PN. ABQ-368

Socio-economic and land-use study in the Diffa Department

-The Mangari

-The Kadzell and Lake Chad Basin

-The Manga

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ACRONYMS

BIT	Bureau International de Travail
DDP	Direction Départementale du Plan
DPM	Disaster Preparedness and Mitigation Program
FIDA	Fonds International pour le Développement Agricole
INRAN	Institut National del la Recherche Agronomique du Niger
IRSH	Institut de Recherches en Sciences Humaines
PADADD	Projet d'Appui au Développement Agricole du Départment de Diffa
PDENCE	Projet de Développment de l'Elevage dans le Niger Centre-Est
PNUD	Programme des Nations Unies pour le Développement
SDDR	Schéma Directeur de Développement Régionale
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Background:

The Socio-Economic and Land Use Study in Diffa Department (Project # 683-0261) is a one-year contract funded by AID. It runs from July of 1992 to August of 1993. The study focuses on land use and natural resource management, adaptive strategies as related to food security, and commerce and cross-border trade.

Findings from the study are intended to benefit several of the Mission's program areas, including disaster preparedness, natural resource management, export marketing, family planning and health, and women in development. Of particular focus is the Mission's current Disaster Preparedness and Mitigation Program (DPM). Also of interest are the dynamics of export marketing (particularly of livestock and peppers), land use patterns, natural resource management strategies, and interactions between farmers and herders.

Findings:

I. Land use and natural resource management

Use of land and natural resources in the Diffa Department is subject to various customary (not statutory) restrictions. The efficacy with which a set of restrictions is applied in a given community appears to be directly related to three factors; the degree sedentarization, population density, and whether farming or herding constitutes the primary economic activity.

Entirely sedentary farming communities with relatively high population density accord generally universal recognition of and respect for customary rules controlling the use of land and natural resources. Everyone in the community is aware of the existence of such norms and understands that transgression of them provokes sanction from traditional and/or governmental authorities. Establishment of these norms may be attributed to; the subject communities' long inhabitation (decades or centuries) of the same place, the stationary nature of their agricultural activities therein, and an awareness that increasing population pressure on limited land and natural resources makes tenure regulation laws a necessity.

Among semi-nomadic herding communities which inhabit more sparsely populated regions, the rules governing land and natural resource tenure are less numerous and more subject to individualized interpretation. The rules appear to be generally

acknowledged as standards which should apply but which, in reality, do not. As a result, use of land and natural resources tends to be governed by individuals or groups which apply (or disregard) such standards according to their personal criteria. How successfully they do so generally depends on how well they employ diplomacy or force vis-à-vis neighbors who might be opposed. Neither traditional nor governmental authority is strong enough to change this situation. This more individualized approach may be attributed to the subject communities' extreme mobility and sparse population.

In addition to economic, ecological, and demographic reasons for the difference with which tenure is conceived by sedentary or semi-nomadic populations, there exists an important social factor. Where a sedentary community shares a common conception of tenure regulations throughout an area as large as a canton[1] or an arrondissement,[2] such spheres of shared ideas in the pastoral zone are often limited to a single family or encampment. This is because the conception of what unit constitutes the collectivity is frequently limited to a smaller entity (a family) than in sedentary communities. In the pastoral zone, groups sharing common views of tenure tend to be smaller, more numerous, and more subject to fragmentation than those in the sedentary zone.

II. Coping strategies and food security

For the vast majority of households in the department, food security is not based on rainy season cereal production. This appears to have been the case since at least the mid-1970s, if not before. Although there are years in which such cereal harvests are sufficient to meet household consumption requirements, such years are not considered the norm. Consequently, households engage in a variety of alternate activities which assure fulfillment of their needs.

