press.

The Wodaabe, a Fulani pastoral-nomadic group of Central Niger specialize in animal raising and milk production. This specialization does not allow them to be self-dependent; they have to rely on their sedentarized neighbors to supply their basic subsistence needs such as millet, salt, cloth and ornaments.

Although other sources of income such as repairing calabashes by women or hiring one's services out to pound grain for sedentary peoples or manuring their fields, using ones animals, the two major sources of wealth are dairy products and livestock. Woodabe become herdsmen for strangers or take to grain farming only out of necessity.

Wodaabe herds tend to be rather small, ranging between 10 to 50 in Tahoua. Owning 100 head of livestock is a sign of wealth. The herd composition is oriented towards dairy production with a very small reserve of bulls and steers to be used for other purposes.

Goods and services are circulated among the Wodaabe within and among groups. Money is not used within the group for purposes of exchange. Goods are given, exchanged, inherited or lent. Two forms of exchange are of great importance in Wodaabe society: temporary adoption of children by which means childless households are not left short of labor, and loaning of livestock which, next to inheritance, forms the most effective way of acquiring a herd. Outside the group the Wodaabe prefer barter to the use of money in acquiring their basic subsistence needs and other necessities. Money is used only on those occasions when they cannot procure goods through barter, to meet certain obligations. For example, they have to use money to pay taxes and healers.

The Wodaabe are very important in the Nigerien economy for not only do they supply livestock for both the domestic and foreign markets but they are also the contributors of the largest portion of the taxes collected in their area. This is due to the fact that the sedentary peoples pay taxes only for their cattle which are very few, and for trade licenses which are not very expensive.

Key Topics: ***Livestock, nomads and pastoralism; small-scale enterprise and micro-economic studies; markets and marketing; trade and exchange.***

Dupire, Marguerite
1962a Peuls nomades: étude déscriptive des Wodaabe du Sahel Nigérien. Paris: Institut d'Ethnologie (Travaux et Mémoires LXIV).

Few African peoples have received as much scholarly attention as the FulBe. Numbering perhaps 5 million, they are the most widely distributed linguistic group south of the Sahara, extending from Senegal and Guinea in the west, through Mauritania, the Upper Volta, Benin, Nigeria, and Niger, to the northern Cameroon, Chad, Sudan (where they are known as Fellata), and Ethiopia. The FulBe do not, however, form a homogenous group, but fall into two quite different types: the egalitarian pastoralists, who travel in small independent patrilineal bands with minimal political leadership and, while often nominally Moslem, show little interest in orthodoxy; and the sedentary farmers and townsmen, who maintain a heavily stratified social organization, build elaborate political structures through religiously inspired conquest (jihad), and are fiercely committed to Islam.

Their greatest concentration is in the Sahelian-Sudanic regions of Niger and Nigeria, and the most spectacular period in their history was the jihad of Uthman dan Fodio, which resulted in the total conquest of the Hausa states during the first decade of the nineteenth century and in the establishment of Fulani emirates that have lasted to the present day. In the 1950s, the International African Institute sponsored a series of investigations in Nigeria and Niger focused on pastoral FulBe. As a result of the researches of C. E. Hopen (The Pastoral Fulbe Family in Gwandu, 1958), D. J. Stenning (Savannah Nomads 1959), and Marguerite Dupire, we now have an excellent body of first-rate ethnographic documentation about these people.

Dupire has written a splendid study, based on field work in 1951 of the WoDaaBe or Mbororo of Niger, a group more nomadic and less Islamic than those studied by Hopen or Stenning. Dupire's major strength is her sensitivity to ecology. She notes that FulBe pastoralists and farmers do not form mutually exclusive categories; instead, there is a pendulum-like movement from one form of subsistence to the other: when pasture and water are available, cultivated fields are abandoned and the people live off their herds, the women selling milk and butter in local markets; when pasture is no longer available, they settle down to farm. This movement the author speaks of as "re-Fulanization"--that is, as the periodic return to pastoralism. But such movements are restricted by political, as well as natural, conditions, for traditional title to the land is held by other peoples.

During their nomadic phase, WoDaaBe commitment to pastoralism is complete. Other than some unstudied millet cultivation, they are pastoral specialists. Since they depend almost entirely upon their sedentary neighbors for cultivated food and manufactured goods, they do not hunt, and they make almost none of their own artifacts. Dupire carefully notes variations in seasonal rounds, points of concentration and disbursement, and correlations with the movements

of other people. Although her focus is ethnographic-a study of the way of life of a single people-she shows an awareness of economic and political relationships among culturally diverse peoples, and her study provides a base upon which a detailed analysis of these relationships may be made. It is becoming increasingly clear that the Sudanic state was based upon a very complex system of nomads, farmers, and townsmen, each occupying a particular niche in a symbiotic matrix of interrelationships.

The bulk of the study contains an account of WoDaaBe economy and social organization. Wealth is measured in cattle, which are acquired through inheritance, gifts, and loans. Although there may be substantial variations in herd size, the standard of living of a wealthy man is little different from that of a poor man. A rich man has more clothing and drinks more tea with more sugar, but wealth, according to Dupire, does not create class distinctions. Even the chief of the local lineage, the only indigenous political official, has little coercive power; his role is that of a director of group movements and a conciliator of internal disputes. The WoDaaBe are indifferent Moslems at best. As an illustration, the author notes the Koranic sadaaka marriage, in which a daughter is wed to a holy man or to a good but impoverished man without bride price. In WoDaaBe practice, the offered bride is likely to be deformed, blind, or incredibly ugly.

Dupire's description of WoDaaBe lineage structure will be considered an anthropological classic. The study is highly technical, yet written with grace and wit. It provides a useful baseline study to help assess the impacts of the 1968-1974 drought of the social-economy of these people.

Key Topics: Nomads and pastoralism; livestock; ecology.

Dupire, M.
1972 Les facteurs humains de l'économie pastorale. Etudes Nigériennes 6.

A pilot study tracing some general aspects of the economic activities of the nomadic, semi-nomadic and sedentary pastoral or mixed farming peoples of Niger. The goal is to provide information on existing practices, to be used for future research on pastoral decision-making, and not to develop a theoretical pastoral economic model.

The author visited pastoral groups at water points, villages and market places, posing questions concerning: the relationship between agriculture and livestock rearing; dry season residence; rainy season residence or migrations; organization of labor; consumption patterns; markets frequented; and revenue division. The herders were asked how they determined which water point to go to, what led to pasture changes from one year to another, and what were their views on introduced transformations such as deep wells, veterinary services and schools.

The study is divided into two sections. The first section is divided into chapters providing economic/behavioral information on: (1) the nomadic FulBe; (2) the semi-nomadic FulBe; (3) the sedentary FulBe; and (4) data on the Sarakolle, Tuareg, Bella and other Nigerien groups devoted to animal husbandry.

The second section describes some of the commercial aspects and market activities in the pastoral zone. The age, sex, and types of animals sold, where they come from, and how exchanges are made is regionally analyzed. The continued existence and importance of non-monetary exchanges, meat or milk for grains, is noted. The seasonal and regional fluctuations of the supply and demand of pastoral and agricultural products is examined. This information can be related to future studies on decision-making, labor organization, and marketing among pastoral populations.

Concluding remarks provide methodological data for researchers interested in obtaining socio-economic information on pastoralists.

Key Topics: Pastoralism; mixed farming; migration and settlement; micro-economic studies.

Dupire, Marguerite
1975 Exploitation du sol, communautés résidentielles et organisation lignagère des pasteurs woDaaBe (Niger). In Pastoralism in Tropical Africa, T. Monod ed. Pp. 322-337. London: Oxford University Press for International African Institute.

(Author's abstract):

This article studies the relationship existing, in a nomadic Fulani society, between a certain type of exploitation of resources and a form of socio-political organization conforming to a lineage model.

Exclusively pastoralists, the woDaaBe of Niger own no territory and change camp sites throughout the year. The camps of a political group (fraction), which are dispersed in the dry season, transhume together during the rainy season. Efforts to find better ecological conditions, to avoid various exactions, and to gain recognition of dissidents' political autonomy give rise to two types of migration, one progressive, the other abrupt. After settling in an administrative region where it pays taxes, the migratory group, led by a chief, separates into fractions. Each fraction constitutes a unit of transhumance during the rainy season. The migratory group, however, maintains its solidarity through matrimonial alliances which join its nuclei, considered as lineages. Most of these nuclei were formed by a process of fusion resulting from neighbourhood and affinal relations. Thus the proximity of camps in the dry season and the organization of migratory movements are the principle factors in the formation of these residential communities.

These communities define themselves in terms of a lineage model whose four levels of fragmentation represent the last remembered phases of these seasonal and migratory movements. The fusioning process is discernible on the level of the minimal lineage, which is not genealogically attached to the secondary linage. All the units of the same level are arranged in a hierarchy according to the order in which they entered the group. The woDaaBe distinguish this historical hierarchy from the true genealogical hierarchy by inversing the linear orientation of these units. The expressions they use to analyse their lineage model emphasize the predominance of neighbourhood or affinal ties over pseudo-agnatic ones, the former being more constraining than the latter.

Their political organization has remained egalitarian, based on consent and allegiance to a fraction leader, spokesman for the adult council. This autonomy is not incompatible with the solidarity of fractions originating in the same migratory group and which is characterized by an internal socio-political organization different from the external one. The contraposition of units is possible above the primary lineage level and is especially evident during the gerewol ceremony, when wives are stolen. This contraposition

favours maximal exogamy resulting from such elopements which are regulated, an oath ending the hostility that may have been engendered between two lineages. These structural distances, which theoretically govern internal and external tribal relations, express degrees of previous or actual geographical proximity existing among segments.

This organization shares many features with that of segmentary lineage societies, but segmentary contraposition cannot be generalized because the segments of the same level are dispersed and have no territorial attachment. This type of organization, essentially based on pastoral movements, could be classed between those of the patrilineal band and the segmentary lineage system.

Key Topics: ***Livestock, nomads and pastoralism; politics and popular participation; family and household; social organization.***

Echard, Nicole
1964 Etude socio-économique dans les vallées de l'Ader Doutchi Majya. Etudes Nigériennes No. 15.

A socio-economic study of the valleys of the Ader Doutchi Majya that was undertaken before development interventions were introduced to this area of central Niger. The projects emphasized hydro-agriculture aimed at guarding against erosion and expanding the area under irrigation. The study was conducted partly to determine the labor constraints of the existing population and their capacity to increase labor inputs. An investigator was installed in each of five villages chosen for pilot programs. The five villages were ecologically and socially representative of the entire area.

This region was inhabited by Hausa who migrated from the south and by nomadic groups from the north who settled in the valleys in ethnically separate villages to begin cultivation. The Hausa were the first in the area and continue to constitute the majority. Their culturally different neighbors have remained distinct and assimilation has been slow.

In the past, almost all of the land was controlled by Tuareg chiefs who assigned use rights in return for tribute. Today, land is bought and sold with absolute rights and title.

The predominant land use in the valleys is familial, subsistence agriculture. Two methods of labor recruitment are feasible if a family group is insufficient to provide the labor requirements at particular times during the agricultural season: the cultivator may call on the entire village group and organize a collective labor day; or the farmer may hire salaried laborers. How a particular territory is grouped may determine which option is chosen. Those ethnically grouped together are much more likely to be able to reciprocate collective labor than those isolated in morseled territories. Also, a Tuareg chief will often invoke the labor of the entire village to work his personal fields while common Tuareg must hire laborers. Collective labor is reciprocal when the individuals are of equal status but this is not the case when done for individuals of higher status, a chief or even a father.

The introduction of cotton as a commercial crop has begun to transform the traditional production systems. The growing of cotton has resulted in more frequent use of salaried labor. The laborers are those without, or with insufficient quantities, of land to cultivate.

The increase in cash crop cultivation is accompanied by a decline in dry season activities such as craft production or seasonal migrations to other areas. The cultivator can concentrate on commercializing his products to satisfy his cash needs rather than find employment outside of agriculture.

Key Topics: *Agriculture; commercial agriculture; social change; production factors; social organization.*

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Eddy, Edward Danforth III
1979 Labor and Land Use on Mixed Farms in the Pastoral Zone of Niger. University of Michigan, Center for Research on Economic Development, Ann Arbor, MI.

(Abstract from AID Development Information Center):

The spread of grain cultivation along the southern Sahara has increased fears of desertification and given impetus to a cattle stratification strategy which may be a key to Sahelian development. This study, based on input-output data obtained from 45 Haussa and Tuareg mixed-farm households in 1976-77, analyzes alternatives for increasing cattle production and decreasing grain production in Niger's pastoral zone.

Against an overview of production systems and of the infrastructure in the study area, the author outlines his survey methodology. He then successively discusses: (1) labor patterns and availability; (2) labor's role as an input to grain and livestock production; (3) land use and management and the role of land as an input to production; (4) the availability of water; (5) types of livestock (goats, camels, cattle, sheep, horses, donkeys, and poultry) and livestock management; (6) the markets for grain, livestock, and livestock products; (7) grain output and consumption; and (8) production of livestock and consumption of livestock products. The author then develops a basic farm management model which allows for selection among millet, sorghum, goat, and cattle production subject to land and labor constraints.

Using this model, the author finds that although livestock production generates significant foreign exchange and may maximize farmers' social welfare and although continued grain production will steadily deteriorate land resources, extensive grain production is still in the individual farmer's best interest. It is thus unlikely that marginal changes in technologies and prices alone will have much effect. The author instead recommends structural reforms: adopting policies to increase the profitability of cattle production; enforcing a system of land management which limits without precluding grain cultivation; extending property rights to livestock producers; adopting labor-saving grain production technology; and establishing complementary goat production programs to enable poor households to reach a position where they can assume the risks of cattle production.

The report includes 46 graphs and tables. Appended are a 31-item bibliography (1950-79), supplementary questionnaires, market schedules, a coding manual, and data on the people of and production in the study area.

Key Topics: ***Mixed farming; rural production systems; livestock; production factors; development.***

Eicher, Carl K.
1982 Facing Up to Africa's Food Crisis. Foreign Affairs 61 (No. 1): 151-174.

In this policy-oriented paper, Eicher presents:

(1) An overview of the African food crisis, which he sees as two interrelated problems: a food production gap vis a vis population growth; and a hunger problem stemming from income distribution ("poverty").
(2) Historical perspectives on food problems, including five "key debates" since independence by African states over what priority to give to food and agriculture:
   (a) what priority to give to agriculture versus industry in national budgets and development plans. Both capitalist and socialist states gave low priority to agriculture and continued to use "extractive" policies.
   (b) debates over appropriate models of development: western "modernization" models, political economy approach, dependency theory.
   (c) debates over use of pricing and taxation policies to achieve agricultural and food policy objectives (e.g., negative pricing policies which dampen farmer incentives and encourage black market activity; p. 160).
   (d) the agrarian capitalism versus African socialism debate.
   (e) debates over how to improve low cereal yields in Africa (Eicher finds that African yields have been stagnant since 1965 while population growth rates have increased) and the reasons the Green Revolution has yet to really reach Africa.
(3) Eicher's approach to solutions for African food situation:
   (a) solutions must take a long term approach (p. 164).
   (b) need to either phase out or restructure floundering types of "crash" food production projects--he names four types: seed multiplication; irrigated wheat schemes; livestock schemes (Eicher suggests scaling them down to small 5-10 year pilot projects); and integrated rural development (Eicher feels most IRD projects need more emphasis on food production itself and on income-generating activities (p. 165).
   (c) need for policy reforms in such areas as food prices; scaling down the state bureaucracy (e.g., expensive and inefficient parastatals); raising producers prices for both food and export crops (to create favorable incentive structure for farmers)--he feels that expanded farm income will help solve the hunger/poverty problem, while "expanded food production by itself will not solve the hunger problem" (p. 157).
   (d) food aid issues.

(4) Eicher calls for improved agricultural research to be done in Africa itself:
   (a) "Significant increases are needed over the next 20 years in research expenditures on dry land farming systems with emphasis on food crops (white maize, yams, cassava, millet and sorghum) and on livestock" (p. 168). He calls for a 20-year timeframe for research. "Research on irrigation is particularly important" (p. 168), but the priority should go to smallholder irrigation efforts (p. 169).
   (b) Need for "human capital formation including graduate training of several thousand agricultural scientists and managers" (p. 170), including training in African facilities of agriculture which need to be created/strengthened.
   (c) Need for efforts on the combined hunger/malnutrition/poverty front (p. 171).

(5) Implications of the foregoing analysis for the foreign assistance community (pp. 171-174):
   (a) Need for long-term planning, such as 5-10 year aid commitments (up to 20 years for achieving research results in agriculture);
   (b) need for effective aid coordination: currently too many projects compete for host country personnel and too much time is absorbed by donor reporting requirements;
   (c) need for developing food policy strategies: for example better farmgate prices may do more to stimulate production than years of research;
   (d) on technology transfer, Eicher argues that donors should help African institutions generate technology within Africa through national and regional research programs;
   (e) on the role of foreign private enterprise in African development, Eicher sees only a limited scope for private investment in Africa for the present—instead he stresses the need for public infrastructure investments (from roads to research capabilities).

Early in the paper, Eicher presents some data on population growth, etc. He notes that 24 out of 45 African countries have total populations of under 5 million; smallholder agriculture (with holdings of five to fifteen acres) dominates the continent; arable areas of some countries is near the maximum population density for present agricultural technology and expertise on soil fertility.

"...Sub-Saharan Africa is the only region of the world where per capita food production declined over the past two decades" (p. 154).

"...Africa is the only region of the world where the rate of growth of population actually increased in the 1970s" (p. 154) (and is still increasing).

"But with annual rates of population growth now approaching three to four percent in some countries, research institutions must be restructured

to devote more attention to food crops and the needs of smallholders and herders" (p. 158).

Eicher is also critical of "food self-sufficiency" slogans tossed around by African governments. He notes the role of food imports (both food and commercial imports) in recent years: commercial imports grew three times as fast as population from 1961-1979, Eicher says (p. 156). Resolving hunger problems requires improved African food production but may also entail food imports—along with facing up to poverty problems with better rural incomes as well.

Key topics: Development policy; food.

Faulkingham, R. H.

1977 Fertility in Tudu: An Analysis of Constraints on Fertility in a Village of Niger. In The Persistence of High Fertility: Population Prospects in the Third World, J. C. Caldwell, ed. Pp. 153-188. (Family and Fertility Change: Changing African Family Companion Series No. 1). Canberra, Australia: Australian National University.

On the basis of research in the rural village of Tudu in the Republic of Niger, the attempt is made to answer the following questions: how does a drastic shortfall in local food production—far below the requirements for survival--affect age and age-specific mortality, or have an impact on fertility and to what extent and how did the drought from 1968-1975 suppress or exacerbate demographic trends that were extant before 1968. The results from Tudu represent more than a descriptive case study; they may reflect a genuine test case. For Tudu residents there was no alternative to migration or starvation during the drought years except to increase dramatically their cash income in order to purchase grain from the government's national food distribution program. The demographic situation at the end of 1973 revealed no clear impact of the drought on mortality, fertility or migration. The record for 1974 and the first six months of 1975 shows an increase in the mortality rate and a marked decline in the birthrate. The large jump in mortality in 1974 and 1975 reflects the death of scores of children, particularly children born during the drought years. Between October 1974 and March 1975 nearly 25% of the children aged one to four years died. For all of 1974, 68% of all deaths were those of children under five years of age. The decline in the crude birthrate from a mean of about 52/1000 in the 1969-1973 period, to 32/1000 for the year ending in June 1975 is not as easily explainable. Overall, the rates of mortality and fertility show a lag behind the drought by one year or more.

Key topics: ***Demography; population; fertility; morbidity and mortality.***

Felice-Katz, J. de
1980 Analyse éco-energetique d'un élevage nomade (Touareg). Annales de Geographie 89(491):57-73.

Felice-Katz identifies three pastoral-nomadic adaptations that exist simultaneously among the Tuareg in Niger: short-distance movement; long-distance transhumance; and sedentarization. Rather than being complementary, the three adaptations compete for food and water. The short-distance movement is characterized by being well adapted to existing unpredictable conditions and has a high energetic output (meat, milk, skins, animal traction), given the energy input by man. Nevertheless, this technique, which is the oldest, maybe replaced by the other two which seem less operational.

Key Topics: ***Livestock, nomads and pastoralism; ecology; socio-economic data.***

Fikry, M.
1977 Preliminary Report: Traditional Maternal and Child Health Care and Related Problems in the Sahel: A Bibliographic Study. Agency for International Development, Washington, D.C.

This work is a study of rural health care problems in the Sahel (Chad, Niger, Mali, Mauritania, Upper Volta, and two other African countries). Included are a 55-page essay and a 60-page annotated bibliography. A major point made in the work is that there is a need for union between anthropology and medicine in the Sahel. A priority to be dealt with must be the socioeconomic and medical considerations of the long-term effects of drought on health. In order to improve health in rural areas, the relationship between the rural and urban areas of the Sahel must be realized. A serious concern in the rural areas of the Sahel is the incidence of malnutrition and marasmus. This is however not due to a lack of the necessary items which make up a balanced diet, but rather to ignorance, dietary habits, and a general lack of food. This condition is serious especially as it is debilitating to the growth, both physical and mental, of children. As a consequences of malnutrition and marasmus, measles and meningites contribute to the infant mortality rate. Anemia, too, is present in children and in women, especially those pregnant or lactating. In order to improve rural nutrition, those involved in development planning must understand the food habits and taboos and must acknowledge the interrelationship between health, education, and agricultural advances. Past failures in health and nutritional projects must be analyzed. Sterility is of great concern, and because it is considered such a personal and social calamity, research must be directed to prevention. Other concerns for rural health projects are difficult deliveries; infant mortality due to tetanus of the umbilical cord; and medical malpractice. It is suggested that breastfeeding be encouraged, as it is of tremendous value nutritionally, psychologically, and healthwise for both mother and child. Also, in order to qualitatively improve health care, the matrone, who plays a significant socio-religious role, must become properly trained.