In the southernmost portions of the department, off-season agriculture (during the dry/cold period) constitutes one of residents' most significant new means of compensating for their food deficits. The cash crop pepper is the most significant of these. Other major crops (for consumption and/or sale) include manioc, wheat, rice, corn, yams, onions, and beans. Extraction of natron[3] is not a new activity, but nonetheless continues to represent an important income-generating activity. Herd composition has changed definitively from a preference for cattle to that of small ruminants. Such animals are said to be

---

[1] an administrative unit, the equivalent of a district

[2] an administrative unit, larger than a canton, the equivalent of a borough

[3] native soda

more often chosen than anything else for the investment of excess cash (by men and women). Commerce also represents an important coping strategy, although not of recent date; it involves the resale of both local and imported (Nigerian) foodstuffs, craft items, and manufactured goods. Seasonal migration to Nigeria is a new activity to which able-bodied men seek recourse during years of poor cereal production; these are usually men who do not have access to off-season agricultural lands. Women aid their husbands with agricultural activities and increase craft and gathering activities.

Food security in the transitional zone of semi-nomadic agro-pastoralists was traditionally based primarily on cattle herding and secondarily on cereal production. Neither activity presently assures food security. Most herders retain their preference for cattle but herd size has been reduced (due to deaths or compulsory sales). The stated objective of most herders is to reconstitute their cattle herds, usually by means of small ruminant husbandry; goats and sheep are not new to herders of the region, but they have recently been selected for their resistance to drought and rapid reproduction as an income-earning commodity with which to abet the reconstitution of cattle herds. Other new herding strategies include supplementation of animals' diets and a slight increase in herders' mobility. For many younger individuals, remaining year-round with the family herd is no longer possible. In lieu of this, seasonal migration (within the department) and services such as transport and trekking[4] are activities of recent date. Off-season agricultural opportunities are fewer in this region than to the south. Women respond to the changed conditions by increasing the amount of dairy products, craft items, and gathered produce which is sold.

For most residents of the pastoral north, cereal production was never (in living memory) a factor contributing to their households' food security. Herding activities were historically and are presently the primary guarantors of food security. In response to the droughts of 1968-75 and 1980-85, which made environmental conditions untenable for their traditional cattle herding, residents converted to camel-herding. Accompanying this change were general southward movement of all populations and increased mobility. Commerce with Bilma and Chad (only the latter is of recent origin) represent the most important income-earning alternative for heads of households whose herds are inviably small. For certain minority castes, increased production and sale of women's crafts represents a significant source of income for the household. Of all regions in the department, it is in this northernmost sector that there exist the least number of viable economic activities. Apart from some limited modification of

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[4] shepherding of animals, on foot, from one pre-established location to another

herding practices, most adaptive strategies are linked to commerce. These forms of commerce are, in turn, comparatively limited; participants are men, they are in good physical health, they possess pack-animals, they have family or friends to take care of their herds during their absence, and they have the savvy which is necessary in their sometimes dangerous activities.

III. Commerce and cross-border trade

EXPORT TO NIGERIA: Cross-border trade in the Diffa Department is based primarily on the export of livestock, natron, and unrefined agricultural products. The majority of these items is destined for Nigeria. Livestock exports include cattle, camels, and small ruminants. Most of these appear to leave the hands of the herders either in Niger or in a bordertown market of Nigeria, being taken on to terminal markets of Kano or Lagos by professional traders. The majority of the annual natron harvest appears to be bought by Nigerian traders at the harvesting site and exported by them (reportedly for use in leather-tanning and soap manufacture). Sweet red pepper is the most important agricultural cash crop exported. The majority of exports appears to be leave the hands of the growers in bordertown markets of Nigeria, where traders take them onto the urban markets of Maiduguri, Kano, and Lagos. Other agricultural exports include manioc, beans, rice, wheat, corn, yams, and onions; because such products tend to be consumed in years of cereal shortage the volume in which they are exported varies.

IMPORT FROM NIGERIA: In exchange for what they export to Nigeria, residents of Diffa Department import from the same place everything they require. In years of locally insufficient cereal production, it is millet and other foodstuffs imported from Nigeria with which households' requirements are met. Aside from food requirements, the majority of basic articles used in daily existence (i.e. items of "first necessity," such as soap, cloth, sugar, cooking utensils, etc.) are imported from Nigeria.

Aside from deriving the obvious benefit of all the commodities imported from Nigeria, Diffa residents benefit as well from their proximity to Nigeria's large markets, which manifest an insatiable demand for their products. Aside from such demand in Nigeria, no other neighboring region (the Nigerien interior included) exhibits a comparable absorptive capacity.

EXPORT TO LIBYA AND CHAD: Apart from cross-border trade with Nigeria, there is camel export to Libya and sugar export to Chad (the sugar is of Nigerian origin). The former appears to represent the activity of a handful of individuals who are comparatively wealthy and well-connected. By contrast, sugar export to Chad involves a wide spectrum of population from the pastoral north. Sugar is usually exchanged for camels, which are imported to Niger

and sold on the market at N'Guigmi. (It should be mentioned that this trade is illegal--importing sugar to Chad is forbidden by the Chadien government).

EXPORT TO WESTERN NIGER: Trade with western Niger involves many of the same commodities which are exported to Nigeria, but on a more modest scale. A significant part of the livestock and natron exported is destined for the pastoral markets of Gouré/Tesker (Zinder Department), and is evacuated by individual pastoralist/traders, on foot, on cross-country routes. By contrast, a significant part of the agricultural and palm frond/mat exports are evacuated by professional bulk-traders, in motorized vehicles, along the paved Route Nationale. In contrast to livestock export to Nigeria, much of which involves professional traders and animals bound for slaughter, a significant proportion of livestock exported to the Gouré/Tesker zone appears to involve herders who envision breeding the animals. Pepper appears to represent the predominant agricultural export. Other garden crops, such as manioc, onions, okra, wheat, Contre-saison[5] legumes, dates, and citrus, are said to be exported in more limited quantities. Natron is taken to the Gouré/Tesker zone by pastoralists and traders. Unconfirmed reports cite natron as being exported to Maradi (and then Kano, Nigeria) for the manufacture of soap. Dried palm fronds (for making nattes)[6] and already-made nattes are exported in bulk along the Route Nationale.

IMPORTS FROM WESTERN NIGER: Imports from western Niger are very limited, consisting of the few commodities which are not available via Nigeria. These include items imported from France, Ivory Coast (instant coffee), and manufactured in Niger (beer, cloth, and soap). These are usually destined for the towns of Diffa, N'Guigmi, and Mainé-Soroa, not bush-villages. For villagers who sell their production in western Niger but who buy nothing there, it is cash CFA that they seek to "import" to the department (in the village, it is changed against the Naira for a profit).

INTERNAL COMMERCE: Internal or circular commerce within the Diffa Department is based on the resale of livestock, agricultural products, natron, nattes, and import items of "first necessity." With regard to the latter, Nigeria is the major supplier. Only in some of the pastoral zone (north of N'Guigmi) do Libyan goods, imported by Bilma traders, represent a substantial share of the market for such products.

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[5] "off-season," comprising the dry period between October and May

[6] mats made of palm fronds

Recommendations

This research covered such a variety of different subjects in such a short period that the data collected is most certainly lacking in precision and depth. However, some observations may be made.

I. With regard to land tenure issues in the department:

-before any development initiative is undertaken in the Diffa Department, a full understanding of the customary, zone-specific norms of land and natural resource management prevailing in the target area is crucial to the success of the initiative.

-in many parts of the Diffa Department, customary interpretation of land and natural resource management is in not in agreement with that of the Rural Code; any organization whose development initiative is premised on Rural Code statutes should examine the implications of this discrepancy.

-if a development initiative is to be premised on the stipulations of the Rural Code, the populations concerned must understand and accept the Code; at present, the Rural Code is virtually unknown in Diffa Department.

-in agricultural zones, an effort should be made to institutionalize norms allowing for the passage and/or circulation of animals (local and transhumant), assuring equitable access to water and grazing resources

II. Regarding pepper commercialization in the river zone:

The most consistently voiced desire of local farmers and traders of pepper is the creation of an organized market system: farmers wish (1) greater logistical facility in the sale of their pepper to traders and (2) to garner CFA francs rather than Naira; traders wish to have greater facility in (1) stocking peppers locally, (2) transporting pepper to western regions of Niger, and (3) selling their product after having arrived at their destination (Zinder, Maradi, or Niamey).

With regard to this voiced desire of local populations, it is recommended that:

a.