Key Topics: Health and nutrition; health delivery systems.

Findley, S. E. and A. C. Orr
1978 Patterns of Urban-Rural Fertility Differentials in Developing Countries: A Suggested Framework. General Electric Company-TEMPO, Center for Advanced Studies.

Urban and rural fertility patterns in developing countries are analyzed in an effort to identify how "place" and "person" factors influence fertility behavior. Data were collected for the period after 1965 from 30-40 developing countries distributed relatively proportionately between Latin America, Africa and Asia. The 1970 round of censuses, recent fertility and KAP surveys, and supplemental information from statistical annuals or the United Nations Demographic Yearbook were used. Initially, the pattern of differences was investigated to identify where urban fertility is lower than rural fertility and where it is not. After documenting the current pattern of urban-rural differentials, the underlying causal factors producing these fertility differences were investigated. Included among the conclusions suggested by the analysis are the following: (1) urban fertility is 25% lower than rural fertility; (2) fertility declines occur first in urban areas and then in rural areas, but the decline is not linear in either area and therefore the fertility differential fluctuates; (3) the age pattern of childbearing is important to understanding urban-rural differentials; (4) patterns of urbanizations affect the overall and age-specific differentials; (5) regional factors also influence the fertility differentials; (6) there are sizable inter-urban and inter-rural fertility variations; (7) factors influencing fertility operate at two levels of community size; (8) heterogeneity and diverse opportunities may be the place characteristics of most importance; and (9) family size intentions are shaped by culturally and economically determined perceptions of the advantages and disadvantages of children.

Key topics: Population; fertility; morbidity and mortality.

Fournier, G. and I. A. Djermakoye
1975 Village Health Teams in Niger (Maradi Department). In Health By the People, K. Newell, ed. Pp. 128-206. Geneva, Switzerland: World Health Organization.

VHW (voluntary health worker) teams and trained TBAs (traditional birth attendants) are utilized in the Department of Maradi in Niger to provide basic health care for the many rural and isolated inhabitants of the department. Prior to the implementation of this program in 1966, only 15% of the 700,000 people living in the area were covered by health services, and the health service personnel assigned to the area showed little interest in helping the rural villagers. The VHW teams, generally referred to as the village pharmacy, are composed of 2 VHWs and a management committee, which is in charge of reordering drugs. Each village selects two of its own members to serve as VHWs. The selected individuals undergo ten days of training at the nearest rural health center. Each month the nurse from the center visits the village to check the work of the VHWs, to see referred patients, and to check on sanitation conditions in the village. TBAs are selected for training in a similar manner and receive 15 days of practical training in delivery procedures, maternal and child care, and nutritional education. As of 1974, there were 129 village health teams and 323 trained midwives in the department. Expansion of the program to additional villages is planned. Despite the low cost of these programs, they are making a significant contribution toward raising health standards in the rural villages. Village sanitation is improving, the incidence of conjunctivitis is decreasing, infections are healing faster, and the villagers are more knowledgeable about nutrition. The program is bringing professional health personnel in direct contact with the villagers, and as a consequence, the health professionals are becoming more familiar with rural health problems and are becoming more involved in finding solutions to these problems.

Key topics: Health delivery systems.

Franke, Richard and Barbara Chasin
1981 Peasants, Peanuts, Profits and Pastoralists. The Ecologist 11(4): 156-168.

This article questions the common conclusion that nature was the cause of the tragic Sahelian drought (1968-1974), and that West African governments had no control or responsibility. It raises the possibility that the root of the disaster may lie in the ambitious development programs which had pushed nomadic groups further and further north into more arid, less secure zones.

Peanut production rose dramatically in Niger after World War II, from 73,000 hectares under cultivation in 1934 to 432,000 hectares in 1968. The government of Niger sponsored this increase to gain foreign exchange from exports, but there was also a larger combination of factors which continually compelled peasants to increase production. Farmers became ever more dependent on money, and needed to work harder, and produce more in order to meet their cash requirements. In the early 1960s, the development of hybrid seeds with shorter growing cycles pushed groundnut cultivation north of its previous boundaries. The sharp decline in available pasture for the herders resulted in conflicts between farmers and pastoralists. The herders lost their pasture, and the farmers lost the fertilizing services of the animals. This required fertilizer purchases and therefore larger harvests to cover the costs.

The movement of many herds to the north meant that more and more animals were concentrating around wells, competing for water and pasture. The lack of rains during the drought years and increased herd size from better veterinary services, intensified this competition and eventually led to human famine and the loss of almost one-half of Niger's national herd.

Key Topics: Ecology; development; commercial agriculture; nomadic-sedentary relationships.

Fuglestad, Finn
1973 Djibo Bakary, the French and the Referendum of 1958 in Niger. Journal of African History 24(2):313-330.

This article concentrates on 1958 events in Niger. It tries to show that Djibo Bakary's power-base was very weak. This might be why Djibo decided to vote 'NO' at the Referendum for immediate independence rather than a 'YES' vote indicating autonomy without political independence from France. The author feels Djibo desired immediate independence since it would have given him command of the whole state machinery, enabling him to crush his political enemies, especially the strong bloc of traditional chiefs.

For political reasons, the French were bent on thwarting Djibo (e.g., the nearness of Algeria), but did so in a rather light-handed manner. In fact, Djibo brought about his own downfall through a number of miscalculations and blunders.

Key Topics: ***Politics and popular participation; national government and state formation.***

Fuglestad, Finn
1975 UNIS and BNA: The Role of 'Traditionalist' Parties in Niger, 1948-1960. Journal of African History, 26(1):113-135.

(Author's abstract):

The institutional framework imposed upon Niger in 1946 tended to function according to traditional political concepts, norms, notions and values. Hence the distinction established in this paper between 'traditionalist' (UNIS/BNA) and 'modern' political parties refers to the degree of reliance upon this traditional culture and also to the degree to which party-leaders were able to manipulate the norms, notions, etc., of the traditional political system in order to gain influence within the new institutional framework. The French Administration, functioning largely as an indigenous chieftancy, was to a certain extent forced to interfere in politics. As electoral victory for a 'modern' political party (i.e., the évolués) would have to be interpreted, according to the logic of traditional political theory, as a loss of the 'force', 'power' or 'luck', without which the French could no longer be regarded as the legitimate rulers of Niger.

If the French finally decided to collaborate with the évolués (and in the process disentangled themselves from the 'chieftaincy-model'), it was because the évolués constituted the only group capable of grasping the intricate problems of economic development and of running a modern state.

Key Topics: Politics and popular participation; religion/ideology; national government and state formation.

Ganon, M. F.
1975 The Nomads of Niger. In Population Growth and Socioeconomic Change in West Africa, J. C. Caldwell, ed. Pp. 694-700. Columbia University Press.

Results of a survey conducted from 1962-1964 to gather statistical information on nomadic populations in Niger and either adapt existing survey methods or find new ones to use in the nomadic environment, consisted of the following: (1) demographic estimates of the total nomadic population, and individual and collective data for this population; (2) family budgets and their structure, and estimates of expenditure and income; and (3) nutrition, nature and adequacy of diet, and estimates of average consumption. The two primary ethnic groups were the Tuaregs and the Fulani, and differences between these two groups as to sex and age structure, occupation, population growth, fertility, mortality, and infant mortality, are presented. The average household size in the sample was 4.15 persons for the Tuaregs and 4.63 for the Fulani, while age of the household head increased regularly to a maximum of around 55 for the Tuaregs, and 45 for the Fulani. The following were the chief features noted about household budgets: (1) almost the sole source of income is from the sale of stock; (2) the level of monetary exchange is low; (3) there are rare but large expenditures, some associated with marriage; and (4) barter exchanges are frequent and on a small scale, generally consisting of everyday essentials. The proportion of money spent on food is about one-third. Among the Fulani, this is almost exclusively based on milk, millet being consumed in smaller quantities than among the Tuaregs. The diet for both groups is supplemented with leaves, berries, condiments, tea, and sugar, while meat consumption is reserved for festivities and ceremonies.

Key topics: ***Livestock, nomads and pastoralism; socio-economic data; small-scale enterprise and micro-economic studies; production factors; demography; health and nutrition; language and ethnicity.***

Gast, Marceau
1979 Pastoralisme nomade et pouvoir: la société traditionnelle des Kel Ahaggar. In Pastoral Production and Society, L'Equipe Ecologie et Anthropologie des Sociétés Pastorales, eds. Cambridge: Cambridge University Press.

(Editor's summary):

The society of the Kel Aghaggar or Hoggar Twareg was traditionally organized into a political, territorial, and moral unit: the ettebel, at the head of which was placed a chief elected from among the uterine descendents of a mythic ancestor, Tine Hinane. The corporate-group that the warriors formed exploited the class of the tributary nomadic pastoralists who raised goats and dromedaries. At the same time they provide these pastoralists with a necessary contribution: that it was kinship that functioned from within as a relation of production.

Contact with the French colonial force, which apparently did not want to destroy this society, was extremely disruptive in terms of secondary effects, affecting first the psychic and moral cohesion of the group (the Battle of Tit in 1902) and then displacing the poles of political and economic decisions.

The interdiction of pillage (raids, forays) seems to have struck deeper than at the economic and cultural levels. Such wars were one of the dynamic axes of the society which, along with kinship structures, ensured its real perpetuation.

Key Topics: Pastoralism; stratification; warfare.

Gauthier, H. and G. F. Brown
1975 Francophone Countries. (Family Planning Programs). Studies in Family Planning 6(8):297-300.

Basic policies and recent developments in the family planning activities of the Francophone countries of sub-Saharan Africa are described. Despite the great geographic and social diversity, all of these countries are characterized by the absence of a policy aimed at reducing the rate of population growth and are also resistant to outside influences that attempt to sell a policy of population decrease prior to or concomitant with social and economic development. The populations of these countries are relatively small (only that of Zaire exceeds 10 million) and sparsely settled. The urban populations are small, and the fertility and mortality rates are both high. Mali's policy, which is favorable to the development of a family planning program is, however, concerned only with improving maternal and child health. Zaire has a pronatalist policy which assumes the ideal family to comprise five children. The Malagasy Republic, Dahomey, Togo, Senegal, and Niger have all recognized that high population growth rates are impediments to socioeconomic development. However, their family planning programs are in early stages of development. Other African Francophone countries are hostile to population reduction policies; and many are more concerned with lowering infant mortality rates and correcting conditions of widespread sterility and subfecundity that characterize large areas in some African countries.

Key topics: ***Population; family planning; fertility; morbidity and mortality.***

Grégoire, Emmanuel
1981 Les perspectives d'accumulation dans la petite industrie de transformation: l'example de la menuiserie metallique à Maradi (Niger). Cahiers d'Etudes africaines, 81-83, XXI(1-3):221-235.

One of the very few economic explorations of small-scale manufacturing in Niger. The author, who is a member of the University of Bordeaux multi-disciplinary team studying the Maradi region, provides a brief but useful economic analysis of metal-working shops. Maradi is an old Hausa city which has experienced an enormous urban growth during the past 25 years. From barely 10,000 inhabitants in 1955, some 46,000 were counted in the 1977 census, a net increase of about 7 percent/annum. While all the urban areas in the country have grown, Maradi's explosive increase is due mainly to its importance as a commercial center. It is the main entrepôt for the groundnut trade; and it is the principal locus for transshipment of goods--often smuggled--into Nigeria. Considerable fortunes have been made in both areas:

> ...les mouvements d'exportation et de transit dirigés vers le Nigeria sont toujours très nombreux et encourages par le double jeu entre le taux officiel et officieux de la monnaie nigériane qui permet de fructueuses spéculations (p. 221).

Around this commerce has developed an active, somewhat informal sector of small artisanal enterprises, including potteries, tanneries, and leather-working shops, blacksmiths, masons, tailors, carpenters and metal workers, shop keepers and small restauranters, and taxi/truck drivers. This sector was detailed by the author in his monogra L'artisanat dans la ville de Maradi (Ministère du Plan, République du Niger, 1979, 117 p., mimeographed).

In the present paper, Grégoire focuses on 15 metal-working shops in the attempt to determine the conditions that generate sufficient surplus over the costs of production to allow for reinvestment and expansion. Since revenue data are difficult to obtain in the smaller shops where no books are kept, the conclusions must be seen as provisional. The following items are considered:

(a) The capital investment, the size of which accounts in large part for subsequent economic success or failure. The average investment was about 237,000 CFA with a good deal of variation:

Amount of Capital (in CFA) Invested	Percent of Shops
less than 10,000	9.0
100,000-199,999	36.5
200,000-299,999	36.5
300,000-499,999	9.0
More than 500,000	9.0
	100.0

(b) The organization of labor. Most of the shops were small, with less than five workers. Only 23 percent of the work force is made of skilled, and therefore salaried labor. The remainder are apprentices who are housed and fed by the owner, but whose labor is considered, by the latter, adequately compensated through learning the trade:

> L'apprentissage est donc un moyen pour le chef d'atelier de disposer d'une main-d'oeuvre à bon marché qu'il rentabilise au maximum en la spécialisant dans des tâches simples (p. 228).

(c) Production and commercialization. The small shops tend to specialize in only one or two items (beds, chairs), which due to the low volume of trade and the large number of suppliers they provide at very modest profit margins. A small shop will make a bed for 12,000 CFA, whereas the one large maker leaves such items to the small producers with their rural and proletarian clientele, and concentrates on a wider range of items for construction, including doors and windows. Contributing to the success of two enterprises are the contracts they have been awarded to supply items to the public sector.

(d) Revenues and profits, and the possibilities for reinvestment. The 15 metal shops tend to distribute themselves in two categories: those (10) whose production and revenues are so small that they cannot generate surpluses, and operate at subsistence levels; those (five) who have been able to profit and expand. The latter have benefited from the following factors: good training for the owner; adequate capitalization; available skilled labor; a steady market; either public or private.

> Il est donc clair que très peu d'artisans peuvent espérer devenir de petits entrepreneurs et que l'accumulation est une notion étrangère à un grand nombre d'unités.

Key Topics: ***Small-scale enterprise and micro economic studies; production factors.***

Guillaume, Henri
1974 Les nomades interrompus, introduction a l'étude de canton Twareg de l'Imanan. Etudes Nigériennes No. 35.

This ethnographic study describes the past and present activities of the Tuareg population in the canton of Imanan, located in the Dallol Basso valley in west-central Niger. The first section deals with the history of the region. This area was populated by migrations of people with diverse backgrounds. Many of the conflicts and tensions which exist today can be viewed as originating in the problems of integration encountered in the past. A number of groups attempted to utilize the authors' historical research to justify current matrimonial alliances and chiefly rights.

The second section analyzes the structure of Tuareg society, describing the social strata and discussing how the relationships among them are relevant to production. The author outlines the major transformations which have occurred in social relations since 1800.

The final section deals with the contemporary economic activities of the Tuareg. Particular emphasis is placed upon the current importance of agriculture to these once exclusively pastoral people. The activities of the noble families, who continue to control much of the cultivable land and who parcel this out to their dependent relations are described. The conclusion calls for further studies to better understand the connections and causal relationships between transformations in the socio-economic structures within the Tuareg society and their relationships to political changes in Niger as a whole.

Key Topics: ***Economics; social organization; production factors; nomadic-sedentary relationships.***

Gwatkin, D. R.
1975 Government Population Policies. In Population Growth and Socio-economic Change in West Africa, J. D. Caldwell, ed. Pp. 169-184. Columbia University Press.

West African governments fall into three categories: (1) those committed to or considering large-scale family planning programs aimed at slowing population growth; (2) those evidencing little or no awareness of population growth; and (3) those concerned with increasing population growth. Ghana and Nigeria are the only countries to have adopted official population policies. Ghana has initiated a national family planning program, while Nigeria provides family planning services through existing health facilities. Representative of the second category are Dahomey, Gambia, and Senegal (where economic planners have expressed some concern with population growth but there has been no governmental action), Sierra Leone (neutralist position on family planning), and Togo (no position). Cameroon, Gabon, and Ivory Coast are seeking population increases to achieve their development goals more rapidly. While Cameroon is utilizing policies such as paid maternity leave and children's allowances to encourage population growth, it does not oppose contraception prescription. Gabon, however, imposed severe penalties for the importation of contraception. Migration (across international boundaries and internal rural-urban) has received more governmental attention than population growth. Ghana expels aliens lacking residence permits. Several countries (e.g., Togo, Zaire) promote "return to the land" policies through agricultural development. While few West African governments have consciously sought to influence population growth and movement, each has adopted development policies with unintended population side effects and hidden benefits to urban residents. The extension of health services has lowered mortality, thus accelerating population growth. Education has reduced family-size ideals, especially among urban elites. All French-speaking countries have a family allowance system for government and private salaried employees which has exerted a pro-fertility influence. Industrialization and modernization policies have contributed to the rural-urban exodus. These unintended consequences suggest that policy makers should be aware of the entire range of effects before deciding whether to implement certain policies and programs.

Key topics: National government and state formation; development policy; population; fertility; family planning.

Harrington, J. A.
1971 The Effect of High Infant and Childhood Mortality on Fertility: the West African Case. Concerned Demography 3(1):22-35.

High infant and child mortality corresponds to high fertility in West Africa which may be attributed to three factors: (1) the desire to replace the dead child; (2) the death of the first child which results in termination of lactation which in turn causes renewed ovulation in the mother; and (3) the birth of a second child at a short interval after previous birth necessitates the early weaning of the first child. Considering the nutritional deficiencies and diseases in West Africa, this early weaning could be fatal. Recommended policy includes more than simply maternal and child care in relation to family planning but a broader approach to overall maternal and child care.

Key topics: Population; fertility; morbidity and mortality; health and nutrition; family planning.

Harrington, J. A.
1972 A Comparative Study of Infant and Childhood Survivorship in West Africa. Ph.D. dissertation, Cornell University.

(Author's abstract):

A study was made of infant and early childhood survivorship in Ghana, Niger, and Upper Volta using knowledge-attitude-and-practice and fertility surveys from 1965, and 1970. Demographic, medical, and social factors influencing survival are studied. There has been a decline recently in mortality conditions. High fertility and high mortality were related. "Modern" groups had higher survival rates than "traditional" groups.

Key topics: Population; fertility; morbidity and mortality.

Higgott, Richard and Finn Fuglestad
1975 The 1974 Coup d'Etat in Niger: Toward an Explanation. Journal of Modern African Studies 13(3):383-398.

On Easter Sunday, April 14, 1974, the army, led by Lieutenant Colonel Seyni Kountché, overthrew the government which had been in power since independence. The rhetoric of the coup d'état was similar to the numerous others in this part of Africa, but the authors of this article feel that the common causes given are only relevant in a general sense. The same combinations of factors rarely apply to any two military interventions. Four causes are proposed for the coup:

(1) The political situation in Niger had been dominated by the Parti Progressiste Nigérien (PPN) since 1956. The upper positions of this party were exclusively occupied by individuals from the Zarma/Songhay ethnic groups of western Niger. This was resented by the other groups who comprise 70 percent of the country. For years the PPN opposed any plans to widen its base of support or allow serious opposition. Thus all of the nations' grievances were focused on the small group of party leaders.

(2) The French orientation of President Hamani Diori was seen by many as the main obstacle to internal Africanization. The large numbers of French citizens in the public administration and the patronizing nature of French military officers in the army caused widespread resentment against a government unwilling to dismantle its dependence on and exploitation by France.

(3) The economic and social conditions in Niger were especially disastrous in the early 1970s. The loss of human and animal lives due to the drought combined with expositions of governmental corruption of funds and food designed for drought relief, created powerful opposition to the regime. The failure of the government to formulate better terms of contract with France over the uranium reserves also led to economic difficulties and popular condemnation.

(4) The army itself believed the coup was necessary to protect its own corporate self-interest. President Diori had publicly announced the reduction of the defense budget and use of military personnel on agricultural projects.

The above outlined reasons, combined with the army's knowledge to the easiness of a coup d'état forced them to take action. Other than the removal of the most blatantly corrupt high officials, the changes since the coup have been very minimal. The east-west division remains and, as an elite group, the military council has been even less successful than the old regime at decentralizing power.

Key Topics: Politics and popular participation; language and ethnicity; national government and state formation.

Horowitz, Michael M
1972 Ethnic Boundary Maintenance among Pastoralists and Farmers in the Western Sudan (Niger). J. of Asian and African Studies 7(1-2):105-114. Reprinted in Perspectives on Nomadism, W. G. Irons and N. Dyson-Hudson, eds. Leiden: Brill, 1972.

(Author's summary; p. 114):

The environment supports three major exploitative activities: horticulture, pastoralism, and mixed farming, practiced respectively by the Manga, Wodaabe, and Muslim Fulani. Because land for cultivation is available easily and without cost, anyone may farm. Muslim Fulani and Wodaabe have institutionalized means of acquiring cattle which enable them to rebuild their herds when, through disease, predation, or other loss, their numbers drop below the point where they can sustain themselves and the humans who depend upon them. The Manga, on the other hand, acquire cattle only through purchase and natural increase. The demands of their farms do not permit them to pay adequate attention to the cattle during the cultivating season, when the animals must be kept away from the planted fields. Therefore they are presented with an alternative: to abandon the farm and assume a pastoral existence, or to consign the cattle to a specialist with the tacit recognition that the herd will not increase to its natural potential, because the herder siphons off some of the animals for his own use. Those Manga who own cattle elect the latter alternative though it minimizes the possibility of economic gain, it does not remove them from full participation in other relations, based in the village which, they explain, give their lives richness and meaning. The ethnic-ecologic mosaic is maintained as a result of conscious choices of the individuals of the region.