The Nigerien market for pepper should be studied to determine whether or not it is receptive to more pepper than is presently imported from the Diffa Department.

b.

If it is found that there is demand for increased pepper imports; pepper export from Diffa Department may be increased by

(1) reducing transport costs within the department through elimination of illegal taxation on the Route Nationale, (2) partial subvention of storage facilities and vehicles, and (3) sensitization of commerçants in the Zinder, Maradi, and Niamey to accommodate the increased volume of pepper on the consumer or international export market.

III. Regarding the pastoral north (N'Guigmi Arrondissement):

Herders wish to remain in the pastoral zone and to continue raising camels. This is difficult due to drought-induced animal losses and degradation of the environment. Any organization whose initiative entails aiding such populations should consider two possible means of intervention:

a.

With the objective of aiding herders reconstitute camel herds; extend 5-year loans to be used for animal purchase or trade activities, (1) such loans to be based on some animal collateral belonging to the borrower (such animals subsequently branded to prevent their sale before maturation of loan term), (2) application for such loans to be reviewed by project agent, a homologue from the administration, and the local chef de tribu[7] (not chef du groupement),[8] (3) loan recipients to be monitored during the entire 5-year term of loan by project agent (based in the zone), and (4) monies re-imbursed at the end of the 5-year period to constitute a fund from which new 5-year loans would be extended (this second group of recipients to be determined at same time as the first, thus acquiring a vested interest in the first recipients' complete and timely fulfillment of their obligations).

b.

With the objective of facilitating pastoralists' herding activities and reducing the environmental degradation which is abetted by current well-digging practices; promote a program for the installation of wells (steel-reinforced concrete) in the Arrondissement of N'Guigmi, consulting with semi-permanent local residents to determine the location of these wells, and reaching consensus with these same groups on which members would become supervisor/administrators (résponsables) of the wells.

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[7] chief of a tribe

[8] chief of a group of tribes

IV. Regarding food or cash for work in the department:

-In two different situations, informants who were participants in food-for-work programs in the Arrondissement of Mainé-Soroa expressed satisfaction with their tasks and with the form of in-kind payment they received. Both situations involved dune-stabilization around villages or cuvettes[9] and appeared to involve primarily able-bodied adults. With regard to such initiatives:

a.

If cereals and other foodstuffs are available in local markets, a preferable alternative to food-for-work would be cash-for-work because: (1) the local economy would benefit from the infusion of cash and (2) the high cost (to the development organization) of importing foodstuffs would be eliminated.

b.

Cash-for-work should be considered particularly for women, given an observed tendency of women to devote more of their disposable incomes to the nutritional requirements of their families than men.

c.

Planting trees, seeding pasture, erecting barriers, and enclosing space with fencing all appear to be appropriate environmental measures (albeit "non-sustainable" in an economic sense). Protection and maintenance of such installations should be envisioned (by offering one or more individuals cash/food incentives).

d.

If food/cash-for-work programs are envisioned for other areas in the department, particularly the Arrondissement of N'Guigmi (in which caste-consciousness is acute), the kind of work proposed and to which sector of the population it is offered should be carefully considered.

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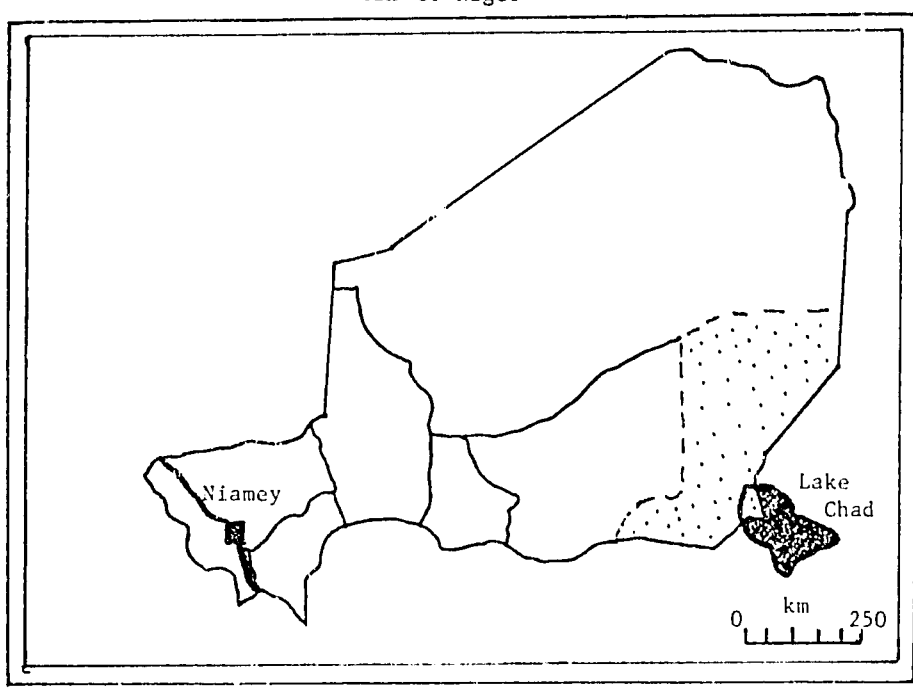
[9] a basin or depression in the landscape

MAP A

MAP OF Niger



Diffa Department

1.

INTRODUCTION

The information generated by this study is generally not applicable to other regions of Niger, but it may provide knowledge useful to the Mission's broader development goals. It offers an understanding of local socio-economic norms to complement findings from studies undertaken in other parts of the country.

The thirteen months of field work, data collection, and analysis provide a description of the people, land management strategies, production systems, and trade networks found in the Diffa Department. Investigation of land use management strategies focuses particularly on what kind of local norms prevail, whether based on administrative authority, traditional (chiefly) authority, gender, ethnicity, wealth, or degree of sedentarization. Examination of production systems focuses on how households deploy their time/labor resources in a variety of income-generating activities, drawing from this various conclusions about food security decision-making. Investigation of trade networks covers patterns of domestic and cross-border commerce, focusing on their relevance to food security decision-making.

The period of research is broken down by trimesters, each covering one or more of the major types of agro-pastoral zones found in the Diffa Department. The first trimester (July-October, 1992) covers the southwesternmost part of the department; this encompasses the year-round agricultural and extractive activities in the cuvette zone as well as the seasonal agricultural and herding activities of the surrounding steppe. The second trimester (November-January) covers the south and southeasternmost portions of the department, including the year-round agricultural and herding activities in the Komadougou River and Lake Chad basins. The third trimester (March-May, 1993) covers the northernmost portions of the department, focusing on the herding activities which constitute the primary production system in this steppe/desert zone.

Methodology

The research team was composed of one consultant representing USAID/Niger (Mr. Steve Anderson) and one translator. The consultant speaks the Kanouri dialect. A translator was required for dialects Fulfuldé (Mr. El Hadji Abba Gana) and Dazaga (Mr. Mahamat Hisséne). During the first six months, transport was primarily on foot, due to the relative density of population in

the areas covered and to the unavailability of motorized transport. During the last three months, transport was by camel.

Twelve of the thirteen-month total period of research were spent in the Diffa Department. Approximately nine months were spent in the field conducting interviews with farmers and herders. At three-month intervals, one month was spent in the departmental capital for data-gathering activities in Nigerien government offices and at project/donor agency headquarters. The last month of the study was spent in Niamey compiling the final report.

During the nine months total spent in the field, a total of 771 informants were interviewed. Of these informants, 436 were men and 335 were women. Although an effort was made to base data on an equal representation of men and women, the all-male gender of the research team as well as the local practice of semi-cloistering women contributed to hinder access to women informants (notably in the pastoral regions covered during the first and third trimesters). See Annex I for regional, class/caste, and ethnic affinity of informants. The age of informants ranged between approximately 15 and 80. Interview format included both groups and individuals. Interview sites included markets, fields, well-heads, individual homes, public meeting areas, and nomadic/semi-nomadic encampments. Although seven different questionnaires were elaborated to cover various regional, gender, and class/caste-based activities, they served only as approximate guidelines for each interview; questions deemed irrelevant (by the informant) were rejected and/or modified at random by the researcher.