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Based on fieldwork carried out in the Maine-Soroa area of eastern Niger in 1967-69 and 1980, this article examines economic strategies and cultural values related thereto which serve to maintain boundaries among Manga (sedentary Kanuric-speaking farmers), Wodaabe (transhumant Fulfulde-speaking pastoralists), and semi-sedentary Muslim Fulani groups in the area. The impact on economic strategies adopted by each group appears strikingly in tables concerning cattle ownership (pp. 112 and 109):

Ethnic Group	Mean No. of Adult Cattle per Household (p. 112)	Ratio of Cattle to People (p. 109)
Manga	1.5	0.37 (Manga I and Manga 2 combined)
Bornanko'en	8.1	1.74
Wodaabe	35.6	5.60

Although Wodaabe have larger households than do the other groups (a mean of 6.4 persons per household versus 4.1 for Manga and 4.7 for Bornanko'en Muslim Fulani), the per capita differences in cattle ownership are obvious. Note also that "less than thirty percent of (Manga) village households own any cattle at all" but "every Wodaabe family and almost every Bornanko'en family has its own cattle" (p. 109). Although at the time of fieldwork land was readily available, land was not seen as a good investment (low marginal returns to increased labor input). The author therefore asks why Manga farmers do not become more involved in animal husbandry, to which he responds with a discussion of Manga cultural values which make it unlikely that a Manga villager will choose to adopt the nomadic or semi-nomadic life-style necessary for large-scale herding in the Sahel.

Key topics: ***Agriculture, livestock, nomads and pastoralism; nomadic-sedentary relationships; language and ethnicity; socio-economic data.***

Horowitz, Michael M.
1977 Les stratégies adaptatives au Sahel avant et après la sécheresse. In Stratégies pastorales et agricoles des Sahéliens durant la sécheresse 1969-1974, Jean Gallais, ed. Bordeaux: Centre d'Etudes de Géographie Tropicale (CNRS).

(Editor's summary):

European colonization, independence, a rapidly growing demand for meat, modern veterinary practice, and the favorable climate for pastoral expansion during the 50 years prior to the 1968-74 drought resulted in a dynamic and continually evolving situation, such that there was no fixed set of invariant practices on which the drought acted, no "millenia-old" series of adaptations. The productive strategies of the herdsmen—herd diversification, complex relations with sessile peoples, flexible social organizations, mobility—enable them to exploit multiple resources within their rigorous habitat. The drought forced a movement southward, rendering many herders dependent on relief food and medicine, grouping them in refugee camps, and disrupting relationships among ethnic and ecologically differentiated units.

We have yet to assess the long-term implications of these events. As a consequence of international response to the drought, there has been an enormous mobilization of funds and personnel in the Sahel. Most "development" programs are conceived from above, and emphasize sedentarization, controlled grazing, and a shift from subsistence dairying to commercial beef production. The programs are deficient in involving herdsmen in their planning and implementation, and in failing to demonstrate how the herdsmen are to be the prime beneficiaries of the changes.

Key Topics: Pastoralism; ecology; livestock; development; drought.

Horowitz, M. M.
1979 Sociology of Pastoralism and African Livestock Projects. USAID, Bureau for Program and Policy Coordination, AID Discussion Paper No. 6, Washington, D.C.

(Abstract from AID Development Information Center):

To be successful, development projects not only must be technically sound but also must take account of developing countries' values and indigenous strategies. This paper analyzes the sociological and ecological assumptions which underlie A.I.D. interventions in the West African livestock sector. Against a background portrait of the African herdsman, A.I.D. sector interventions in the region (infrastructure improvements, replication of western commercial production systems, and organizational innovations) are identified and critically reviewed in terms of the problems of desertification and the role of women. The author faults A.I.D. projects for ignoring the social and ecological realities governing African pastoral life. He stresses the fact that pastoralist behavior is a logical outgrowth of past involvement with the Sahel environment. Development efforts which impinge on mobility or threaten the herd's ability to support a large number of persons will be resisted. "Top-down" approaches that ignore the highly individualistic nature of West African herdsmen are likely to meet with failure. In line with the work of other anthropologists and social scientists, the author notes the following functional relationships between herdsmen and herding conditions which should be safeguarded in livestock interventions: (1) Due to the variability of semiarid grazing conditions, mobility is often necessary for survival. (2) Pastoralists recognize claims existing on land and water use and their movement is constrained by those claims. (3) Pastoralists seek to increase and maintain the size of their herds because of the many and different benefits deriving therefrom. (4) Despite the desire to increase herd sizes, there are managerial constraints on the number of animals maintainable under the direct control of a single herding unit. Expansion beyond that point leads to diminishing returns, reflected in an increase in disease, predation, theft, runaways, and watering costs. A 108-item list of French and English references cited (1939-78) is appended.

Key Topics: ***Development policy; pastoralism; social organization; ecology.***

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each system to function in harmony with the other. Third, emphasis on improved management skills in administration, marketing, and accounting would increase the capacity of Nigeriens to more effectively carry out their programs. Fourth, improvement in the market system would require the identification and development of external markets for agricultural and livestock commodities which can be produced in Niger. Fifth, the development and improvement of storage, packaging, and processing of agricultural and livestock products, and an improved transportation system are essential policy concerns.

Specific guidelines were then suggested for improving the efficiency of the marketing system in Niger. Based on the policy guidelines set forth, program recommendations were given. Goals were identified, participants for each program were proposed, and a prioritization of activities was suggested.

Key topics: ***Agriculture; food; markets and marketing; development policy; economics; national government and state formation.***

Seydou, Christiane
1977 Bibliographie générale du monde Peul. Etudes Nigériennes No. 43.

A bibliography of the literature on the Fulbe people throughout West Africa which contains references dealing with almost every facet of their existence. The references are not exclusively the best documented and most precise ones, as they include outdated geographical descriptions and travel reports. Sources for material on the Fulbe are provided and the volume is divided into sections pertaining to the physical environment of the Fulbe; morphological studies; cultural features such as their technology, religion, art, language, etc; their social organization in terms of family, legal institutions, demographics, economics, etc.; and the historical situation of the Fulbe, including important persons, political transformations, migratory behavior, and the effects of colonization.

Key Topics: Bibliography.

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Sidikou, Arouna Hamidou
1977 La stratégie adaptative et ses limites des Zarma du Zarmaganda (République du Niger) face à la sécheresse actuelle (1965-1976). In Stratégies pastorales et agricoles des Sahéliens durant la sécheresse 1969-1974, Jean Gallais, ed. Bordeaux: Centre d'Etudes de Géographie Tropicale (CNRS).

(Editor's summary):

After having situated and presented this country, where the conditions of living are difficult, in its geographic environment, the author first analyzes the geographic conditions of the setting: a troubled economic and political history; weakness of the technological and administrative structures, a consequence of a culpable neglect; vicissitudes as respects irregular and often deficient rainfall; frequency of natural calamaties such as flights of locusts that lead to periods of famine interrupted by brief moments of food self-sufficiency.

The author then analyzes the drought such as it exists: development and seriousness both from the economic and alimentary points of view, as well as commenting upon the political and ecological implications.

Apart from political aid, the adjustment strategies are of two sorts: a mild adoption of replacement food crops, and massive migrations and in different directions.

The author concludes by presenting an analysis of the responsibilities of the peasants and the public authorities confronted with a catastrophic situation, which is not the first of its type, and gives his opinion on the actions to be undertaken in order to prepare for and fight against the effects of an alimentary situation that is frequently of dramatic proportions.

Key Topics: Drought; relief actions; peasants.

Stewart, Bonnie Ann
1980 Peanut Marketing in Niger. Journal of African Studies. 7(2):123-128.

This paper examines peanut marketing in Niger in the late 1970s and pays special attention to the marketing activities in the Department of Zinder. In 1962, Niger established SONARA as a state-owned monopoly to increase peanut production; assure the producers the highest price possible; and allow the state to benefit from the export of this cash crop. The actual functioning of SONARA has not lived up to expectations. The fixed price set by the government has been lower than the open market, reflecting insufficient analysis. While SONARA requires farmers to bring their crops to buying stations, individual traders go directly to small villages. This, combined with the shift from cash to food crops after the drought, resulted in less peanuts for SONARA. The author concludes that SONARA must change its policies to comply with present realities if it wishes to operate effectively.

Key Topics: Commercial agriculture; marketing; development.

Stewart, B. A.
1982 Technology and Development: The Case of a Millet Processing Factory in Zinder, Niger. Journal of African Studies 9(2):83-88.

(From Rural Development Abstracts 6(11), 1983):

The general purpose of the study is to evaluate the introduction of new technology for processing millet and sorghum in the Province of Zinder, Niger. Approximately 90% of the population of Niger is involved in rainfed crop production, mainly millet, sorghum and cowpeas. The millet processing factory was built in Zinder to make flour, biscuits and noodles from locally produced millet and sorghum grain. It would also provide new local employment opportunities. It is questioned whether the introduction of this new processing technology in Zinder was in fact built on adequate factor availability. Evidence suggests that this was not the case. It is concluded, in retrospect, that the choice of new technology for Zinder was not based on adequate assessment of the human, environmental and financial resources available and was not best suited to the needs of the local population at that time. Agricultural development must be built on the type of technology which is appropriate and applicable to a specific area and which responds to their particular needs.

Key Topics: Small scale enterprise; employment.

Stoller, Paul Allen
1978 The Dynamics of Bankwano: Communication and Political Legitimacy Among the Songhai (Republic of Niger). The University of Texas at Austin.

This study, which is based upon data culled during field research in the Republic of Niger in 1976-77, considers the problem of political legitimacy in contemporary Songhai society. The two major hypotheses of the study are (1) that political legitimacy, reinforced by "precarious" values and beliefs, is ever-changing and negotiable and (2) that the analysis of political legitimacy in society should be approached from a communicative framework by using the analytical techniques espoused in the ethnography of communication (cf. Hymes 1962, 1964, 1972a, 1974).

Scholarly work in political anthropology has not begun to describe with adequacy the problem of political legitimacy in non-complex societies. While political anthropologists have considered the problem of political authority from a number of perspectives (cf. Fortes and Evans-Pritchard 1940; Barth 1966, 1967; Swartz 1968; Cohen and Middleton 1970), they have not yet produced a comprehensive study describing the dynamic processes concerned with what Weber called "legitimation".

The problem with many studies in political anthropology is that they have failed to consider processes of political communication and how these processes are related directly to the question of political legitimacy in society. As Berger and Luckmann (1965) point out, the process of legitimating political rule is primarily symbolic and hence communicative. They contend that authority is legitimated in the establishment and maintenance of sets of values which are being continually challenged by people seeking to change the political system. Since political legitimacy is based upon values and beliefs which are being challenged continually by both internal and external social forces, it is negotiable and related directly to social conflict and the processes of social change. In this study the Berger and Luckmann framework is adopted so that legitimacy can be described as a dynamic process, the central ingredient in the recipes of social conflict and change.

The results of the study indicate that in Songhai society social conflict has been related directly to the struggle for political legitimacy. In contemporary Songhai society the struggle for legitimacy has precipitated a social conflict between the Songhai nobles and merchants. The conflict reveals itself in the three arenas of Songhai social interaction: the distribution of space, ceremonial communicative events, and everyday communicative events. It is in these three interactive arenas that Songhai use strategically some of the communicative resources of their communicative repertoires in the struggle for political legitimacy.

The major theoretical contributions of this study of Songhai political legitimacy and social conflict are (1) that it considers political legitimacy to be an ongoing communicative process in which legitimating values are established, maintained, and challenged to meet socio-political goals; and (2) that it uses interactively the ethnography of politics and the ethnography of communication as the only suitable means to the end of the theoretically adequate study of political legitimacy in non-complex societies. The study also suggests the importance of considering the impact of political legitimacy in the analysis of social change.

Key topics: Politics and popular participation.

Stoller, Paul
1981 Social Interaction and the Management of Songhay Socio-Political Change. Africa 51(3):765-780.

French colonization effectively undermined the traditional Songhay political hierarchy of nobles (maigey), non-nobles, and slaves by abolishing slavery and creating an administrative structure of educated elites. The introduction of a monetary economy further destroyed the old order and allowed the immigration of Zarma and Hausa traders into Songhay territory. This transformation of the power structure did not, however, change the sets of beliefs held by many Songhay. Since independence, the gap between the nobles and ex-slaves on one hand, and the non-noble, educated elite on the other, has widened. Currently, non-Songhay merchants compete locally with the nobles for prestige while the educated live increasingly in urban centers. Non-Songhay merchants control the economy in the region and have attempted to raise their status by adopting the symbolic role of the nobles carrying canes, dressing in white, speaking laconically, and creating patron-client relations. As money becomes increasingly important in Songhay society, the balance in the competition for prestige may tip in favor of the merchants.

Key Topics: Colonization; social stratification; socio-economic data; economics; education and extension.

Surugue, Bernard
1972 Contribution à l'étude de la musique sacrée Zarma Songhay. Etudes Nigériennes No. 30.

This volume examines the repertoire organization, instruments played, and the significance of sacred music among the Zarma-Songhay of western Niger. Single stringed viols and percussion instruments constructed of wood and gourds are played during possession cult ceremonies. Well defined symbolic structures organize the players, dancers, public and music into a religious ceremony of great importance.

Key Topics: Religion/ideology; arts and crafts.

Sutter, John W.
1982 Commercial Strategies, Drought, and Monetary Pressure: Wo'Daa'Be Nomads of Tanout Arrondissement, Niger. Nomadic Peoples 11(26-63).

(Author's introduction):

This article, derived from fieldwork in the Niger Republic during the period 1976-78, has as its major focus the commercial strategies of the nomadic Fulani herdsmen of Tanout Arrondissement. and the ways in which these strategies grow out of, and act upon, a pastoral economy in transition from subsistence oriented pastoralism to a more market oriented pastoralism. Particular emphasis will be put on the ways in which the economic environment of pastoral nomads has been changing over recent years. The impact of drought and unsuccessful millet harvests on the pastoral economy will be examined, particularly as these recurrent phenomena influence the ways in which herders interact with the market economy.

The article is divided into four sections. The first contains a brief description of the geographical setting and of the subject people of this article. Section 2 is an analysis of data on the household budgets of 33 Fulani households interviewed during 1977-78. Included in this section is a discussion of some methodological problems involved in a budget study of this type, as well as an estimate of yearly household expenditures and the evolution of expenditures over the last 30 years. The revenues earned from different animal sales, and the age and sex characteristics of marketed cattle are also analyzed. The third section is a discussion of the terms of trade of pastoral for agricultural products and the events of the last 30 or so years that have caused major shifts in the terms of trade relationship. The final section contains a discussion of the macro level implications of the commercial strategies of nomadic herdsmen that emerge under various terms of trade circumstances.

Key Topics: Pastoralism; marketing; drought.

Thom, Derrick James
1970 The Niger-Nigeria Borderlands: A Politico-Geographical Analysis of Boundary Influence Upon the Hausa. Ph.D. dissertation, Department of Geography, Michigan State University.

(Author's abstract, four unnumbered pages preceeding p. iii of the dissertation):

There have been few case studies of boundaries in Africa and virtually none dealing with the impact of a superimposed boundary upon the spatial organization of an indigenous population. The thesis, a study in Political Geography, considers the problem of the influence of the Niger-Nigeria boundary upon the Hausa population inhabiting the borderland region where the indigenous peoples have apparently been divided by the imposed territorial framework.

The work is divided into seven chapters. Chapter One presents a brief introduction to boundary studies in political geography and a survey of boundary definition in Africa. The second chapter is largely theoretical and proposes a paradigm for the analysis of superimposed and colonial boundaries. This paradigm demonstrates a time-space relationship. By proceeding through time the political processes operating during a specific time period produce certain spatial patterns. Three time periods are recognized: the pre-colonial period, when traditional patterns were prevalent; the colonial period, when imposed patterns were introduced; and the post-colonial period, when contemporary patterns emerged. By analyzing the evolution of patterns through time the adjustment to boundary imposition can be determined. Adjustment to the introduction of a European boundary produced a spatial reorganization of population and settlement patterns and brought about the emergence of new patterns of movement and circulation.

Chapter Three is largely factual and delimits the area of the borderlands under consideration. This chapter also discusses the physical geography of the borderlands and sets the stage for the study of man's activities within the area.

The remaining chapters are devoted to the application of the conceptual framework proposed in Chapter Two, to the Niger-Nigeria borderlands. Chapter Four deals with the historical background and reconstructs the pre-colonial traditional patterns. Special attention is focused upon the distribution of Hausa groups, the political areal functional organization, and the traditional patterns of trade and circulation. It was discovered from this analysis that as a result of inter-State wars a depopulated frontier of separation between opposing States was created.

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The fifth chapter is devoted to the events leading to European domination of the borderlands, an analysis of the evolution of the boundary, and an analysis of the resulting spatial reorganization necessitated by boundary imposition. Following 16 years of boundary negotiation between Britain and France, during which time three boundaries were defined and delimited, the Niger-Nigeria boundary evolved from a straight line geometric boundary to an anthropogeographic boundary which took into consideration the cultural landscape. The boundary finally agreed upon followed the frontier of separation and was in fact an antecedent rather than a superimposed boundary.

The result of European expansion into Hausaland modified the traditional patterns and produced imposed patterns that necessitated a spatial reorganization. This spatial reorganization is discussed in terms of population migration, settlement, political areal functional organization, circulation and trade. From this analysis it was concluded that the present day appearance of boundary superimposition is the result of population migration following the demarcation of the boundary. Traditional external trade was reoriented to the south and the trans-Saharan trade declined. By contrast the establishment of new border markets produced patterns of local trade that had not existed prior to the demarcation of the boundary.

Chapter Six focuses upon the contemporary patterns within the Maradi-Zinder-Katsina region. The present day cross-boundary movement of population and vehicles reveals that the patterns established during the colonial period have intensified and become more firmly entrenched in the cultural landscape. The problems of Niger as a landlocked state are also analyzed in this chapter. The final chapter briefly summarizes the findings and conclusions of the research undertaken.

The Niger-Nigeria boundary has been established for over 60 years and has produced no conflict. It is a boundary that can be considered "stable" as a result of its historical antecedents. The freedom of movement at the local level has meant that the boundary has not functioned as a barrier. The stability of the borderlands, however, is tied to the maintenance of the status quo. Any attempt to inhibit local commercial activity will in all probability create considerable dislocation within the Niger borderlands and a loss of revenue to the Nigerian borderlands. The migration of population from Niger during the colonial period has produced a fairly homogenous population within the borderlands. Family ties across the boundary still remain strong and any major attempt to inhibit the freedom of movement could only have serious repercussions.

Key topics: ***Politics and popular participation; national government and state formation; colonization.***

Thomson, James T.

1979 Capitation in Colonial and Post-Colonial Niger: Analysis of the Effects of an Imposed Head-Tax System on Rural Political Organization. In The Imposition of Law, Sandra B. Burman and Barbara E. Harrell-Bond, eds. New York: Academic Press.

This article analyzes some of the consequences of a head-tax system imposed by the French colonial regime (1899-1960) and enforced by the independent Republic of Niger until 1976. During this time, most of the population of southcentral Niger saw the tax as an exploitation mechanism used by higher officials and with very few tangible returns filtering back down to the masses. Tax evasion was thought of as a legitimate way out of an onerous relationship. The most common tax evasion technique was through illegal tax exemptions provided by local officials after the payment of a bribe. This clandestine operation mushroomed into a large concern with important consequences on the rural political organization.

An unintended consequence of the tax evasion strategy was that it placed more power in the hands of the traditional chiefs than would have been possible under the traditional political system. The power to grant exemptions was transformed into the ability to manipulate the rules concerning public land, forest management, and rural development programs which resulted in the villagers being denied the chance to regulate their own activities. The ability of village institutions to manage natural resource problems degenerated, leading to environmental degradation and threatening human habitation.

Key Topics: Colonization; economics; politics and popular participation; ecology.

Thomson, James T.
1980 Bois de Villages (Niger). Report of an Investigation Concerning Socio-Cultural and Political-Economic Aspects of the First Phase of the Project and Design Recommendations for a Possible Second Phase. Mimeo.

This report offers a good summary of the problems with communal village woodlot programs in Niger which Thomson has addressed on several occasions. Despite local peasant recognition of increasing need for tree planting to provide for future wood needs (fuel, building materials, fencing of gardens, etc.), communal woodlots have done poorly in the project area.

Thomson recommends a move toward family woodlots, and changes in the national forestry code to give clear ownership of trees on cultivated fields to field owners. Together these changes would provide significantly greater incentives for Nigerien farmers to plant seedlings and/or protect natural regeneration on their fields.

Communal woodlots, to the contrary, require one or more local farmers to give up portions of scarce fields for the communal planting. In addition villagers expressed repeated doubts in all villages studied by Thomson in the 3M project area that the trees planted in fact belonged to the villagers (and not to the forestry service, which initiated the project, provided the seedlings, fencing materials, etc., etc.). Hence, villagers had little motiviation to use individual initiative to see to the upkeep of communal woodlots (as in watering, fence repairs, guarding the woodlot, etc.).

In support of the role of clear tree ownership in encouraging private individuals to plant trees, Thomson cites the willingness to plant trees within the compound—where the compound owner is also the recognized owner of the tree. Trees on open fields, including dead trees which field owners would like to use for their own wood needs, are subject to forestry code restrictions and to the protecting of professional woodcutters (who are armed with forestry service permits for cutting wood in the bush—but will cut dead trees on fields if the opportunity arises, counting on field-owners' unclear rights to trees to inhibit any protests).

The report also includes recommendations specific to the IDRC village woodlot project, including:

(1) reducing the area covered by the project to a single arrondissement—probably Matameye—in order to match available resources (e.g., vehicle, fuel) to the area to covered.
(2) installing a Nigerien forester with both field experience and research training as full-time project director, resident in a project village. This individual should not be involved in forestry service policing of current forestry code violations.

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(3) changes in the national forestry code to vest clear property rights in trees in the individual/household with rights to the field where the tree is planted.

Thomson also recommends that seedlings be sold, rather than given, to villagers. He argues that: (1) purchasing the seedlings helps to resolve the ownership issue; and (2) purchasing the seedlings provides additional incentive to care for young trees.

In sum, Thomson recommends a "common sense" approach to reforestation which takes account of the local social, economic, and political situation by concentrating on individual action rather than striving for communal action which has proven ineffective in the past (for reasons which he summarizes in the report).

Key Topics: ***Socio-economic data; production factors; rural production systems.***

United Nations Fund for Population Activities (UNFPA)
1981 Republic of Niger: Report of Mission on Needs Assessment for Population Assistance. UNFPA Report No. 41, New York.