Due to the unsystematic method of questioning, the wide variety of subjects addressed, and the large geographical area covered, the results of this study should be considered more qualitative than quantitative. In addition, given the limited period of research allocated to each sub-region, certain migrant populations and seasonal activities are not covered herein. Therefore, inferences and conclusions drawn by the researcher should be regarded as provisional.

Physical and demographic characteristics of the Department

The Department of Diffa is located in the southeasternmost corner of Niger. It abuts on Chad to the east, Nigeria to the south, and the Departments of Agadez and Zinder to the north and west, respectively. Only along the Komadougou River does the departmental perimeter conform to some natural geographic feature. The administrative capital is located in Diffa. The department is divided into three arrondissements, N'Guigmi, Diffa, and Mainé-Soroa which cover an area of 140,000 square kilometers and may be divided into various micro-environmental zones.

ZONE I: In the southwestern corner of the department, conforming to Zone IA, the steppe is interspersed with hundreds of cuvettes, in which soils are rich in organic content, arboreal cover is dense, and water tables are shallow. In some of these cuvettes, water pools during the rainy season. Zone IB comprises

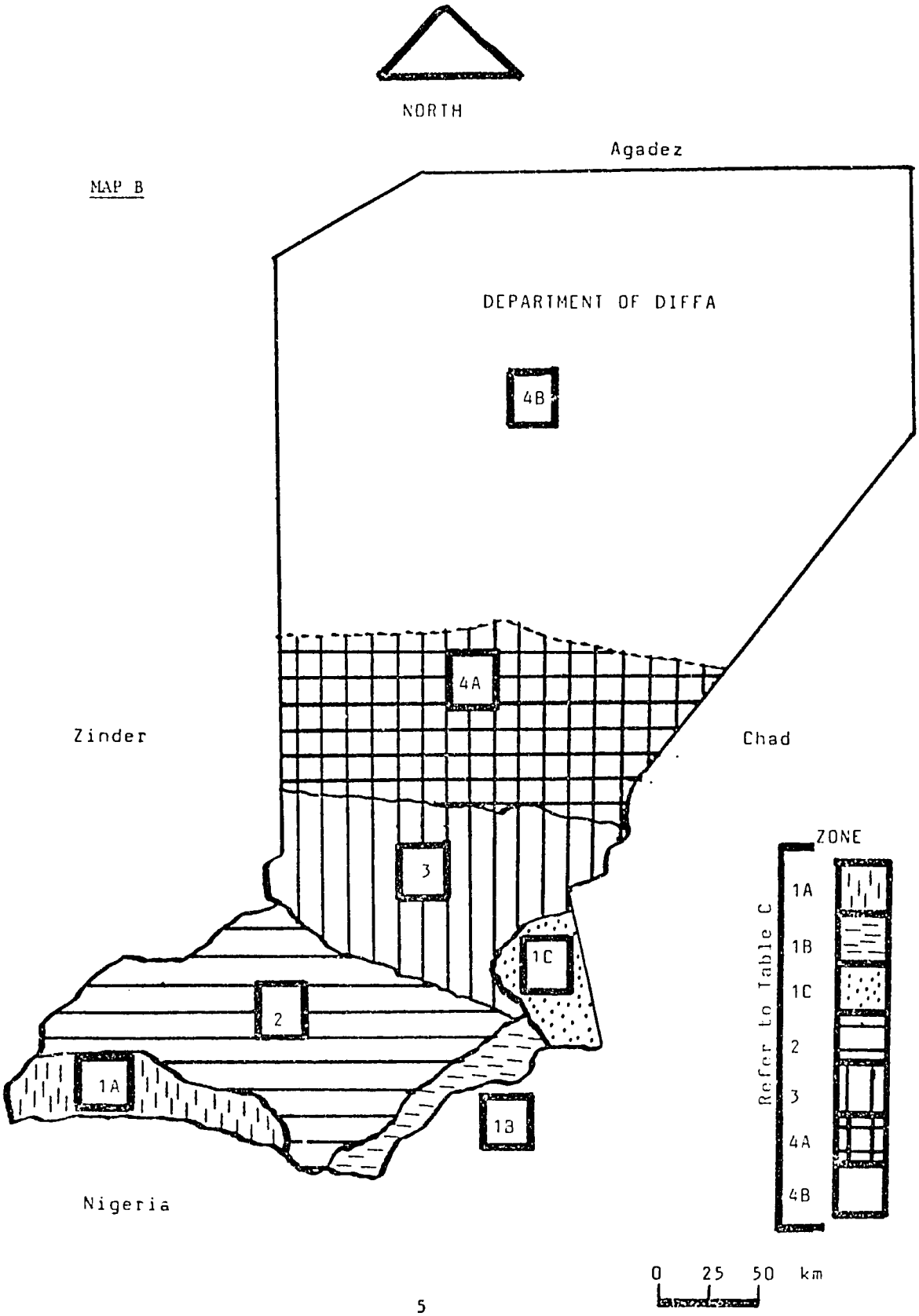

NORTH
Agadez
MAP B
DEPARTMENT OF DIFFA
4B
4A
Zinder
Chad
3
1C
2
1A
1B
Nigeria
ZONE
Refer to Table C
1A
1B
1C
2
3
4A
4B
0 25 50 km

TABLE 1

CRITERIA	rainfall (mm)	vegetation	surface water	sub-surface water (m)
Zone I	200-250	dense tree-cover in cuvettes, river and lake basins	cuvettes, Komadougou River, Lake Chad	5-10
I A	200-240	in cuvettes, dom. species Hyphaena thebaica and Phoenix dactilifera	standing water in some cuvettes, seasonal	5-10
I B	200-250	in river basin, Hyphaena thebaica, Tamarindus indica, and Diospyros mistiliformis	water in river basin and associated marshes, seasonal	5-10
I C	180-200	in lakebed, Prospis africana, Calatropis procera, Balinites aegyptiaca, and Acacias raddiana and nilotica	no lakewaters presently found on Nigerien territory	0-10
Zone II	150-200	steppe/savannah, dominant species Acacia raddiana and Salvadora persica	none	10-40