The Republic of Niger has relatively low income per capita, high mortality levels especially infant mortality, and a low level of development of the social infrastructure, particularly in health and education. Although there are no explicit population policies, the government is concerned with population-related issues particularly in health and education. As lack of population data and research is a hindrance to planning, the first objective in basic data collection is to utilize exhaustively the results of the first population census conducted in 1977/78. There is a need to improve the civil registration system and to carry out demographic surveys. This would in turn necessitate recruitment of a permanent staff responsible for the development of these and related projects. It is suggested that coordination be improved between the separate information and statistical systems in ministries and other government agencies, and that an accelerated training program be undertaken to strengthen the technical capacity of the Ministry of Planning. The University and training institutes should be involved more fully in the national research effort. Research priorities are in the areas of mortality and fertility, health and nutrition, the media, and women and family life. To create an adequate base for a national family health program, the government is establishing a Family Health Centre which would provide medical care and training and research facilities. Such a project would require the services of consultants to define the organization and its needs. The Mission also recommends the organization of a system for data collection and analysis, periodic evaluation of health care activities, seminars on health statistics, development and financing of the training activities for women, financial assistance for the development of a literacy program for rural women, and strengthening of population education in school curricula.

Key Topics: Population; fertility; morbidity and mortality; health and nutrition; socio-economic data.

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Watts, Michael John
1980 A Silent Revolution: The Nature of Famine and the Changing Character of Food Production in Nigerian Hausaland (Volumes I and II). Ph.D. dissertation.

(Author's abstract):

This study examines the changing character of hunger and food production in Northern Nigeria in relation to environmental stress, particularly drought, and processes of socio-economic change. The emphasis is historical and human ecological, emphasizing the manner in which food production systems have changed in Hausaland since the nineteenth century in tandem with more embracing transformations associated with the process of colonial integration.

The dissertation consists of three discrete sections. The first pertains to the nature of peasant economy in nineteenth century Hausaland in relation to the prevailing state structure, the Sokoto Caliphate. Using largely secondary sources, it is argued that the Caliphate can be characterized by what has been called "a moral economy" in which a measure of collective subsistence security shielded producers form the vagaries of climate and changing food availability. I have argued that this subsistence security corresponded to three levels of human responses to the problems of food shortage and risk. At each level in the hierarchy--domestic, community or state--various technical practices, institutions and political behaviors constituted forms of household social insurance. Although the Sokoto Caliphate was ill equipped to handle the large-scale famines, it could provide some security against agricultural risks.

In the second part, using primary archival and oral data, I show how the margin of subsistence security was gradually eroded during the colonial period. Colonialism in northern Nigeria, undermined the traditional collective security mechanisms yet simultaneously imposed new forms of stress particularly the fluctuations in export commodity prices associated with the incorporaiton of peasants into the colonial state and ultimately into the global economy. Taxation, monetization and the cash crop-commerce netwrok were all instrumental in this incorporative process which broke the cycle of peasant reproduction. Peasant producers were vulnerable to quantitatively small variations in food availability and income, a vulnerability reflected in the succession of at least four major famines between 1903 and 1960. I have shown how each famine was caused less by drought than by the vulnerability of peasant producers and the particular structure of the colonial economy.

The final part is based on a village study conducted in 1977-78 in northern Katsina and concerns contemporary food production in relation to drought

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and famine. Research showed that while Hausa peasants possessed a skilled understanding of local ecology and could adopt complex agronomic strategies to cope with drought, some sections of the community were incapable of responding to either drought or fluctuations in food. The poor were shackled by their poverty, unable to generate income to purchase grain, and hence forced to sell valuable assets or turn to the usurious moneylender. It was discovered that rich and poor farmers responded very differently to drought or poor harvest; while the latter borrowed or ran into debt and purchased grain at inflated prices, the former benefitted at the expense of the poor by selling grain at seasonally high prices and buying livestock and land. A drought or poor harvest could thus act as a trigger mechanism to magnify rural inequalities but at the same time threw into relief the dynamics of rural political economy.

Key topics: ***Development; political economy; food; economics; socio-economic data; social organization.***

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Horowitz, Michael M
1981 Research Priorities in Pastoral Studies: An Agenda for the 1980s. In The Future of Pastoral Peoples, J. G. Galaty, D. Aronson, and P. C. Salzman, eds. Pp. 61-88. Ottawa: International Development Research Centre.

Drawing on his experiences among pastoral peoples in Niger, the author indicates some of the priority areas for social science research among herders with the aim of providing the sociological and ecological bases required for the generation of soundly designed development interventions with the objectives of improving producers' income and well-being; increasing pastoral productivity; and retarding or reversing environmental degradation. Among these priority areas are:

- the political economy of pastoralism;
- pastoral demography;
- desertification and environmental degradation;
- access to land and water;
- the dynamics of offtake;
- the nature of mobility;
- the position and contribution of women.

While prime responsibility for properly designed interventions rests with the developers, who must assure that the findings of social and biological sciences inform the design, responsibility rests also with the scientists to ensure that their research yields understandings that are relevant.

Key topics: Livestock; nomads and pastoralism; production factors; ecology; women in development.

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International Planned Parenthood Federation (IPPF)
1974 Niger (Family Planning). IPPF Situation Report.

In Nigeria the total population as of 1972 was determined to be 4,213,000. The population growth rate for the years 1963-1972 was 2.6% and the birthrate for 1965-1970 was figured to be 52.4/1000. Although previously there have been no organized family planning activities in Niger, currently, there is a small family planning center operating in Niamey with the consent of the government and with the particular approval of the Minister of Health and the Mayor of Niamey. The center has been established by the American Organization for Rehabilitation through Training. It will be linked to the Maternité in Niamey in a wing that will be constructed through funds made available by the U.S. ambassador. The Organization began with a pilot project in the arrondissement of Say and then extended the project to Niamey. It is anticipated that project accomplishments will include the following: (1) a study of local situations and problems and gathering of baseline data; (2) modification and improvement of health services in the area; (3) job refresher training for all existing staff; (4) appropriate supervision and working guidelines; (5) development of effective maternal and child health/child spacing teaching methods; and (6) training of village volunteer health workers, social center workers, village development workers, teachers, and indigenous midwives. Despite the fact that there has been no official change in policy regarding family planning on the part of the government of Niger, considerable changes in attitude have been observed among numerous professionals and officials. Although there is philosophical reticence towards the acceptance of family planning, government authorities have cooperated with the Organization for Rehabilitation through Training and the Maternal and Child Health Family Planning Project. Two surveys seeking to document current family planning practices and needs in Niger have been initiated.

Key topics: Population; fertility; family planning.

Joseph, S. C. and S. C. Scheyer
1977 A Strategy for Health as a Component of the SAHEL Development Program. Washington, D.C.: Family Health Care, Inc.

Current demographic characteristics for Sahel countries are presented along with a health delivery strategy based on a distributive philosophy and linking health activities with other development efforts. Resource allocation is proposed within a village-based system, integrating the following components: (1) nutrition; (2) village water; (3) environmental sanitation; (4) communicable disease control. Investment in a health services infrastructure is anticipated to be a factor in socioeconomic development. Improved health should stimulate labor productivity, enhance the role of women, and increase survival, hence population growth and development. Health services at the village level will be divided into four levels: arrondissement, cercle, régional, and national. Specific action recommendations proposed are: (1) organization of a permanent health group to investigate countries of the Sahel and to examine experiences in other countries; (2) sponsorship of a ministry-level conference to implement health strategy recommendations; (3) enhancement of health policy, planning, and resource allocation capabilities by development of policy and planning infrastructures by donor organization, which would also provide training; and (4) incorporation in the next three or five-year plan of Sahel countries village-based health systems.

Key topics: Health and nutrition; health delivery systems.

Karimou, Mahamane
1977 Les Mawri Zarmaphones. Etudes Nigériennes No. 39.

This study depicts some historical and social facts characterizing the Mawri Zarmaphone at the beginning of the French penetration into western Niger. The formation and organization of the Mawri communities and their past internal and external conflicts are unearthed by researching the oral traditions of the people. Elderly Mawri individuals informed the author on the religious, social and political aspects of pre-colonial Mawri life.

Between the 18th and 19th centuries the Arawa (the name the Mawri called themselves), attracted by favorable geographic and economic conditions, left their homelands in the Hausa regions of south-central Niger and settled in scattered, isolated communities in the traditionally Zarma regions of western Niger. They remained relatively autonomous until the second half of the 19th century when they were faced with external pressure and conflicts from Fulbe, Tuareg and other groups. During this time they abandoned the Hausa language for Zarma and began to be known by the Zarma term Mawri rather than Arawa.

The conflicts affected the various Mawri communities in different ways. In Tondi, Kandié political power shifted from the traditional village chiefs to the military chiefs. Bands of warriors roamed the area stealing animals, attacking merchants and travellers, and generally creating an unstable situation. In Zigi, under the leadership of Gazibo, the Mawri normalized with their neighbors, but the concentration of power in Gazibo's hands altered the traditional political structure. In Issa-mé (Niamey) a coalition of Fulbe, Zarma and Gourmantche massacered many Mawri and expelled the survivors from the area. The survivors reinstalled themselves near Sorko Farka.

At the end of the 19th century, the French colonial administration arrived in the area, ending the conflicts and imposing peace between the ethnic groups. The Mawri settled among the other Zarma speakers but have maintained some of their independent institutions. The author feels that in order to understand the social, economic, political and religious institutions of the Mawri and their evolution, it is necessary to compare them with the current Arawa and their institutions.

Key Topics: Social organization; migration, settlement and resettlement; language and ethnicity.

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Koechlin, Jean

1977 Rapport de Mission d'Etude sur le Milieu Naturel et l'utilisation du sol dans la région de Maradi. Université de Bordeaux II, Programme de Recherches sur la Région de Maradi.

Koechlin's 26-page 1977 report summarizes the natural environment in the Université de Bordeaux study zone in Maradi Department and the major changes in land use between 1957 and 1975 (as shown by comparison of 1957 and 1975 aerial photographs). He first distinguishes two major soil types and three natural regions: (1) jigawa soils — the loose sandy soils of the dunes, which are able to store rain water below the surface where it is available to plant roots even during relatively long gaps between rains; these are the preferred soils for millet fields; (2) geza soils — the more compact soils found in low-lying areas, harder to work than jigawa soils and with poorer water-retention characteristics which make them less desirable for farming despite their better nutrient content; not cultivated when other fields are available but essential to the total system because they provide areas left unfarmed as pasture for livestock.

Koechlin lists some characteristic species for Sudan vegetation types (found south of the 650mm isohyete) and Sahelian vegetation types, with several distinct subdivisions, nor of this rainfall isohyete.

Koechlin describes three natural regions which account for the bulk of the "agricultural zone" (350mm or more rainfall) in Maradi Department (he notes that some localized areas may differ from these patterns and call for further study—e.g., the Dakoro region and the Korgom region). These three zones are: (1) a southern zone, from the Nigeria-Niger border to the 650mm isohyete; (2) a medium zone, from the 650mm isohyete to the 500mm isohyete (Goulbi N'Kava); and (3) a northern agricultural zone, from the Goulbi N'Kava to the 350mm isohyete (Valley of Tarka).

The Maradi research team selected one village in Zone I, one in Zone III, and two in the medium Zone II, selected for different rainfall and soil characteristics—450mm, a village in the northeast part of Zone II, and 550mm for the village in the southern part of Zone II. Koechlin summarizes the results of the comparisons of 1957 and 1975 aerial photographs for these four areas. In Zone III, the northern zone (Dan Koulou area), extensive rather than intensive agriculture was typical in 1957, with up to 75% of the village land in fallow and more land still available uncultivated; only a small band around a village was in continuous cultivation; a 2-3 year fallow followed by 3-5 years of cropping. By 1975 a great reduction in non-cultivated areas was noted; an increase in the area under permanent cultivation (with fallow abandoned in these zones)—especially on jigawa soils; and larger continuous blocks of land in cultivation.

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In the northeastern subdivision of Zone II (Gourgai village): in 1957 the area cultivated by each village formed a circular band around the village separated from the next village's land by an uncultivated zone; villages tended to be located on more compact soils where deep wells (40-50m) could be dug. By 1975, village lands formed two distinct zones: (1) a circle of manured fields kept in continuous cultivation; (2) a large area of bush fields not manured but using fallow and crop rotations to restore fertility.

In southern Zone II (Sarking Hausa area, 550mm of rainfall): already in 1957 this area (more densely populated for a longer time period than the previous zone) had more intensive land use than the northern areas. In 1957 there was a belt of fields in permanent cultivation around the village; then bush fields alternating with fallow further from the village. Some land was unused and left for pasture in 1957 (hence manure from livestock was available for use on fields). By 1975, permanent cultivation covered larger areas (only 25%-50% of lands were in fallow, implying shorter fallows or complete lack of fallow in some cases); cropping was encroaching onto geza soils, hence reducing the rainy season pasture available for livestock; soil degradation, with loss of water retention capability, can be seen in the crops themselves (for example, the plants of millet did not taller—sucker—well).

In Zone I (Magami village, 650mm rainfall zone): better soil and better rainfall conditions provide better yields in this zone, hence households cultivate smaller areas per person or per household. Manure, short fallows, and crop rotations maintain soil fertility. In 1957, a belt of manured fields in permanent cultivation on jigawa soils surrounded the villages; bush fields with fallow lay farther from the villages. By 1975 an extension of jigawa cultivation appears, with some cultivation of geza soils and consequent threat of reduced pasture for livestock.

Although the general tendency in all four cases is in the same direction—an increase in land under permanent cultivation, reduction of land in fallow, loss of pasture areas with reduced availability of manure for fertilizer just as the need for fertilizer increases due to continuous cultivation and loss of fallow—the situation was seen by Koechlin as most critical in the 550mm rainfall case. This was the situation where a complete "blocking of the system" was beginning to appear, with clear evidence of soil degradation reducing crop yields and hence putting yet more pressure on the local populations to increase the area under cultivation with yet greater reduction in pastureland and availability of manure and less ability to leave land in fallow.

Key topics: Agriculture; ecology; production factors.

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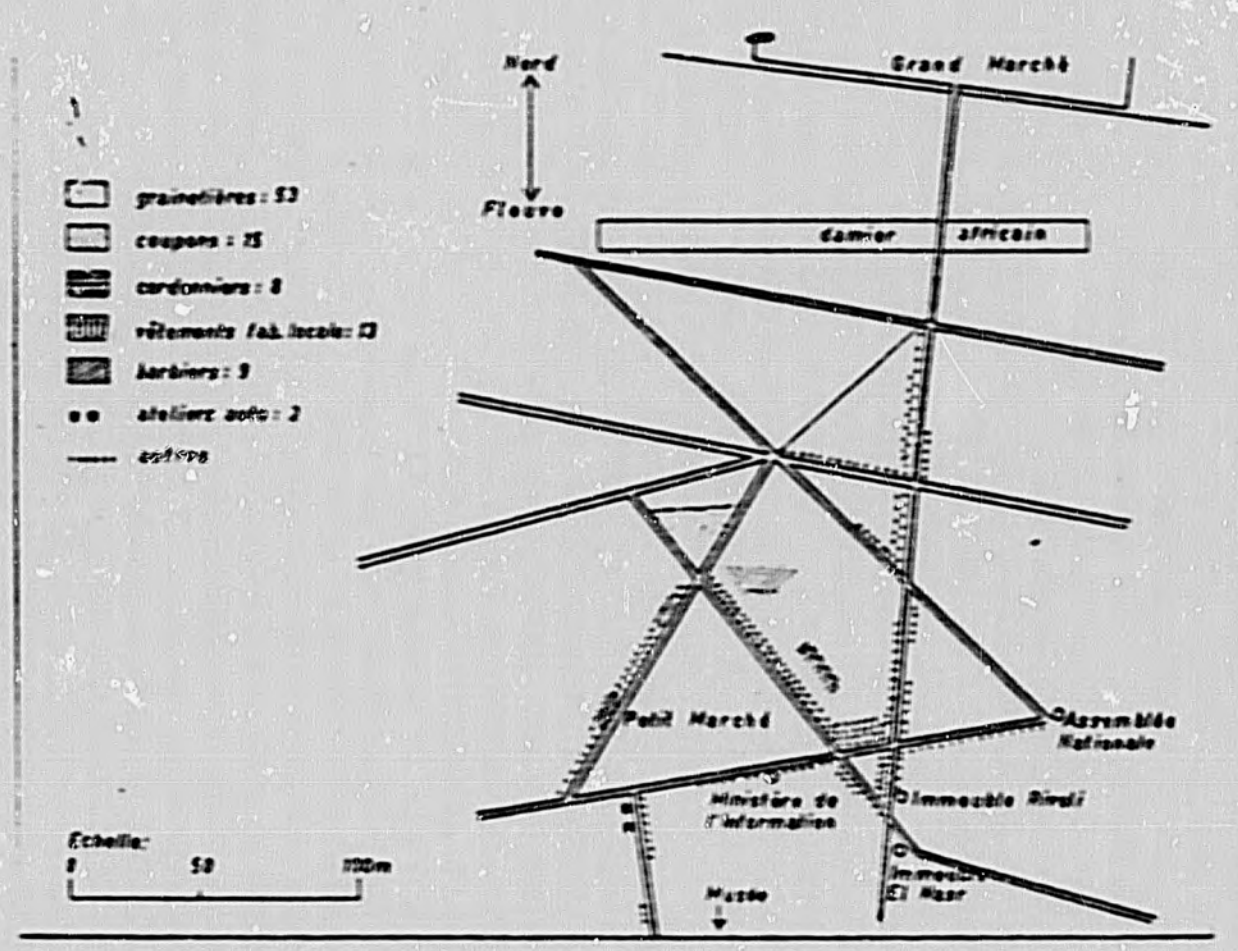
Laval, Gilbert
1981 Enquête sur la 'tabliers' de Niamey: dépérissement et reconquête d'une ville. Cahiers d'Etudes africaines, 81-83, XXI(1-3):211-220.

A brief and superficial inquiry into the street commerce practiced by Africans in the European commercial and administrative quarter of Niamey, a city which, to the author, "is the perfect example of a black agglomeration created by and for the whites". The area of inquiry is the "downtown" Petit Marché and nearby streets, as indicated below.



Localisation des « tabliers » à Niamey.

Laval questions the appropriateness of characterizing the micro-scale commerce of these street sellers as "informal" or "parasitic," noting that the personnel, locations, goods, and prices are all orderly, following a specific time table adapted to the rhythm of the quarter. The street sellers—tabliers, since their wares are displayed on a flat table or tray—provide services aimed at the needs of Africans employed in the quarter, for whom existing shops and restaurants are either too expensive or do not stock their required goods.

> De toute facon, il n'existe rien d'intermédiare aui pourrait assure une restauration populaire entier le Safari, grand restaurant de la ville, et le repas pris dans la rue (p. 217).

Unfortunately, the author provides no information about who the street sellers are, whether they are independent "entrepreneurs" or employed by others, what may be the terms of their employment. He provides no estimates of the returns nor of the volume from this activity. Street commerce is undoubtedly an important area for investigation that remains to be undertaken.

Key Topics: Small-scale enterprise and micro economic studies.

Laya, Dioulde
1973 Recherche et développement: Le projet de mise en valeur des cuvettes de Kutukale et Karma en pays Songhay. Etudes Nigériennes No. 24.

This volume is the result of a socio-economic study conducted in 1965 in the Niger River basins of Kutukale and Karma where the Government of Niger envisioned the development of rice cultivation schemes. In 1962 the European Development Fund (FED) studied the possibilities for irrigated agriculture in all of the basins of the Niger River valley, and found that the two basins of Kutukale and Karma were suitable. The FED agreed to finance the projects after socio-economic studies were undertaken to: (1) uncover problems of land reallocation; (2) study the present agricultural system of the population and their capacity for added work; (3) identify the ethnic groups and their reactions to the proposed interventions; and (4) propose a suitable organizational and administrative structure for the development scheme.

The author identifies four problems emerging from the scheme:

(1) Among half of the families surveyed, many of their members (particularly young males) were absent for all or part of the year. Some were enrolled in schools in the cities, but the majority had migrated to work in Ghana, Togo or the Ivory Coast. This large percentage of absentees poses labor problems.

(2) It is uncertain if migration will decline with establishment of the schemes. The people in these basins must satisfy their subsistence needs before practicing large scale rice cultivation. The problem in this regard is how better to utilize the sandy soils on the sides and outside of the basins for the necessary rainfed cereal crops. Other subsistence questions arise from the local pastoralists' need for access to the river and whether this will be possible after the project has been installed.

(3) The colonial occupation attempted, but did not succeed, to eliminate the socio-political inequalities in the area which stem from a hierarchical social organization of a feudal nature. Inequalities in the socio-political arena will be major obstacles to the equitable distribution of land and materials.

(4) The transformations introduced by the adoption of large scale irrigated agriculture are bound to have important psychological and sociological impacts on the populations involved. The symbiotic relationship between herding and farming will be affected by the introduction of chemical fertilizers. Farming under the direction of a general manager will also cause important changes.

The author concludes that research into the nature of all the effects must be conducted. This should be done by a multidisciplinary task force rather than by one individual, and sufficient time should be allotted properly to complete the study.

Key Topics: Socio-economic data; agriculture; migration, settlement and resettlement.

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Levtzion, Nehemia
1978 Islam in West African Politics: Accommodation and Tension between the 'Ulama and the Political Authorities. Cahiers d'Etudes Africaines 18(3):333-345.

The initial spread of Islam in West Africa was easily accommodated because it came as a supplement to the existing religious systems, rather than a total replacement. The early representatives of the faith, traders and clerics, did not present threats to the political or social systems of the area and were thus allowed to move freely. The Islam which reached the Africans was tolerant and open-ended; it adapted to local environments and customs. However, the adaptations were never allowed to compromise Islam's fixed, stable core, the Quran and other legal and doctrinal literature.

Islamic education spread throughout the area along with the religion. The continuous communications between the core and the periphery reduced the unique qualities of the religion in particular areas so that over time the practice became more orthodox. Individuals and communities gradually became more committed to the shari'a than to their beliefs and practices. At the governmental level there was greater awareness of the political content of Islam and the guidelines it provides for the functioning of a state.

Levtzion traces the development of Islam in various West African locations and points out a pattern of increasing political involvement. The more learned and "Islamized" the leaders became, they were less accommodating, more militant and demanding of radical political change. In the case of political Timbuktu, their role in opposing the government was not to take over direct political leadership but to support other political elements more representative of the Muslim cause. The author concludes that as 'ulamas become more sophisticated and established they tend to reform the parochial aspects of Islam and become more committed to Islamic universalism.

Key Topics: Religion/ideology; politics.

Loutan, L.
1982 Nutrition santé chez un groupe d'éleveurs Wodaabe (Bororo) du Niger; rapport préliminaire-discussion paper. (Nutrition and health among a group of Woodaabe (Bororo) pastoralists in Niger.) Niger, Ministry of Rural Development. USAID, Bureau for Africa.

(Abstract from AID Development Information Center):

A health/nutrition survey was conducted among 53 sample families of the Wodaabe tribe, nomadic cattle breeders who comprise one of the main population groups of Niger's pastoral zone, to provide baseline data on the feasibility of establishing self-help village groups in the zone. This report presents the results of that survey.

Wodaabe food habits and nutrition are based on milk products and cereals, the proportions varying with the seasons; meat is eaten only on special occasions. Some seeds, fruit, and leaves are harvested for food. Water is precious in this hot, arid country; its sources, transport, availability, and use are outlined. A nutritional study on children 0-5 years old found that they were subject to malnutrition at the end of the dry season, when adults also lost weight. Suggested ways of improving Wodaabe nutrition include increasing milk production (added feed, better animal health services, use of goats and camels); better access to cereals (more millet, sorghum, and rice, price control, storage); and greater food diversification.

A year-long health survey found that the Wodaabe are protected by their transient life from epidemics common to population centers, but that they seldom have access to health services, despite the existence of a health system infrastructure. Diseases among the Wodaabe are tabulated by native name, symptoms and cause, and treatment. Informing the Wodaabe and the health services about each other is recommended, as is increasing the allowance of vehicles and fuel to the health services. A self-help health organization already in place could be expanded to provide efficient health service at a price acceptable to the rural population.

Descriptions are included of the characteristics of the population sample in terms of family definition and size (polygamy is practiced), of vital statistics for families, and of the transient lifestyle of the Wodaabe. Appended are details of the survey methodology and questionnaire, a list of the scientific and native names of local plants, and a 47-item bibliography in French and English (1953-81).

Key Topics: Health and nutrition; pastoralism; demography; development.

Mainet, Guy and Guy Nicolas
1964 La vallée du Gulbi de Maradi: enquête socio-économique. Etudes Nigériennes 16.

A voluminous study undertaken in the Maradi River Valley to provide socio-economic information prior to the finalization of plans for irrigated agriculture interventions in the area. The goal of the research is to make available to the intervention promoters a quantitative and qualitative inventory of economic and social data so that the envisioned improvements can be organized around existing facts, structures, tendencies, and interests of the populations involved.

Organized in three parts with many subsections and chapters, the volume begins with descriptions of the human and physical characteristics of the valley. The social and political structures of the primarily Hausa region, despite the presence of FulBe pastoralists and agro-pastoralists and non-Hausa administrative officials, are detailed, as well as information on the economic structures and techniques of non-agricultural occupations; traditional food types and preparation; the land tenure system; labor divisions; marketing and monetary circulation patterns and the seasonal rhythm of life among the Hausa of this region.

The second part examines the structure and organization of the various exploitations common to the rural areas of the Maradi Valley zone. Included are data concerning agricultural techniques and activities, the familial and collective organizations of labor in agriculture and animal husbandry, and the characteristic economic budgets realized by the majority of individuals and families practicing agriculture, livestock rearing, commerce or other income generating activities.

The final part discusses a number of problems facing the proposed irrigation developments. This section outlines physical handicaps such as lack of sufficient quantities of water and the logistical problems of displacing two villages located on the fertile soil of the valley floor. A major concern of the authors is the effects of the reorganization of the valley's land tenure system. Traditionally, all land in the area is claimed by someone but the individuals actually exploiting the land may not be the same. Land use rights and land ownership are distinct entities. The authors question whether these two systems will come into conflict with one another when capital intensive improvements are introduced.

Key Topics: Socio-economic data; agriculture; livestock; micro-economic studies; social organization, development.

Marie, Jérôme
1977 Stratégie traditionnelle d'adaptation à la sécheresse chez les eleveurs Sahéliens: perte en betail, mobilité, ethnie. In Stratégies pastorales et agricoles des Sahéliens durant la sécheresse 1969-1974, Jean Gallais, ed. Bordeaux: Centre d'Etudes de Géographie Tropicale (CNRS).

(Editor's Summary):

The recent drought in the Sahel caused profound changes in the way of life of the animal raisers. A catastrophic phenomenon, drought in this region is not exceptional. The sahelian populations are exposed to non-cyclical periods of drought and rain.

Examples selected in the North-Sahelian zone (the arrondissement of Gourma-Rharous, in Mali) and in southern Sahel (the arrondissement of Tera, in Niger) reveal the traditional strategy of adaptation to drought. This strategy is based on a great mobility of men and animals seeking temporary refuge in the South. The least affected groups (Peul, Iklan) are the most mobile, those which suffered the most (Touareg, songhay peasants) are the least mobile.

But demographic growth, that of the animal herds, the extension of the areas farmed, the pro-sedentary policies of the governments in place combine to reduce strongly the mobility of the animal raisers and render ineffective their strategy of adaptation to drought—the more and more pronounced sedentary habits of the nomads should be balanced by a supervision of the natural setting, a supervision which the public authorities are unable to introduce because of a lack of means.

Key Topics: ***Drought; pastoralism; livestock; ethnicity.***

Matlock, W. G. and N. Ferguson

1979 Base pour la planification des projets de développement: les ressources naturelle: l'exemple du Niger. in Maîtrise de l'espace agraire et développement en Afrique tropicale. Pp. 257-264. Paris: ORSTOM.

Carried out in the Department of Zinder by the University of Arizona the study outlines an approach to agricultural development planning in the region based upon identifying zones according to their natural resource potential for agricultural development. Before development planners can assess a region's agricultural possibilities, data must be acquired on water availability, soil and vegetation types, and existing technology. The study in Zinder collected this information and then classified areas into zones of similar characteristics. From studies such as this, the authors conclude, development policies for a given zone may be extended from one place to another within the particular zone.

Key Topics: Agriculture; development policy; production factors.

Matlon, Peter Joseph
1977 The Size Distribution Structure, and Determinants of Personal Income Among Farmers in the North of Nigeria. Cornell University.

Widening income disparities between the rich and poor in many low income countries during the past two decades has emerged as a major concern to development planners. The most recent National Development Plan of Nigeria reflects this concern by assigning priority to growth in the agricultural sector within the broader objectives of inter-regional and inter-personal equity. The inclusion of the equity objective in the design of production oriented agricultural policies has been constrained by lack of knowledge both regarding the dimensions of the rural income distribution and regarding the characteristics of the rural poor. This study provides a detailed profile of incomes for a sample of farmers in the north of Nigeria and identifies the determinants of income differentials.

The analysis is based upon data collected during a twelve-month period in 1974-75 from a sample of 140 farming households in three villages of Kano State. It is found that among the sample villages the distribution of income is decidedly equitable relative to international standards and compared to Nigeria as a whole. The high degree of equity is attributed primarily to: available surplus land, an egalitarian land tenure system, inheritance practices which limit the accumulation of land and other fixed assets between generations, and the limited profitability of the generally traditional farming systems of the area.

Despite the narrow range of incomes, an econometric analysis identifies differences in the efficiency of land and labor utilization in farm production as the most important determinants of income variation. Differences in management underlying these efficiency differentials are examined through budgeting and production function analysis. It is found that low use of fertilizer combined with generally low levels of management skills account for the inefficient use of land and labor resources among poor farmers.

A set of poverty-trap relationships posited on a cash shortage observed among the poorest households is examined. These include: need for and cost of credit, choice of crop mix, timing of crop sales, selection of off-farm occupations, and access to government extension programs. Individual components of the poverty-trap are verified, but their cumulative impact is insufficient alone to prohibit the upward mobility of even the poorest households.

It is concluded that the current distribution of income in areas typical of the survey villages is not a problem of sufficient magnitude to justify corrective government action. Evidence is presented, however, which indicates that the adoption of new technologies is likely to widen income disparities. To forestall this, modification in observed extension programs are suggested. Emphasis on the development of low cost food grain production

technologies is urged as an approach providing important improvement in the welfare of the poorest, grain deficit households. Because the marginal returns to fertilizer use are highest on the farms of low income producers, the specific targeting of poor households in fertilizer and instructional campaigns is identified as a strategy which satisfies both production and equity objectives.

Key topics: Development policy; socio-economic data; economics.

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Melvestuto, Stephen P.
1982 Catch Assessment Survey on the Niger River in Niger. Auburn University, International Center for Aquaculture.

(Abstract from AID Development Information Center):

Information on the number of fishermen, the fish catch, and the fish harvest per unit of fishing effort are needed to develop fishing regulations and management strategies and to make long-term predictions of maximum expected yields, species stocking, and fishing levels for the Niger River in Niger. This report offers a proposal for conducting a catch assessment survey (CAS) to provide such information.

After defining the need for a CAS and for other biological fish sampling on the Niger River, the authors outline the design of a preliminary CAS. The initial CAS will have two parts: an on-water survey of active fishermen to estimate fishing efforts and observe fishing methods, and a landing survey to determine the size and composition of the catch and the sizes of the harvested fish. Both initial surveys will be based on a division of the hydrologic year into four seasonal strata: the on-water survey will also entail dividing the river into four geographical segments. Peace Corps Volunteers will conduct the actual interviewing; sample questionnaires are included. After a 4-month period of preparation, the initial surveys will be conducted for one year beginning 2/83. Based on the data collected in the first year and on four overflights of the river, the original survey designs will be modified as necessary.

After sketching a fish population sampling program which will supplement the CAS with biological data, the authors proceed to suggest the roles to be played by the various participating agencies - the Nigerien Department of Water and Forests, the FAO/Fishery Development Project, the USAID/N Project for Soil and Forest Utilization, and the U.S. Peace Corps - in conducting the CAS. The authors conclude by re-emphasizing that, while the ultimate purpose of the CAS is to acquire information for rational fishery resource management, development and enforcement of regulations and attention to all aspects of fish utilization (e.g., preservation and marketing) are also crucial.

Appended are overflight specifications, recommended USAID/N expenditures for the CAS, and a short report on community development orientation for Peace Corps fishery volunteers.

Key Topics: Fishing; development policy; production factors; ecology.

Miranda, E. and R. Billaz
1979 Apports de l'analyse agronomique à comprehension des modes de mise en valeur des terroirs sahéliens: aspects méthodologiques. In Matrise de l'espace agraire et développement en Afrique tropicale. Pp. 105-110. Paris: ORSTOM.

Based on location and socio-economic criteria, particular plots of lands were selected from among a representative sample of villages to observe and measure their cereal yields.

A comprehensive description of cereal-based production systems can be done only after detailed information of this nature has been collected.

Key Topics: Agriculture; production factors; social organization.

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Mortimore, Michael J.
1972 The Changing Resources of Sedentary Communities in Air, Southern Sahara. Geographical Review 62:71-91.

(Author's abstract; p. 150 in the same issue):

The disruption of the trans-Saharan caravan trade, the colonial occupation of West Africa, and the policy of "sedentarization" for the nomadic population of Niger have required the Tuareg of Air to make considerable economic adjustments. Today the sedentary communities in Air are placing increasing emphasis on irrigated agriculture. This development has taken place in the context of a renewed system of interregional trade, based on the export of Saharan salt and wheat to southern Niger and Hausaland. In this paper an attempt is made to map and measure the extent of enclosed agricultural land in central and southern Air and to evaluate the present relationship between population and resources. The decline of pastoral nomadism seems inevitable, but agriculture as an alternative can provide only limited employment. Although the supply of cultivable land is greater than the demand at present, expansion of agriculture will be limited by physical conditions, and the area suffers a location remote from the urban markets of the south. Tuareg participation in the modern economy (road transportation and tin and uranium mining) has so far been small.

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Mortimore's paper covers the human ecology of the Air; historical data for the area since Barth's visit in 1850; agricultural resources of sedentary communities in areas for which 1960 aerial photographs on a 1/50,000 scale were available; settlement, agriculture, and trade fro the village of Timia (a Kel Owi village of about 1,200), which Mortimore visited during the winters of 1963-64 and 1964-65; and finally the balance between population and resources in Air.

Thanks largely to its higher elevation and resulting greater participation (than received by adjacent areas), Mortimore sees the Air as "a peninsular projection of the Sudan zone on the southern 'shore' of the desert (p. 71). The Air massif is drained in large part by westward flowing seasonal watercourses (Hausa kori). Above the kori floor one finds two terraces, a sand terrace just above the kori and a coarse gravel terrace three meters or more above the kori floor.

"In contrast with the gravel upper terrace, the sand terrace is suitable for agriculture and is capable of supporting intensive irrigated cultivation where water is available at an economic depth. Agriculture in Air is confined to irrigated land on the sand terrace, though it seems possible that rainfed cultivation was once practiced. The main dry-season crops are wheat, barley, and a wide range of vegetables; millet and maize are grown in

the short rainy season, with supplementary irrigation. All work on the farm is done with the hoe" (pp. 78, 80).

Page 80 includes a map of enclosed farmland in central and southern Air (based on the 1960 aerial photographs), with adjustment for variations in altitude; a table summring up the information appears on p. 83. "Within the area mapped, the total amount of farmland is approximately 607 hectares" (making up only 0.00052 percent of the total area mapped) (p. 82). The average farm size is approximately 1.24 hectares (p. 82), but Mortimore notes that "despite the systematic use of animal manure, enclosed land is not always under cultivation, and part of the farm is often out of use" (p. 80). The limiting factors on irrigated agriculture include (1) the distribution of the sand terrace; (2) the availability of underground water sufficiently close to the surface; and (3) accessibility of markets, principally Agades and from Agades points south (p. 81). Markets are highly important because wheat and dates are grown for sale, while the staple millet is imported (pp. 88, 91). The availability of labor is also strongly influenced by the absence of many men and dry season trading activities (e.g., in the early 1960s, the Kawara salt trade, p. 88).

Key topics: ***Agriculture; pastoralism; nomadic-sedentary relationships; socio-economic data; production factors; ecology.***

Nicolaisen, Johannes
1963 Structure politiques et sociales des Touareg de l'Air et de l'Ahaggar. Etudes Nigériennes No. 7.

This volume describes the pre-1960 political systems of the Tuareg of Air and Ahaggar and their close integration to the rest of Tuareg culture as depicted among the 240,000 to 300,000 Tuareg inhabiting a region of central Niger from the center of the Sahara desert to 14 degrees latitude in the south.

At the time of European penetration into the area, in the late 1800s, the Tuareg were the most powerful group in the zone. The chiefs of the nomadic Tuareg were politically more important that the Sultans living in the settled towns, and could effectively support or replace the latter as they pleased.

The highly stratified Tuareg maintained aristocratic principles by rigidly controlling the interaction between nobles and commoners or vassels. This was the foundation of the political system as it functioned. Of particular interest in this volume are the descriptions of the structure of slavery institutions and their importance to the Tuareg. The system was very stratified but well integrated at the same time. The slaves themselves have profoundly influenced many aspects of the Tuareg's society. The existence of a slave group allowed the noble Tuareg to be less dependent upon the commoners without having them effect the political relations because their incorporation was not of a class or caste type, but rather a form of familial relationship. Since the colonial era, slave markets no longer exist but the institution itself has changed little. Slaves voluntarily remain with their masters. For the most part, masters do not abuse them because there are several standardized methods which permit a mistreated slave to leave his master for another, causing the former a great loss of face. The political structure is based on a distinction between nobles and vassels, while slaves are regarded as familial; a slave is considered the same as a child of the family. It is less difficult for a Tuareg noble to marry a slave woman than to marry a common woman, and his children by her are considered noble.

Key Topics: Social organization; politics and popular participation.

Nicolas, Guy
1960 Un Village Haoussa de la République du Niger: Tassao Haoussa. Cahiers d'Outre-Mer 13(51):421-450.

Based on fieldwork carried out in July-September 1956, this paper describes a Hausa village of 334 inhabitants located 15km north of Matameye on the road from Takieta to Matameye (which also links Zinder to Kano in northern Nigeria). Nicolas calculated village lands at 1,062 hectares, including 26 ha of irrigable cuvettes.

Under the heading "traditional life", Nicolas discusses settlement pattern, land use, production both of millet and of irrigated crops and small ruminants (goats); household organization; traditional (pre-Islamic) religion; and relations of the village with larger units. He then turns to "recent evolution," including factors causing change (Fulani, French, extension service personnel); economic changes (peanut-millet competition for space in village fields); raising of beef cattle (142 head owned by just nine households in 1956); changes in garden crops; soil exhaustion; expansion of the marketing of basic foodstuffs; and social changes (predominantly in terms of changes in household structure—from large extended families to smaller units).

It is noteworthy that already in 1956 Nicolas expressed concern over the availability of land for continuing traditional fallowing practices. Tassao Haoussa had lost control of about two-thirds of village lands due to outside interventions: the settling of a Bouzou village on one part of village lands, and the appropriation of 464 hectares by the French administration as a "perimetre de reservation." This occurred in about 1949, and was supposed to be for a fixed period of 15 years, in effect serving as a prolonged forced fallow period—if the village in fact later recovered the area. Since grazing was allowed inside the perimeter while cultivation was not, this contributed to the interest in cattle.

Irrigated gardening at Tassao Taoussa had been affected by a gradual rise in the water table over the past 40 years (a phenomenon also noted by R. Charlick in his Ph.D. dissertation concerning Matameye County—Charlick 1974). Date-palm orchards planted in earlier years were flooded, killing the trees; and there had been a shift in garden crops with sugar cane now planted in wetter areas, and manioc and new mango orchards beginning to appear. However, garden plantings seem to have exceeded marketing possibilities in 1956 (see p. 442, which reports 14,300 stalks of cane, 12,690 "pieds de manioc," 245 date palms and 145 mango trees, with crops worth about 500,000 CFA altogether on the market at current prices, much of which could not in fact be marketed).

Overall, Nicolas sees a traditional agricultural system in which large extended-family households (the gida unit) cultivate millet using cooperative

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labor parties (gaia or gava) giving way to a system based on smaller units (centered on nuclear families) cultivating more peanuts and more involved with privately-owned goats, cattle, etc. Already in 1956 he is concerned about the effects on staple food availability of the competition between millet and peanuts for space in village fields, and about the long-term implications on soil fertility of the reduction in land available to the village.

Key Topics: ***Agriculture; rural production systems; production factors; food.***

Nicolas, Guy
1963 Notes ethnographiques sur le terroir, l'agriculture et l'élevage dans la vallée de Maradi. Etudes Nigériennes 6.

A socio-economic study of the Maradi Valley region undertaken at the request of the Government of Niger to provide a socially sound base for the eventual design of hydro-agricultural programs in this area. Organized in three sections, the study outlines data on various distinct but interrelated aspects of the populations and activities in the Valley.

The first part briefly describes some ethnographic details (an in-depth ethnographic analysis is contained in G. Mainet and G. Nicolas, La Vallée du Gulbi de Maradi, 1964, Etudes Nigériennes 16), and distinguishes among the various environmental conditions of the region. Primarily, there is a dune area of sandy soils on the slopes and outside of the valley (jiogawa) reserved for the rainy season cultivation of cereals, and the clay soiled valley floor (fadama), often innundated with water during the rainy season but irrigable during the dry months. Land use in the representative village is examined, differentiating between valley and slope, and individual or collective labor organization. Tables and charts provide data on the numbers of individuals and the surface areas involved.

The second section provides technical information on the agricultural activities performed in the valley and on the slopes. Illustrations describe the tools and irrigation methods employed by the cultivators of the region. Information details the yields, labor requirements and seasonality of the diverse produce cultivated in a specific village.

The final section analyses the importance of and techniques concerning animal husbandry in the Maradi Valley. Specific data on herd demography and the numbers of animals passing through the markets of the zone reveal the interdependence between herders and cultivators. The author poses some concluding questions concerning the proposed irrigation development. In particular, he asks whether the agricultural transformations will take into account the importance of livestock related activities in the region, pointing out that the economic, transportation and fertilizing aspects of animal husbandry could be jeopardized by intensive agriculture labor demands and loss of grazing and water rights.

Key Topics: Agriculture; pastoralism; social organization; development,

Nicolas, Guy
1979 Détours d'Une Conversion Collective. Ouverture à l'Islam d'un bastion soudanais de résistance à une guerre sainte. Archives des Sciences Sociales des Religions, 48(1):83-105.

(Author's abstract):

Contrary to current opinion, the progression of Islam South of Sahara does not always take on the aspect of a conflict between Mohammedism and local cults. It sometimes follows complex detours involving periods of resistance. The A. analyzes the case of a Soudanese society in Niger which constituted in the XIXth century a citadel of the Hausa resistance to the "Holy War" movement of which the "caliphate" of Sokoto was born. In this bastion, where the aristocrats of Katsina and Gobir, the citizens of the southern merchant cities, and the peasants true to their ancestral cults had retrenched, preislamic beliefs were maintained, even though undergoing certain modifications because of the situation. The analysis permits a better understanding of the conjuncture against which Usman dan Fodyo preached the jihad, while bringing out the existence of the double "national" and rural structure of local preislamic cults. At first it was the "national" structure which lent itself to the integration of elements of Islam. However, since the European conquest, the older "pagan" bastion has been largely opened to the Sokoto influence. The agrarian and "national" cults anterior to Islam tend to melt into a syncretic construction which approaches the Koranic model. Help from Arabic countries and the evolution of the modern Nigerian elite favours this movement. 175 years after the "Holy War", the heirs of those who fought against it are progressively and pacifically becoming submitted to its values.

Key topics: Religion; national government and state formation.

Nicolas, G., H. Doumesche and M. dan Mouche
1968 Etudes socio-économique de deux villages hausa. Etudes Nigériennes No. 22.

A socio-economic analysis of two Hausa villages located in the valley of the 'gulbi de Maradi' between the city of Maradi and the Niger-Nigeria border. Anticipating the displacement of the two villages, Jiratawa and Madarumfa, because of construction of a hydro-agricultural scheme, the document presents the socio-economic situation and poses problems which may emerge with the development scheme.

Information on the villages obtained through questionnaires and measurements is presented in sections dealing with: the physical structure of the villages; occupations and production systems; the kinship networks; religious or supernatural beliefs; and the economic features creating important internal ties and linking each village with the exterior. Although the two villages have many characteristics similar to the entire rural Hausa region, there are some important differences. Jiratawa maintains many traditional Hausa elements such as multiple social groups based on occupational specialities. Madarumfu, more urbanized and market oriented, shows deeper, stricter social stratification dominated by merchants and educated Muslims.

Given the complicated social situations in the two villages, the authors conclude that a rashly conceived and introduced irrigation scheme may not offer equitable benefits to all inhabitants. The project affects most of the population and will inevitably alter the pre-scheme social order. This study proposes a gradual, humane and experimental approach to uncover a program in the best interests of the entire population.

Key Topics: Development; social organization; socio-economic data; religion.

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Nicolas, Jacqueline
rid Les juments des dieux: rites de possession et condition féminine en pays Hausa. Etudes Nigériennes 21.

A description of the bori possession cult, practiced in the Maradi Valley of southcentral Niger. Although this cult is common to most Hausa groups, in the Maradi Valley it is unique in that it is an exclusively feminine activity. The author interviewed 62 cult followers while investigating this phenomenon. Actual possession is a fairly infrequent occurrence and the majority of the followers were observed in their "natural" state.

The first section details the cult, the society in which it is found and how it developed. Similar to the acceptance of Islam, the bori evolved in response to the absence of contact with the gods of the past after the transformation of the traditional clan-based social organization. The cult is the vehicle between the natural and the supernatural and, therefore, it provides access to the power of the invisible.

The second part studies the personalities of the individual cult followers. It was observed that the differences in the roles of the possessed and the non-possessed women in the society was rather a matter of degree than form. The latent opposition between males and females tends to become more noticeable among cult followers with higher divorce rates, independent economic activity and generally more independent behavior.

The bori did not exist in the traditional religion of the society. It represents a religious transition which is rapidly emerging victorious over the old. The bori women are key-persons to this transition and to the transformation of the social relations in general. The traditional sense of males and females as complimentary elements is being replaced by a sense of the two in opposition, often expressed by women while possessed, hence the growing number and importance of bori adepts.

Key Topics: Family and household; social change.

Okediji, Florence A.
1970 An Economic History of Hausa-Fulani Emirates of Northern Nigeria, 1900-1939. Ph.D. dissertation, Indiana University.

(Author's abstract):

This thesis deals with the economic history of the Hausa-Fulani emirates from the establishment of British authority to the beginning of the second world war. The study begins by examining the social and economic conditions which existed in the emirates and the British involvement to control the extensive trading patterns that were developed by the indigenous people through the activities of the Royal Niger Company.

But the British could not control the territory because the Caliph of Sokoto had established Fulani suzerainty over the Hausa states early in the nineteenth century. Therefore to ensure that the British had the control of the economic resources of the Hausa-Fulani emirates, the Sokoto Caliphate had to be subjugated and the loyalty of the Sultan and his emirs to the British rule had to be ensured. This was done by the "indirect rule" structure of administration established in the emirates. The Fulani emirs participated in the dual structure in order to ensure peace and security necessary for economic exploitation.

However, in spite of the British political control the economic changes that occurred were through the responses and activities of the indigenous people to economic incentives. The increased economic activities in turn had impact on the colonial policies. There was a need for formal organization and the systematic collection of taxes to finance government projects. Improved transport facilities were provided for evacuation of products from the emirates to the coast. The predominantly agricultural nature of the economy was encouraged and there was an increased production of cash crops. But the changes that occurred in the internal working of the economy as a result of these forces took place because of a widespread manifestation of economic initiative and adaptability of the people of northern emirates.

There was no need for promotion of any new techniques by Colonial administration which significantly changed indigenous commercial organization or responses to improved market opportunities in cropping patterns. Therefore the traders and producers of the Hausa-Fulani emirates played a more important role in the economic development of the area than is ascribed to them.

Key topics: Socio-economic data; political economy; colonization.

Olivier de Sardan, J. P.
1966 Les Wogo du Niger. Etudes Nigériennes 20.

A study of the Wogo of the Niger River Valley which was undertaken before interventions to increase the production capacity of the region were introduced. Numbering around 15,000, the Wogo principally inhabit the valley along the Gourma, a tributary of the Niger. In this region the river divides into a multitude of arms creating many small islands, all of them inhabited and cultivated.

The study describes the Wogo's history, production activities, the organization of production, marketing and the role of women. The Wogo are distinguished from other valley inhabitants for their rice cultivation tradition which establishes them as the principal rice producers of Niger and their penchant for hard work which makes them well adapted to irrigated agriculture programs.

Comparing the Wogo to the traditionally non-rice producing groups of the region, the Kado, Bella and FulBe, the author concludes that there are links between techniques of production, relations of production, social organization and the ability of one culture to diffuse or accept innovations more readily than another. For a more complete picture of how the various institutions are related and an understanding of differential development potentials, further ethnographic and socio-economic studies must be completed.

Key Topics: Agriculture; fishing; river basin development; economics.

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Olivier de Sardan, J. P.
1969 Les voleurs d'hommes (notes sur l'histoire des Kurtey). Etudes Nigériennes No. 25.

The Kurtey are located along the Niger River between Niamey and the Mali-Niger border. Socially, economically, politically, and religiously, the Kurtey are today very similar to the other ethnic groups inhabiting the river's banks, the Songhay, the Wogo, and the Kado. Each group has certain particular characteristics but only through an analysis of the past can the roots of these particularities be understood.

This volume traces the history of the Kurtey. They are of FulBe origin but have settled and been more or less totally "Songhayized". This is a rare phenomenon as few other FulBe groups have been as completely altered. The other significant fact is that even today, from Say to Tumbuktu, the Kurtey have a well established reputation based on their past occupational specialty as pirates and slavers. They are reputed to undertake long expeditions up and down the river capturing individuals from other groups. This study provides important information on slavery in pre-colonial Africa.

Key Topics: Language and ethnicity; social change; social organization.

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Oxby, Clare
1975 Pastoral Nomads and Development. London: International African Institute.

Clare Oxby, a social anthropologist who has carried out studies among pastoral Tuareg in Niger, has brought together a short bibliography of recent literature to 1975 on herding societies, particularly focused on those peoples residing in the African Sudanian and Sahelian zones. The work does not claim to be comprehensive, neither of place nor of topic. It provides an overview mainly "as a response to the specific needs of development workers going out to Africa from the UK" (p. 18). The text is in both English and French.

Persons conversant with the topic will find the list rather too brief and the selected annotations rather too superficial for scholarly purposes, although it is a good introduction for students. Project technicians should find useful both the bibliography and Ms. Oxby's brief discussion of some eight rationales which are raised again and again by policy makers, host governments and donor agencies to justify interventions in pastoral life. That utility would have been enhanced, however, had the various bibliographic items cited been keyed as to their relevance in informing upon the eight interventionist justifications.

The substantive material includes: (a) ten recent collections of papers without annotation (other than an indication of their availability in London); (b) fourteen annotated articles, of which ten appear in the collections listed above; and (c) some 150 unannotated titles, again many selected from the ten compendia. Almost all of the items are published in books or in readily available serials. Items of limited circulation, such as mimeographed papers meant primarily for internal agency and host government use, have in general not been included.

Key topics: Livestock, nomads and pastoralism; bibliography; development.

Page, H. J.
1972 Infant and Child Mortality. In Population in African Development, Vol. I, P. Cantrelle, ed. Pp. 85-100, Dolhain, Belgium: Ordina.

Demographic data are of limited quantity and defective quality for most of Africa. Universal vital registration is still not practiced in many African countries. This inadequate information hinders analysis of the level and causes of early mortality and identification of early mortality trends. From partial and indirect demographic data it is possible to infer that African infant and child mortality levels are high. Types of data and methods of estimation used are discussed. Child mortality is higher relative to infant mortality than in other areas of the world. Higher mortality occurs in Western than in Middle or eastern African and in rural than in urban areas. Charts and maps present mortality estimates for regions within African countries. Causes of this high early mortality are mentioned.

Key topics: Demography; population; fertility; morbidity and mortality.

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Painter, T. M.
1981 Quel Avenir pour le Sahel? A Response to Guy Belloncle. Unpublished manuscript.

Painter gives an eight-page critique of Guy Belloncle's overall approach to development in Niger in the form of a response to Belloncle's review of Herve Derriennic's book Famines et Dominations en Afrique Noire: Paysans et Eleveurs du Sahel sous le Joug (Paris: Editions l'Harmattan 1977), which appeared in Esprit (n.s. annee 3, No. 26, pp. 51-57).

In Painter's view:

(1) Belloncle fails to place Niger's overall development problems within the framework of the world economy and the regional African economy (e.g., he fails to analyze why Niger, with serious food problems of its own, nevertheless exports staple crops, peanuts, cattle and labor...);
(2) Belloncle offers an inadequate conceptualization of the post-colonial state in Niger;
(3) Painter sees population growth in Niger as a result of peasant production strategies;
(4) Painter notes problems with currently available technical packages, such as increased risk to peasant producers;
(5) Painter criticizes Belloncle's emphasis on pedagogical solutions to development problems in Niger;
(6) Painter argues that the emphasis on village-based cooperatives for Nigerien development is a "misconceptualization of local reality" (p. 8).

Key topics: Development policy; political economy; colonization; production factors.

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Palmeri, Paolo
1979 Traditional Lifeways and Modernization: Social Transformation in a Niger Village. In Anthropology and Social Change in Rural Areas, Bernardo Berdichewsky, ed. Pp. 49-65. The Hague: Mouton Publishers.

This article examines some social transformations that occur in a traditional society in the Zarma village of Goudel, eight kilometers up river from Niamey. Traditional societies are characterized by dynamic structural transformations which are continually homogenizing and absorbing modern elements into the community. The new elements do not determine new social relations, but are themselves filtered and conditioned by tradition. An analysis of the various roles and status groups in this village is made to support the hypothesis.

The relationship between the seniors and the youth is examined within the contexts of the traditional society and the process of modernization. Traditionally, the socialization process gradually integrates the youth into the social structure according to the status of his family. By obtaining a wife and later children, a man gained knowledge and control, and eventually acquired a senior status.

Today, youths flee the village to differently acquire knowledge and emancipation by working in the cities. Although the youth may be absent, the remittances they send to their families in the village promote them into the senior status since these monies often are used to acquire wives for the absent members. Thus, villagers remain attached to the traditional practices of their society even though modern activities keep them occupied away from home.

Key Topics: Social organization; socio-economic data.

Penning de Vries, F. W. T. and M. A. Djiteye, eds.
1982 La productivité des pâturages sahéliens. Wageningen: Centre for Agricultural Publishing and Documentation.

This is a comprehensive report on the findings of the project, Production Primaire au Sahel, carried out in Mali in 1976-1980, by a large group of researchers from the Agricultural University and Centre for Agrobiological Research in Wageningen, the Netherlands, and from the Institut d'Economie Rurale, Bamako, République du Mali. This is the most thorough study ever made on the productivity of Sahelian rangelands, and although the work was focused on Mali and Mauritania, it has direct relevance to the understanding of Sahelian rangelands in Niger. Although the bulk of the report is in French, there is a 34 page summary of findings in English. The work is a <u>must</u> on the shelf of every person involved in pastoral development in semi-arid rangelands.

The senior editor prepared a long summary of the book for the Overseas Development Institute's Pastoral Network Paper, No. 15b, January 1983, and the following brief overview is taken from the introduction to that summary:

1. What is the actual productivity of rangelands in the Sahel in terms of quantity and quality? What is its variation from place to place and from year to year? Can productivity be increased? Is a further increase in the intensity of rangeland exploitation possible? What effect will that have on the soil? What kind of solutions to problems of exploitation and overgrazing is feasible, and what kind is not?

2. Such questions are discussed on the basis of our interpretation of data gathered by others and ourselves. Much emphasis is placed on the finding that soil fertility, in addition to precipitation, is a key factor in rangeland productivity, because it is the principal cause of the meagre production of forage, and its generally low quality.

3. Chapter 1 describes in general terms the problems of animal husbandry in the Sahel, one of them being low productivity of the natural rangelands. The systems approach, ~~essential in~~ our research, ~~is presented in Chapter~~ Two. Chapter 3 introduces the physical and plant ecological environment.

4. In Chapter 4 the potential of grassland production is discussed on the basis of the water balance of the soil, the botanical composition of the vegetation and physiological characteristics of plants. This potential level is not attained in the southern Sahel because of a shortage of plant nutrients. This is explained in Chapter Five. Chapter 6 compares many of the findings of the preceding chapters with field observations, and derives generalizations from them.

5. This information is used in Chapter 7 to formulate a methodology for surveying rangelands: to indicate quickly their potentialities, their actual conditions and how these may change after modification of the level of exploitation. Suggestions for improvements of the production and utilization of the forage are presented in Chapter Eight. These options are discussed in the framework of improvement of animal productivity in Chapter Nine.

Key Topics: Livestock; production factors; ecology.

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Pisult, Colette
1963 Contribution à l'étude de la vie quotidienne de la femme Mawri. Etudes Nigériennes 10.

A broad base survey of the daily life of Mauri women in the town of Dogonouchi, population 4,000, located in the Dollol Mauri of south central Niger. The town was chosen because of its intermediate size, visibly exhibiting more modern influences than a small bush village but less transformed than a city such as Niamey. The existence of a community medical clinic and the growing reliance on manufactured commodities indicates a town in transition. The role modern interventions play in the day to day life of Mauri women and the extent to which their current activities differ from traditional practices is investigated.

The most obvious, non-traditional feature of the Mauri women's daily rhythm is their adoption of modern material objects. The western influence is readily detected in the cooking utensils, furniture, fabrics, and clothing fashions. Although many European style goods are employed, the actual techniques, processes and purposes, such as food preparation and water collection remains unaltered. The new items substitute the old, their diffusion and incorporation may be rapid but the evolution of the institutional processes takes time.

A transformation of social relations is another part of modernization. Examples given in this realm portray the differential alteration of specific spheres rather than the total system. Formal education for young girls has become relatively common, but they remain in school for only a few years, far less than the young boys. A woman's ability to choose her own husband, and vice versa, has increased but this liberty has not altered the frequency of polygamous marriages. As with material objects, some new social relations are added to the traditional base without undermining it.

Two interesting annexes are included. The first examines the daily regime among the twenty wives of the district chief and the second is a collection of five short autobiographies of prostitutes practicing in Dogonouchi.

Key Topics: Women; sex roles; social change; social organization.

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Piault, Marc Henri
1964 Populations de l'Arewa: Introduction à une étude régionale. Etudes Nigériennes No. 13.

Two major ethnic groups, the Arewa and the Gubawa, are identified by the Zarma term Mauri. This volume describes and analyses the inter- and intra-group structures which differentiate these populations and others in the region, an analysis made difficult by the heterogeniety of the region. The author begins by distinguishing groups not identified with the Mauri: the Kurfeiyawa, the Buzaye and the agropastoral Fulbe. In some cases even this is difficult as intermarriages between the Kurfeiyawa and the Mauri are erasing clear distinctions.

On a simple level, the Gubawa can be characterized as hunters who gradually settled in the area. This group has traditionally followed a lineage/clan social organization centered around the religion Azna. The Arewa arrived as conquerors and instigated a political structure based on that of the Hausa state at Bornu. However, the situational complexities render categories such as this difficult to apply today.

The first half of the twentieth century witnessed a tremendous amount of diffusion and migration among the peoples of the Dallol. The result has been the formation of ethnically heterogenous villages, yet often more cohesive than homogeous ones.

The introduction of commercial crops and the establishment of villages that are not ethnically based, during the colonial era, has generated territorial stabilization and a new concept of land tenure based on private ownership emerged. The transformation from a lineage organization to a territorial political society ruptured the functional relationship based on marriage alliances of wife-givers and wife-takers between the Gubawa and the Arewa. No longer are the Arewa totally responsible for the political activities or the Gubawa the sole group fulfilling religious roles.

Key Topics: Social organization; social change; language and ethnicity.

Poitou, Danièle
1978 La delinquance juvenile au Niger. Niamey: Institute de Recherce en Sciences Humaines. Etudes Nigériennes 41.

A specialist's report in 1966 indicated that the problem of juvenile delinquency was almost non-existent in West Africa, especially in predominantly rural Niger. The absence of actual proof motivated the author to undertake research on the topic between 1970 and 1974. The first, brief survey made in Niamey suggested that the problem of juvenile delinquency had become serious enough to warrant a sociological investigation.

Initial conversations with judges, police, doctors, sociologists and officials within the administrative services revealed a broad range of responses and ideas about the problem. Some individuals absolutely denied the existence of authentic juvenile delinquents in Niamey. Others minimized their importance, attributing the bulk of the problem to older professional criminals. Still others were less optimistic, and indicated the problem was real and rapidly becoming a major social crisis.

The author feels that although the problem exists and is growing, it may be somewhat overstated. Juvenile delinquency in Niger is in its infancy, not only in comparison with Western Europe, but also compared to other West African nations such as Senegal, Ivory Coast and even Upper Volta. The problem is growing, however, caused by specific conditions that prevailed in Niger since around 1965. The number of young, male, rural villagers who have migrated to the cities has increased dramatically every year. The insufficient economic development of the country, considerably aggravated by the drought, has been a major cause of the migration to urban areas. Once in the cities, the ineffectual educational system and serious underemployment leaves many of the young little choice but to subsist as vagabonds. The author concludes that delinquency is a phenomena of transition, accompanying a process of change involving the entire society. In this sense delinquency itself can be considered a relatively "normal" response to rapid change.

Key Topics: ***Social organization; economics; migration, settlement and resettlement; urban and regional studies.***

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Poncet, Yveline
1977 Un exemple d'agriculture seche: le terroir de Soudoure au Niger. In Landuse and Development, Phil O'Keefe and Ben Wisner, eds. London: International African Institute, African Environment Special Report 5.

Rainfed agriculture represents more than 80 percent of the agricultural activity in the Sahel. Dependent upon the rain which is irregular in space and time even in 'normal' years, problems become extremely serious during consecutive dry years, as during the recent Sahelian drought. This article describes the techniques, organization of space, difficulties encountered, and modes of adaptation employed in traditional rainfed cultivation in the village of Soudoure, located on the Niger River northwest of Niamey.

Outlining agricultural activity throughout the seasons, this article concludes that, although the population cannot afford major irrigation and other transformation schemes, refinement of existing techniques and small-scale implementations could improve the agricultural output. Inputs such as more efficient utilization of manure, anti-erosion efforts, animal traction, systematic field preparation and rotation, and careful choice of seeds could improve production. Unfortunately, final dependence is still on the unpredictable rains.

Key Topics: Agriculture; production factors; development; small-scale enterprise and micro economic studies.

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Pool, J. E.
1972 A Cross-Comparative Study of Aspects of Conjugal Behavior among Women in Three West African Countries. Canadian Journal of African Studies 6(2):233-259.

This study seeks to determine whether modernization, particularly the adoption of non-traditional marriage customs, results in either the erosion of women's status or in an increase in freedom and improved social status and self-image. Data for the study were obtained from surveys conducted between 1965 and 1971 in Ghana, Upper Volta and Niger. Information concerning marriages was derived from detailed conjugal histories from questionnaires. "Marriage" was loosely defined as any relationship allowing some degree of regularity and frequency of sexual intercourse. Findings show that traditional marriage customs are still being widely practiced in all three countries. There is mounting evidence, however, that exposure to modern concepts of marriage in urban areas, education, and changing needs of societies are contributing to the emergence of new patterns of marital behavior. Of these, education is the most important factor, as the educated women are the ones exhibiting a minority group, it is suggested by Caldwell that the new urban elites in Africa ("harbingers of social change") set the new patterns of behavior which the rest of society follow. It is further postulated that women in the future will be confronted with a choice between the benefits of a Christian marriage or the freedom and vulnerability of a mutual consensual union. The concepts of family planning appears to contradict the basic beliefs of most women whose culture bestows social status and prestige on them based on the number of children they bear. A carefully implemented family planning program that is considered a part of real development strategy could prove beneficial to the women.

Key topics: ***Development policy; women in development; family and household.***

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Population Reference Bureau (PRB)
1976 Africa. In Population Reference Bureau (PRB), World Population Growth and Response: 1965-1975 A Decade of Global Action. Pp. 27-64, Washington, D.C.

Following a brief overall summary of the population characteristics for Africa as a whole, short summaries are presented for each country, territory, colony, or trusteeship on or near the continent. Each summary includes: (1) vital statistics (population, growth rate, birthrate, death rate, and natural increase); (2) a statement of official government policy relevant to population control; (3) internal family planning programs, if any; and (4) a review of external assistance, if any.

Key topics: ***Demography; population; fertility; morbidity and mortality; family planning.***

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Raulin, Henri
1964 Techniques et bases socio-économiques des sociétés rurales Nigériennes. Etudes Nigériennes 12.

A study of the socio-economic and political structures of the rural peoples of western and central Niger and some of the problems which these people have, and will, face as they evolve. The book is divided into four sections. The first describes the historical, demographic and territorial organization of the regions. The second examines the traditional means of production employed and the technological transformations which have occured fairly recently. Chapter three describes the traditional and current relations of production and how these interrelate with the temporal and spatial organizations of production. The final section examines the transformations of the land tenure system since the arrival of Islam and the European colonists.

The study also deals with the differences and similarities between the two major ethnic groups of the area, the Zarma-Songhai to the west and the Hausa to the east. Territorial separation, cultural, economic and political distinctions place the two groups apart. Nevertheless, in other regards such as many agricultural techniques, the two can be viewed in a similar light.

The author concludes that there is a degree of solidity and permanence to the societies studied which is not altered by the introduction of new techniques and rapid emergence into the modern economic world. It is a characteristic of rural Africa to be able to incorporate many of these changes while conserving the essentials of particular cultures.

Key Topics: Socio-economic data; ethnicity; social change; agriculture.

Raulin, Henri
1976 Organized Cooperation and Spontaneous Cooperation in Africa (Niger Republic). In Popular Participation in Social Change: Cooperatives, Collectives, and Nationalized Industry, June Nash, et al., eds. Pp. 35-43. The Hague: Mouton.

This brief article criticizes the imposition of western models and values in the development process. Raulin contrasts "spontaneous" cooperation in the form of indigenous mutual aid networks based on age mates, with the Groupements Mutualistes de Progres (GMPs) created by the French CFDT and other agencies to promote agricultural change (such as adoption of animal traction) in Niger.

Raulin argues that GMPs are unlikely to be effective when they lump villagers of various origins into a single group, while workable GMPs could be created corresponding to the "spontaneous" mutual aid networks.

Raulin also makes the point that social analyses done for projects are of no help if their suggestions are ignored, using the example of an unsuccessful irrigated cotton project near Tillabery. Although it offered a potentially successful technical package, both the redistribution of irrigated land taken over by the scheme and assumptions about the control of household heads over the labor of unmarried sons aroused discontent. Most seriously, the high fees assessed against producers from their cotton sales (amounting to one-third to one-half of the total value of sales) proved unacceptable to farmers in the scheme. These problems resulted in ultimate project failure (pp. 41-42).

For a more detailed study of "spontaneous cooperation" in Niger see Raulin's article "Communautes d'entraide et développement agricole au Niger: l'exemple de la Majya" (Etudes Rurales No. 33, janvier/mars 1969, pp. 5-26). It will be more useful than the "organized cooperation/spontaneous cooperation" article, which says little that is new to a reader familiar with Niger.

Key topics: Development policy; family and household; economics.

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Raynaut, Claude
1969 Quelques données de l'horticulture dans la vallée de Maradi. Etudes Nigériennes No. 26.

This volume provides data on gardening practices in the Maradi Valley, which is located between the city of Maradi and the Niger-Nigeria border. Two fundamental points differentiate vegetable gardening from other agricultural practices in this area: (1) gardening occurs during the eight-month-long dry season while other cultivation takes place during the rainy season; and (2) gardening requires irrigation and is therefore practiced near water sources on the clay soils of the valley floor, while other crops (grains, cotton, groundnuts) may be grown in the sandy soils outside of the valley. During the dry season months, gardening groups receive an income at a critical time of the year when non-gardening groups must spend their savings.

This study covers the techniques of gardening employed in this region. Included are data on fertilizer usage, well construction and maintenance, and enclosure possibilities. Data on seventeen specific gardens are presented through charts on spatial organization, species of vegetables grown, and the net benefits from total costs and receipts.

Key Topics: Rural production systems; production factors; small-scale enterprise and micro economic studies.

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Raynaut, Claude
1977 Circulation monétaire et evolution des structures socio-économiques chez les haoussas du Niger. Africa 47(2):160-171.

This article outlines some of the mechanisms underlying the circulation of currency among rural Hausa in Niger and points out the consequences for the evolution of social and economic structures.

At the micro-economic level it stresses the extreme rapidity with which money circulates through various channels in the village community. It relates this phenomenon to current transformations in the basic domestic organization as well as to the appearance of new models of economic behavior.

In the macro-economic perspective, the acceleration of the rate of circulation is only one manifestation of a larger ebbing and flowing movement. The mass of money coming from cash crops reaches the rural community and the majority is quickly spent, part going to the state by means of the tax system, and the rest, in large measure, going to the commercial sector through the sales of consumer goods. The money flows through a system imposed from outside the village. Conditions are created in which money is rare and rapid circulation enforced. The repercussions of these constraints are profound for the functioning of the social and economic system as a whole.

Key Topics: Small-scale enterprise and micro-economic studies; production factors; socio-economic data.

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Raynaut, Claude

1977b Aspects socio-économiques de la préparation et de la circulation de la nourriture dans un village hausa (Niger). Cahiers d'Etudes Africaines 17(68):569-597.

(Author's abstract):

This study of the preparation and distribution of food casts an interesting light on the deep relational structure underlying an economic system. In the Hausa village of Soumarana the households are not self-sufficient and autarchic as far as food is concerned. They rely to a large extent on commercial transactions to supplement home grown produce. Labor divisions occur both in the production of basic foodstuffs and in their ulterior preparation and circulation. Men and women cook, sell, and buy different kinds of food. Commercial transactions reach their peak during the scarcity season, just before harvest, when people are short of both food and money. This apparently paradoxical situation is linked with recent social changes and the increase of tensions between elders and youths, and between men and women. Women, especially, have become able to maximize the profits from their own crops while making the men pay for the food they cook for them. Exchanges are no longer based on barter and food has become an item in the money-based economy.

Key Topics: ***Socio-economic data; social organization; markets and marketing.***

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Repetto, R.
1974 The Interaction of Fertility and the Size Distribution of Income. Cambridge, MA: Harvard Center for Population Studies, Research Paper No. 8.

Complete data has been secured from 68 countries in order to expand on earlier research on the size of distribution of income and its relationship to fertility in underdeveloped and developed countries. The measures of fertility used were: (1) the annual number of births divided by 1/2 the population within the ages of 15-64, and (2) the gross reproduction rate. The measures for income distribution usually are either the share of total personal income received by the poorest 40% of the population or the Gini coefficient. The latter has been used in this research. This analysis used a multiple regression model of fertility and depicted in a three equation model the influences of fertility, infant mortality, and income distribution upon each other. Earlier findings that the distribution of income has a significant influence on fertility and that lower fertility is associated with a more equitable distribution of income were supported in this research. Another result was that once female illiteracy was controlled for, the influence on infant mortality on fertility was relatively weak. The strongest influence on female mortality was found to come from female literacy, a variable more important than nutritional intake, or availability of medical facilities.

Key topics: ***Population; fertility; morbidity and mortality; economics; education and extension; health and nutrition.***

République du Niger, Ministère du Plan
1980 Plan Quinquennal de Développement Economique et Social 1979-1983. Niamey: Imprimerie Nationale du Niger. (Diffusion: Secrétariat Général du Gouvernement.)

This major planning document, prepared in the late 1970s to follow the 1976-1979 three-year plan and printed in 1980, is a compendium of official statistics related to development for the Niger Republic, including many projections through 1983. Numerous maps (several in color) and tables are included in the 666-page text. It enunciates GON priority goals for 1979-83 (food self-sufficiency; building a "société de développement"), and it recognizes such problem areas of concern as environmental degradation in the agricultural zone; rapid population growth as a source of increasing pressure on national resources, particularly in achieving food self-sufficiency; and lack of adequate numbers of trained personnel.

The first selection, "Le Développement Global," provides in 120 pages an overview of the Nigerien economy and strategies for development under the new plan, including financial and human resources.

The largest section, of about 290 pages, is devoted to "Le Développement Sectoriel." Under the heading of rural development agriculture, animal husbandry, forestry, fishing, and agronomic research are discussed in turn. Mining, industry and artisanal production, building and public works, and energy follow, as "sectors of rapid growth." Commerce; transport and communication; telecommunications; financial institutions and insurance; tourism and hotels; and the administration are grouped as "secteurs d'accompagnement." Under the heading "Building the Future" come chapters on education; professional training; functional literacy and animation programs; scientific research and higher education; the media; and the programs of youth, sports, and culture. Finally, under the heading "the distribution of the fruits of growth," come discussions of health; urbanism and habitat; water services; and employment.

The final section, of about 236 pages, covers "Développement Regional." It provides a department by department analysis of the current situation (about 12-14 pages per department), followed by sections on regional development objectives (with reduction in the disparities in regional levels of development as a priority) and the planned regional distribution of investments under the 1979-83 Plan.

A description and brief analysis of the 1979-83 five year plan by USAID personnel is found in Annex A, pp. 60-66, of the Country Development Strategy Statement (CDSS) for Niger for FY 83 (dated February 1981). The CDSS analysis points out that achievement of goals set in the Plan

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is likely to suffer from financial constraints due to falling uranium prices; difficulties in meeting manpower training needs; and any unfavorable fluctuations in weather conditions (p. 66). Meeting plan targets through resource to commercial loans "could add to a potentially serious external debt situation" (Ibid.).

Key topics: Development policy; national government; agriculture; livestock, nomads and pastoralism; socio-economic data; education and extension; health and nutrition; urban and regional studies.

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Reyna, Steve
1979 Equity in Niger: Cycles, Evidence and Options. Unpublished draft report for REDSO/WA.

This useful document pulls together a range of information on equity issues concerning the Niger Republic; the author's summary is attached below. Major topics treated include documenting "privileged" class versus the majority of peasant farmer herder population; tensions due to monetarization of the rural Nigerien economy; and equity issues related to access to land.

Pages one through ten document the existence of: (1) a small "privileged" group which Reyna estimates at about five percent of the national population, and (2) the mass of the rural population (Hausa talaka, commoners). The annual household income of the latter may be less than the monthly income of members of the privileged group, which is made up of the modern bureaucratic elite, large traders, and some members of the "old aristocracy" or pre-colonial ruling class. One major characteristic of the privileged group is that their incomes are relatively independent of agriculture, climatic disasters, etc. (see p. 41). Even if one questions some of the individual figures Reyna uses here, the distinction as a whole is well established. At this point Reyna gives little or no attention to important variations within the rural majority, however.

Pages 15-23 document the increasing monetarization of the rural Nigerien world since 1900. Money needs of sedentary farmers have grown faster than the capacity of agriculture to supply money needs, argues Reyna, creating a "montarisation tension." Capitation taxes (abolished in late 1977) provide one example: Reyna cites Raynaut (1977:2) that in 1959, 40 kg of millet paid one person's taxes while in 1971, it took 70 kg of millet to do so. Results of this monetarization tension include: (1) sale of lands by persons or households in need of cash, with land accumulation by those who are better off; and (2) wage labor on other people's farms, which reduces yields on one's own farm due to diversion of labor needed on own fields to producing cash (interferes with timeliness of operations, for example).

Pages 24-28 discuss factors increasing the demand for land in Niger. These include:

(1) reduced mortality and continued high fertility, which result in population growth;
(2) disruption of pre-colonial land use patterns—in particular in the ability of pastoralists to prevent the establishment of farms in pastoral zones;
(3) GON land tenure policies, which make it advantageous for an individual/household to cultivate the maximum possible amount of land in order to lay claim to the land and/or prevent anyone else from claiming it (unfortunately Reyna does not give sources for the laws he mentions); and

(4) monetary pressures on rural households which push them to plant larger areas to gain more income.

Pages 38-41 deal with declining productivity in Niger, including a lengthy excerpt (pp. 34-40) from Koechlin 1977 on ecological degradation in Maradi Department. Factors cited include: (1) deforestation/loss of tree cover (Eddy 1979); (2) loss of fallows; (3) reduced yields. Reyna notes that as farm incomes decline due to lower productivity, the gap between the farmers and "privileged" groups widens since the latter are not dependent on agriculture for their incomes.

Pages 41-43 describe a positive feedback cycle between land demand and inequity tensions. Reyna then relates land demand to the monetarization inequity cycle (p. 44). The remaining sections include discussion of implications and points of possible intervention; Reyna's recommendations (see author's summary below); and references cited. Amongst others, Reyna suggests a farm credit program to allow small farmers to raise cash without diverting labor from their own fields and changes in land tenure legislation and/or policies to reduce the incentive for putting additional land under cultivation.

(Author's summary; two unnumbered pages following title page):

(1) A large literature unanimously agrees that there is considerable inequity through Niger measured by the distribution of land and income.
(2) Two cycles are identified: monetarization "tension"/inequity, and land-demand/inequity—which increase rural improvisation and inequity.
(3) The monetarisation "tension" cycle results from certain unintended, and until recently, unperceived, consequences of policies designed to integrate farmers into the market economy.
(4) The land demand/inequity cycle was initiated by a conjunciton of demographic and policy changes which induced ecologically excessive utilization of land resources.
(5) Care is exercised to evaluate empirical evidence bearing on the two cycles' existence. It is concluded that while available evidence is supportive, it is not sufficient to confirm the cycles. However, the available evidence is far stronger than that frequently forming the data-base for policy decisions in sub-Saharan Africa. Agriculture policy-making in Niger which reaches conclusions at variance with those expressed in this report should do so from a data-base and empirical analysis as extensive as in the present exercise.
(6) Eight policy options are suggested. The rationale for these options is that, if successfully implemented, they can reduce impoverisation and inequity, while at the same time contributing to the agricultural goals of increased production and productivity. Interventions suggested

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involve:

A. an impoverization monitoring program
B. modernization "tension" reduction policies
C. a suggestion to reduce loss of labor during times of peak farm-labor demand
D. a suggestion for alleviating land divestiture
E. a suggestion concerning a population program
F. suggestions concerning land-use policies
G. insistence on the importance of programs to increase agricultural productivity which are economically and technically feasible under socio-economic and micro-ecological conditions in which small farmers actually reside.

Key topics: Socio-economic data; production factors; political economy; social stratification; economics; development policy.

Roberts, P.
1978a Development of the Badeguicheri Valley (Department of Tahoua, Niger). In Integrated Rural Development Projects Carried Out in Black Africa with EDF Aid, Hughes Dupriez, ed. Pp. 19-26. Brussels: Commission of the European Communities, Development Series No. 1.

The Badeguicheri Valley development project was originally designed to increase cotton production in the alluvial soils and, at the same time, increase cereal production on the plateaus and valley slopes. In light of the Sahelian drought of 1972-1974, the aims of the project were diversified and brought more into line with the needs and constraints at the time. These new goals included reforestation, well construction, the introduction of cowpeas, and educational and social services. Unfortunately, the project spread itself so thinly among the various programs that although some obtained their goals the overall impact was small. The chief merit of the project was the valuable information it provided on the incentives and constraints affecting integrated development in this area.

Key Topics: ***Commercial agriculture; agriculture; ecology; rural production systems.***

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Roberts, P.
1978b Integrated Rural Development in the Department of Zinder (3M Project), Niger. In Integrated Rural Development Projects Carried Out in Black Africa with EDG Aid, Hughes Dupriez, ed. Pp. 27-34. Brussels: Commission of the European Communities, Development Series No. 1.

This is an evaluation of the first phase of a long-term project (1973-1985) affecting three arrondissements and some 50,000 family farms producing 60 percent of Niger's groundnut crop. The project hoped to accomplish a number of goals: (1) to increase groundnut production through intensification of techniques; (2) find a balance between groundnut and food crop production; (3) implement a fallowing system to retain soil fertility; (4) attempt to provide incentives that would halt the migration of young people from the area; and (5) build up the educational and social service facilities of the area. In phase I (1973-1976) cereal production was well above the project objectives but groundnut production fell short. Although unfavorable natural conditions contributed to this, there was also the problem of the relationship between the strategy adopted, the objectives, and the existing social system. The project's demographic approach to land shortage did not correspond to the peasants' own traditions and constraints; it was unable to modify its program to correct for this shortcoming.

Key Topics: Rural production systems; agriculture; commercial agriculture.

Roberts, P.
1979 The Integration of Women into the Development Process: Some Conceptual Problems. Institute of Development Studies Bulletin 10(3):42-52.

The Subordination of Women Workshop leading up to the 1978 Conference provided the opportunity to review past and current strategies for the improvement of the status of women in developing countries. The effort involved both examining the policy statements of national and international development agencies and reevaluating development programs for women implemented on the basis of such strategies. The demand of the 1975 United Nations Conference on women in Mexico for the integration of women into the development process did not represent a total new concept, and there seems to be some value in examining the concept of integration as it was understood prior to 1975 to see how it had to develop and to examine the way in which the concept was applied to and affected the direction of research and planning. Lack of experience and lack of resources debilitated "Animation Feminine"—programs in Niger—along with problems of its own making which arose from this early concept of integration. Focus is on examination of two problems arising from the "Animation Feminine" program—the fairly general problem of the kind of research which needs to be undertaken to provide the basic data for the integration of women into development and the problem that in peasant economy, in general, a large portion of women's labor is appropriated through household production but rewards are distributed through social evaluation of age, gender or conjugal rank rather than on the basis of the amount of work performed. A brief history of animation programs in Niger is included.

Key topics: Women in development; development policy; education and extension.

Roberts, Pepe
1981 'Rural Development' and the Rural Economy in Niger, 1900-1975. In Rural Development in Tropical Africa, Judith Heyer, Pepe Roberts, and Gavin Williams, eds. Pp. 193-221. New York: St. Martin's Press.

This paper examines the history of agricultural and rural development policy in the Republic of Niger from early French conquest to the mid 1970s. The major focus is on groundnut production which, in the Maradi and Zinder Departments, accounted for 60 percent of Niger's foreign earnings until the late 1960s.

Both the colonial and post-colonial administrations have held false perceptions about the nature of peasant society which have shaped the strategies of rural development.

Believing the Africans to be improvident, the French enforced mandatory grain stockage as a guard against the natives' laziness and in fear of their total conversion to groundnut production once this activity was introduced. The mandatory deliveries of cereals for storage often forced a family to hand over an entire year's production creating hardships. Contrary to the French belief, groundnut cultivation represented an additional crop rather than an alternative one.

During and soon after independence, the new administration emphasized groundnut production as a means of obtaining foreign earnings. The peasantry complied because of their need for cash to pay the ever-increasing head tax and to buy now essential imported commodities. The requirement of the household head to pay the taxes of all dependents helped lead to a disintegration of the extended household as the unit of production. The decline in food production plus other requirements for cash diminished the capacity of rural households to feed themselves throughout the year without recourse to the market. Without examining how merchant capital and state appropriations led to the deterioration of rural economies the state assumed that the persistence of the "traditional society" was the obstacle to development. Hence attempts were made to modernize the peasantry. The modernization strategy was based on the expansion of commercial crop with labor provided by those whose food needs are provided by the subsistence economy. Although the recent drought revealed the error of this approach, it remains an important development strategy.

Key Topics: Colonization; agriculture; commercial agriculture; economics; development.

Robin, Ginette

nd Etude du déséquilibre des systèmes naturels, agricoles, et socio-économiques dans la région de Maradi (Niger). Bibliographie de Recherche. Centre d'Etude et de Recherches Ethnologiques, U.E.R. des Sciences Sociales et Psychologiques Groupe de Recherche, Université de Bordeaux II, Bordeaux.

This 123 page bibliography (produced in mimeography by the Maradi research group during the first year of its program) includes 712 titles covering the following topics:

(1) aspects of the Sahelian crisis (titles 1-120);
(2) causes and socio-economic consequences (titles 121-292);
(3) perspectives on solutions (titles 292-404);
(4) background data on Niger (titles 405-631);
(5) background data on Maradi Department (titles 632-667); and
(6) background data on Hausa farmers/the Hausa farming system (titles 668-712).

French and English language materials predominate, with a handful of materials in German and Russian. Reports of the GON and donor agencies are included, and a few "thèse du 3ième cycle" titles; the bulk of the titles are journal articles, book chapters, etc., available through normal library channels. Some useful titles from the colonial era are cited, including early forestry studies, rainfall data, etc. The bibliography is not annotated, nor does it provide help in locating the titles listed (Robin does not indicate whether the Bordeaux study group collected copies of all of these). Coverage stops at about 1975.

Although a substantial portion of the bibliography is devoted to the Sahelian drought of the late 1960s/early 1970s (roughly 1968-73), desertification issues, and related topics, it includes useful references on the physical geography of Niger (e.g., soils, water resources); statistical data on the Nigerien economy; demography, agricultural development activities up to about 1975; agriculture and animal husbandry in Niger; Nigerien pastoralism, and Hausa agriculture in Northern Nigeria as well as in Niger.

Key topics: Bibliography; ecology; socio-economic data; agriculture; livestock, nomads and pastoralism.

Robinson, Pearl Theodore
1975 African Traditional Rulers and the Modern State: The Linkage Role of Chiefs in the Republic of Niger. Ph.D. dissertation, Columbia University.

(Author's abstract):

This dissertation examines the changing role of African traditional rulers and provides an in-depth analysis of two chiefdoms in the Republic of Niger: the Djerma kingdom of Dosso and the Hausa territory of Gobir. The broad thematic concerns are with the political and to some extent economic factors affecting the power, status and influence of traditional chiefs in the contemporary African state. More specifically, the study is an analysis of the complex relationship between the chiefs and the rulers of Niger's emerging state system. The mediation of political integration through traditional elites is shown to be multi-faceted in its consequences: in alternating or combined sequences, they facilitate, stabilize and inhibit change.

The process of political integration is discussed in terms of the concept of linkage politics—a concept which serves to put into perspective the nature of the interaction between essentially rural communities in the periphery and an urban-based state system. Taking issue with the view projected in much of the comparative politics literature, this analysis argues against the tendency to construe national integration solely as a matter of penetration from the top—proposing instead a definition which treats political integration as a two-way process.

A second major concern is that of the structure of political conflict in the new states of Africa. With the widespread use of models of ethnic conflict and/or class conflict, events at the micro-political level have often eluded explanation. Here, the basic framework of a patron-client relationship is used as a heuristic device to analyze the structure of political mobilization and control. In addition, considerable attention is given to a much neglected field of inquiry—i.e., the precolonial underpinnings of political conflict structures in contemporary Africa.

The findings of this research suggest that instead of being forced into atrophy by change, African traditional elites can actually benefit from the variety of new opportunities to redefine their own elite status in terms relevant to modern day forces. Of the many functions which are available as options, this study focuses on the role of chiefs as linkage figures between their rural constituents and the national government. Whereas certain chiefs greatly facilitate the process of demand articulation, almost all are acting to conserve presently existing power configurations as they control and regulate the attempts of local peoples to gain access to the national political arena.

It should come as no great surprise that traditional elites were found to be a conservative force in the modern state. However, it is noteworthy that the ruling political elites—secular politicians as well as many military regimes—are finding that their interests increasingly coincide with those of the chiefs. What these groups have in common is that their vocations involve controlling the constituent populations of the state.

Key topics: Economics; politics and popular participation; national government and state formation.

Rochette, R., J. D. Gronoff, F. Masseport and A. Valancot
1966 Douméga, Diouundion, Kawara-Débé. Villages des Dallol Maouri et Fogha. Niamey: Etudes Nigériennes No. 19. IFAN-CNRS.

Under the direction of Mr. Rochette, three researchers carried out a one and a half month study each in one of three villages in southcentral Niger in the Dallol Maouri region. Despite their unique characteristics the villages are representative of the region. The physical and social environments, the agricultural activities, the non-agricultural and complementary activities, and other general problems of underdevelopment were examined in each village. The study aims at showing that common solutions cannot be prescribed to problems of underdevelopment in different villages in one region even if some of the problems are common among them.

The authors conclude that the merit of the study lies in substantiating the necessity of designing possible solutions to underdevelopment problems on an individual village basis. The micro-geographic and micro-economic characteristics of each village within a small region are unique and require individual consideration.

Key Topics: Development; small-scale enterprise and micro economic studies; agriculture; ecology.

Rosat-Casenave, M.
1980 Niger. In Groupe de Travaux de Démographie Africaine, Recensements Africains, Pt. 1, Monographies Methodologiques. Pp. 487-518. Paris: Démographie Africaine.

The Republic of Niger conducted the first general population census in 1977; it counted 5,098,427 inhabitants, concentrated in the southern regions of the territory. The organization and execution of the census rested with the Central Census Office, and with several Departmental Census Offices. Personnel recruited and trained for the purpose included 3,700 investigators, 329 comptrollers, 50 supervisors, and 170 guides for the nomad areas. The cartographic services had sufficient and extensive maps already available; two pilot censuses were conducted, of which one was in the nomad area; cost of the census was 636,360,000 CFA. A radiophonic and press campaign was organized to inform the population of the upcoming census. From the publication of preliminary results some omissions appear evident, such as underregistration of females, underregistration of the nomad population, underregistration of young males of military service age, and underregistration of age school children in tribes which shun scholarity. There was only one questionnaire to gather information about individual, family, and geographic characteristics. Final results will be ready in 1978, in two volumes. A postcensus survey revealed errors committed for fault of declaration, and for fault of interpretation.

Key topics: Demography; population; socio-economic data.

Roset-Casenave, M.
1982 Niger. In Groupe de Démographie Africaine (GDA), L'evaluation des Effectifs de la Population des Pays Africains, Vol. 1. Paris: GDA.

Six different ethnic groups live in Niger, of whom three are sedentary and three are nomadic. Administrative surveys of the population have been regularly conducted in Niger since 1920; however, data are not controllable since most archival material has disappeared. The first and only national census in Niger was done in 1977, and counted a population of 5,098,427; a new census is planned for 1980. Beside the 1977 census, demographic data in Niger are collected through administrative surveys whose reliability is rather poor, due to the impracticability of most roads, to the negative attitude of the population toward surveys, to the lack of training in the people involved in the enumeration, and to serious difficulties in localizing many villages. The estimated annual population growth went from 2.6% in 1964 to 2.79% in 1978. Suggested improvements for the collection of demographic data in Niger include: (1) encouraging the population to register births, deaths, and marriages; (2) improving collection of data for the nomad population; and (3) specific studies on the rate of external migration.

Key topics: ***Demography; population; socio-economic data; language and ethnicity.***

Sahel Documentation Center

1979 Communications, Information and Documentation about CIDNET (A Networking Approach), Cape Verde, Chad, The Gambia, Mali, Mauritania, Niger, Senegal, and Upper Volta. Sahel Bibliographic Bulletin/Bulletin Bibliographique. 3(3):179-257.

Focus in this bibliography is on books, articles, papers and documents dealing with various aspects of socioeconomic development in the Sahel. Attention is on the member states of the CILSS—the Permanent Inter-State Committee for Drought Control in the Sahel—Cape Verde, Chad, Gambia, Mali, Mauritania, Niger, Senegal, and Upper Volta. The Sahelian geographical focus has served as a resource model which can be applied to problems in other semi-arid developing regions worldwide. Now in existence are several Sahelian documentation centers which concentrate on comprehensive information efforts for assistance and preservation.

Key topics: Bibliography; socio-economic data; development.

Salifou, André
1971 Le Damagaram ou Sultanat de Zinder au XIXe siècle. Etudes Nigériennes 27.

While there exists a wealth of materials on the Hausa of Nigeria, far less has been available on the history of the Hausa in Niger, whose historical importance is underscored by their independence from the Fulbe religico-nationalist expansion and conquest of the southern bokwai. Damagaram and Maradi were the largest states ruled by Hausa aristocracies who maintained autonomy from the emirs to the advent of European colonial domination. Indeed, as Salifou documents, Damagaram first emerged as an integrated state under the reign of Saleeman (1803-22), who established the supremacy of the capital, Zinder, over what had been a series of independent ethnic chieftancies. Nominally a dependent state of Bornu, Damagaram expanded against other chieftancies which recognized the suzerainty of the Shehu at Kukawa, and progressively assumed total control over its own activities; by the latter part of the century, during the second reign of the great Tanimun, Bornu had to content itself merely with receiving an annual tribute, but it could not effectively moderate the ambitions of the Sarki.

Salifou uses three kinds of source material: manuscripts in Arabic and in Hausa, containing primarily dynastic lists, some of which are appended to the text both in the original and in translation; the writings of European explorers, soldiers, and administrators; and oral testimony of aged informants. Salifou succeeds, in general, in making convincing use of recollected history, particularly in outlining the large number of battles directed by the rulers against their neighbours and, where succession was disputed, among rival claimants, although some readers may have doubts over the occasional inclusion without comment of informants' rhetorical excesses. For example, we are told of Tanimun's ability to resist the poison arrows of the enemy (p. 56), of the power of his robe 'plein de charmes magiques' (p. 76), and so on.

These do not detract, however, from Salifou's skillful rendering of the social, economic, and political problems which confronted the new state. The Sultan had to deal with the Tuareg, whose raids against sedentary villages were a constant threat and yet whose participation in the trans-Saharan caravan trade was essential for his economic well-being. Further, in order to maintain his court, his standing army, and to pay his annual tribute to Bornu, the Sultan was in continuous debt to merchants, mainly Tripolitanian Arabs, who advanced him necessary funds and who were reimbursed in slaves. To provide a sufficient number of war captives, the ruler of Damagaram was obliged to conduct a ceaseless series of military campaigns, with attendant demands on the always fragile state treasury. For despite its size, Damagaram was not blessed with highly productive horticultural and mineral resources.

Salifou neither dismisses lightly nor apologizes for the cruelty and rapaciousness of some of the sultans, such as Tanimun's son, Saleeman Dan Aysaa.

But neither does the reader lose sight of the important administrative innovations of the dynasty (which, in name at least, continues today), whose rulers created a new political entity which, within less than a century, became a major power in the Western Sudan, a serious rival to the far older states of Bornu and Kano, and a vigorous, though ultimately defeated, obstacle to European pretentions.

Key Topics: History; ethnicity; trade and exchange.

Saunders, Margaret O.
1978 Marriage and Divorce in a Muslim Hausa Town (Mirria, Niger Republic). Ph.D. dissertation, Department of Anthropology, Indiana University.

(Author's abstract):

This thesis examines marital stability in the Muslim Hausa town of Mirria, Niger Republic. Data are drawn from the 1968 and 1974 administrative census of Mirria, interviews with ward heads on wife seclusion, marital histories of 30 Mirria women, 25 divorce cases heard in a local court, and 14 months of participant observation in Mirria between November 1973 and June 1975.

Both community-wide social organization (adminstrative, religious, and economic institutions) and the organization of Mirria domestic groups are described to provide an institutional framework for Hausa marriage. Rules for beginning and ending marriages and Hausa concepts of the nature of marriage, including spouse, affine, and co-wife roles, also contribute to the working rules of Mirria marriage.

Census data for about 1,900 marriages are used to describe polygyny at Mirria. In both 1968 and 1974, the incidence (p) reaches about 20 polygynous husbands per 100 married men; the intensity (w) reaches about 221 wives per 100 polygynous husbands; and the general index (m) of polygyny shows about 124 married women for every 100 married men. Less than one Mirria wife in ten was secluded in 1974, and 82% of secluded women were wives of polygynous men.

For the analysis of marital stability, 381 marriages in a random sample of 160 households drawn from the 1968 census were sought out in the 1974 census as well by careful hand-matching of households and individuals. One hundred of these marriages is contrasted with data on 69 marriages reported in the marital histories of 30 Mirria women. Whether marriages end in death or in divorce, their duration prior to ending, and the experience of individuals with marriages of each outcome provide alternative measures of marital stability. Both court records and Mirria field data document non-support and adultery as among the key issues in marital conflict.

Mirria divorce rates are high by several standards. Most Mirria adults experience one or more divorces over their lifetimes. The census data suggest that a minimum of 32 divorces occur per thousand married women per year. More marriages end by divorce than by death: 49% of the marriages from the 1968 census sample which ended prior to the 1974 census ended by divorce, while 76% of all marriages which had already ended reported in marital histories ended in divorce.

The standard model of the descent-divorce relationship (Gluckman's Hypothesis) predicts low or moderate divorce in a system of bilateral kin ties and patri-

lineal rights over children; the Mirria data contradict this model and are better explained by socioeconomic factors than by descent. The youthfulness of the marriage partners and the success of the wife in producing surviving offspring in a given marriage best distinguished women whose marriages survived in 1974. The autonomy of Hausa wives in obtaining divorces is a feature of Hausa social structure which contributes to high divorce rates.

Sex roles in the Hausa setting form a subsidiary theme of this study. Mirria data support a general thesis that women exercise power, although often not recognized authority, when women control desired goods and services. Both the working rules of Hausa marriage and the economic roles of Mirria women give women some control over such assets. They thereby provide a basis for limited types of female power which contradict the inferior formal status of Muslim Hausa women.

Key topics: Women in development; social organization; family and household.

Saunders, Margaret O.
1979a Divorce Strategies in Mirria County, Niger Republic: Cases from the Tribunal de Premier Instance. Paper presented to the Annual Meetings of the African Studies Association, Los Angeles.

The "paper examines women's access to divorce in Mirria County, Niger Republic. Case histories of marital disputes collected during fourteen months of ethnographic research in Mirria town, as well as twenty-five divorce cases from the records of the Tribunal de Premier Instance located in Zinder, demonstrate that it is extremely difficult for a husband to prevent a persistent wife from obtaining a divorce if she so desires. Furthermore, the Mirria data make it clear that women actively seek, and obtain, divorces opposed by their husbands" (p.).

Saunders feels that polygyny is an important factor in a woman's willingness to risk a divorce. With polygyny in practice, her chances of marrying again are better than average. Since women are dependent on their status as wives for economic support and normal adult roles, any changes in the law which might restrict women's ability to remarry might have serious repercussions for women.

Key topics: Social organization; family and household.

Saunders, Margaret O.
1979b Hausa Women in Economic Development: The Case of Mirria, Niger Republic. Paper presented to the Annual Meeting of the Society for Applied Anthropology, Philadelphia.

The paper examines the economic roles of Hausa women in Mirria. It points out the strong bias in development projects in general in favor of men and states that conditions in Muslim Hausaland where development efforts involve cash crops are not at all different. Women are at a disadvantage whether we are looking at the traditional sector or the modern one. Traditionally women do not have as much access to three crucial factors of production—land, labor, and capital—as men. As a result women tend to concentrate in low-income, small-scale economic activities, with no room to expand. Saunders feels that livestock raising, especially small ruminants and poultry, holds some promise for women development. She attributes to the fact that women are already involved in it, the capital requirement for such investment varies, making the field open for women with different levels of income; the rapid growth of Mirria creates a large demand for meat; and animal husbandry provides a relatively large amount of cash which can be invested in other kinds of economic activities.

This is not much different in the modern sector. Men are the prime beneficiaries of job opportunities that do not require education such as wage labor for the county. Men are also in a better position to acquire the education required for most salaried positions.

Key Topics: Women in development; production factors; socio-economic data; rural production systems; religion/ideology.

Saunders, Margaret O.
1979c Women's Role in a Muslim Hausa Town (Mirria, Republic of Niger). In A World of Women, Erika Bourguignon, ed. Pp. 57-86. Brooklyn, NY: J. F. Bergin Publishers for Praeger.

Saunders discusses the role of Hausa women in Mirria, Zinder Département, in terms of public and private domains. She points out that although women hold more authority in domestic than public domains, even there legitimate is the prerogative of males. As men's control is direct and covers both domains, women's is largely restricted to the domestic domain, is much more subtle, and stems largely from their ability to disrupt the household. Although men can divorce their wives by simple repudiation and women have to resort to court, women remain married by choice; divorce is very common and divorced women can remarry easily since in a second marriage it is not very important whether the bride is an unmarried girl, a widow or a divorcee. A divorce threat by a wife is more intensified because a marriage is an expensive enterprise that starts with a stage of courtship which is accompanied with a constant flow of small presents in the form of kola nuts, perfume and cash. A marriage expense can run as high as $150.00, or 30,000 CFA, a very large sum of money when we consider that an adult male earns about 65 cents or 125 CFA for a full day's labor.

The public domain in Mirria focuses around three institutions: politics; religion; and economics. All are restricted to men except for economics where women are somewhat involved. However, although women control the income they derive from their different activities, they tend to be concentrated in low income, small-scale economic endeavors, except for a few. Women are largely under or unrepresented in both the traditional administration and the modern sector. Although some women share certain jobs (such as teaching, nursing and secretarial work) with men, a whole range of other activities exist where women are not involved. The restricted role of women is portrayed in their use of social services as well; although most of the services utilized by women are open to men, some of them such as those dealing with agriculture are exclusively male. Women are active in the judicial system and appear as plaintiffs and defendants, but are regarded as legal minors. Saunders points out that being a wife is a labor-intensive role which entails lengthy daily preparations of food, in addition to other household duties. She cites three reasons why Mirria women do not achieve more economic success: (1) women do not usually own farm land or gardens which excludes them from agricultural endeavors from which men receive most of their incomes; (2) utilizing most of their labor power in performing household duties, women are left with very little surplus labor to invest in economic activities; (3) both men and women hold cultural values that restrict women's involvement in uncustomary economic enterprises.

Key topics: *Women in development; social organization; family and household; politics and popular participation; religion/ideology; economics.*

Schildkrout, Enid

1978 Age and Gender in Hausa Society: Socio-Economic Roles of Children in Urban Kano. in Sex and Age as Principles of Social Differentiation, J. S. LaFontaine, ed. A.S.A. Monograph 17, Pp. 109-137. London: Academic Press.

The paper deals with the economic role of Hausa children in Kano, Northern Nigeria, and the relationship between such roles and the economic status of parents. Schildkrout focuses on the relationship between age and gender as principles of social organization. She starts by setting out some main characteristics of male and female roles; then she turns to age and the significance of children in Hausa society. One of the main arguments of the paper is that sex roles in Hausa society cannot be defined without incorporating the roles of children which are both distinct from and complementary to adult roles. Children, for example, have a very important role in maintaining the institution of purdah or women seclusion. Hausa women are allowed to earn their own incomes and control them as long as their economic activities do not interfere with their marriage obligations including the purdah. Women in purdah have very few economic activities open to them that do not require the help of children. As children are not expected to observe many of the rules that regulate adult behavior such as the great restriction in moving inside and outside houses, they are in a position to perform many tasks that are not open to adults yet essential for maintaining the structure of Hausa society. Changes in the role of children, such as school attendance, will have an impact not only on the children themselves but also on the adults who are dependent on their services.

Key topics: Socio-economic data; social organization; Division of labor; family and household.

Schildkrout, Enid
1979 Women's Work and Children's Work: Variations among Muslems in Kano. In Social Anthropology of Work, Sandra Wallman, ed. A.S.A. Monograph 19. Pp. 69-85. London: Academic Press.

Looking at two wards in Kano city, Northern Nigeria, Schildkrout examines aspects of division of labor by age and sex. The two wards have many common characteristics including a strong commitment to Islam, a common set of values regarding the status of women which stipulate "early marriage, high fertility, submission to male authority in decision-making in the domestic and political domains, polygyny, and seclusion, or purdah in marriage" (p. 71), a common set of values regarding children such as "filial piety, first-child avoidance, an increasing separation of the sexes with maturity" (Ibid.) and an expectation that the children will accept an increasing responsibility in household tasks as they get older. A striking difference between the two wards concerns the education of girls. While most of the girls in the first ward attend school, none of the girls in the other do. This corresponds to a heavy involvement of the second ward girls in street trading while very few girls in the first do so. Schildkrout notes a corresponding difference in the role of women in the wards: while most women in the second ward trade, women in the first ward do so rarely.

Schildkrout attributes the difference in the two wards regarding girls' education to their descent claims. Functionally, attending school and street trading are the same—means of earning dowry for the young girls and preparing them to enter the purdah, "the status in which, ideally, women need not work, but which in reality requires them to work to obtain the means for their daughters' entry into the same status" (p. 73). First ward members trace their ancestry to the followers of 'Uthman dan Fodio, the Fulani leader who led the West African jihad in 1809, and who emphasized the religious education of women with the purdah. A concern within literacy and education exists in the ward and is reflected in the men's occupations where many of them are involved in the civil service. In the second ward, most men are cattle traders, like their fathers were, and butchers. Very few men have western education since they do not see in it a means of occupational advancement. A girl's dowry in this ward is met mainly through the activities of the female children themselves. The girls spend between eight to ten hours daily street trading and the profits they earn are kept for them by their parents or guardians. In the first ward, where girls attend school in favor of street trading, part of the dowry is met by the courting gifts that the grooms present to prospective brides. Many civil servants and businessmen prefer to marry girls with some education and present them with significant gifts in cash which is added to the girl's dowry. "Western education thus can be seen as an economic asset for girls, comparable to street trading, within the traditional marriage system and within the traditional definition of female roles. Compared to street trading, it is an economic activity for the same end, the accumulation of dowry, but utilizing different means" (p. 27).

Key topics: Socio-economic data; social organization; division of labor; family and household.

Sollod, Albert E.
1981 Types de maladies animales dan la région du projet gestion des pâturages et élevage de la zone pastorale du Niger. (Types of animal illnesses in the area of the Niger range and livestock project.) USAID, Bureau for Africa. Niger Ministry of Rural Development.

(Abstract from AID Development Information Center):

In the region of the Niger Range and Livestock Project, livestock diseases are affected by seasonal changes. A study of these diseases, herein reported, was conducted in two phases: the first during the dry season, under difficult conditions of insufficient food and water, high temperatures, and long forced marches in search of pasturage and water; the second phase during the rainy season under more favorable conditions. Some 24 diseases as well as infestations of internal and external parasites are described; the former are categorized as to greater, lesser, or uncertain economic importance.

In general, the study found that the animals were quite resistant to diseases, especially infections. Nutrition and habitat are key factors in building resistance. There is a periodicity in infectious diseases, the most damaging time occurring at the end of the dry season when nourishment is very scarce. Another major problem is the use of contaminated water. When sheep are allowed a second reproductive cycle and give birth at the end of the dry season their young can easily succumb to pulmonary and other diseases. Goats are less susceptible to pulmonary problems - as their food is obtainable most of the year and births are numerous - unless they are competing with camel herds for grazing. Although most herdsmen in the area understand the health needs of their animals, circumstances often force them to consume products from infected animals. A 42-item bibliography (1966-81) is appended.

Key Topics: Pastoralism; livestock diseases.

Stewart, Bonnie Ann
1978 The Impact of the Marketing Organizations Serving the Agricultural Sector in Zinder, Niger. Ph.D. dissertation, Department of Oriental Studies, The University of Arizona.

(Excerpted from author's abstract):

A serious problem in planning for agricultural development is an inefficient marketing system. Intervention by public and private agencies in the agricultural sector has been a common approach to the problems of agricultural instability and inefficiency. The effectiveness of marketing intervention organizations in a developing agricultural economy is examined in this study.

...an assessment is made of six organizations involved in the agricultural marketing system in Zinder. The effectiveness and efficiency of each organization were determined by comparing an established set of criteria based on stated goals with the perceived success in achievement of these goals as revealed through interviews with the local directors of the six intervention organizations. Based on interpretation and analysis of the interview data and some secondary data, and observations of the functioning of the market system in Niger, it was concluded that the six marketing organizations in Zinder have not been as successful in achieving their goals as originally anticipated.

Four general problems were identified as systemic constraints to the efficiency of the marketing organizations.

(1) Annual price fixing in Niamey by the Ministry of Economic Affairs, Trade and Industry for the purchase and sale of agricultural products handled by the intervention agencies in Zinder does not allow them the flexibility to respond to fluctuations in the local market conditions through price adjustments.
(2) The lack of integration of the official marketing system and the traditional marketing system consisting of numerous private traders and occasional traders results in inefficiencies in the overall system.
(3) Lack of supplies and lack of administrative and managerial expertise causes interruptions in the operation of the marketing programs.
(4) An inefficient transportation system characterized by a lack of transport carriers and inadequate maintenance of roads and vehicles results in high costs and limited access for people and commodities to points of distribution, exchange, and service.

Several ideas were suggested as policy guidelines to some of the constraints identified. First, emphasis must be placed on integrating the policies of the agencies with those of the Ministry of Economic Affairs, Trade, and Industry. Second, efficiency in agricultural marketing in Niger could be improved by integrating the official and the traditional systems, allowing

6x3