Zone III	100-150	steppe, dominant species Leptadenia pyrotechnica and Salvadora persica	none	2-40
Zone IV	50-100	steppe/desert	cuvettes and springs	0-50 +
IV A	0-100	dominant species on steppe Cenchrus biflorus, Leptadenia pyrotechnica, Commiphora africana, Balinites aegyptiaca, and Acacia raddiana	some standing water in cuvettes, seasonal	14-50 +
IV B	0-50	dominant species on dunes Panicum turgidum, Cyperus jemenicus, Leptadenia pyrotechnia, in depressions kusum and Acacia raddiana	some standing water in cuvettes, seasonal; springs at Agadem and Dibella	0-50 +

Based partially on: Analyse Thematique des Problemes de Département de Diffa, Cellule Technique du SDDR du Département de Diffa, août, 1991

the land abutting on the Komadougou River. As in the cuvettes of Zone IA, this riverfront region is generally characterized by rich soils, dense tree growth, and shallow water tables. The riverbed fills in July or August and generally runs until January. Some marshes and perennial springs make surface water available year-round. Zone IC comprises the Lake Chad basin. As with Zones IA and IB, the lakebed contains pockets of dense tree growth and shallow water tables. Lakewaters are said to have been absent from Zone IC for the past five years. Most parts of Zone I sustain

year-round agricultural activities. Except for the transitory presence of some nomadic pastoralists, the residents of this region are for the more part sedentary agro-pastoralists.

ZONE II: In the area conforming to Zone II, tree growth is less dense, the soils are sandier, and the water table is frequently located at depths three or four times that in Zone I. Most of Zone II may be classified as savannah and steppe. In central and northern parts of this region, much of the land is entirely deforested. Except for a few cuvettes, agricultural activity in Zone II is limited to the rainy season. Residents of this region are agro-pastoralists, both sedentary and semi-nomadic. As in Zone I, there is also the transitory presence of nomadic pastoralists.

ZONE III: Zone III consists of steppe intermixed with dunes and depressions. Except where Zone III abuts on the Lake Chad Basin (Zone IC), both the number of trees and the variety of species are markedly more limited than in the southerly regions. Vegetal cover is generally limited to bushes and some perennial grasses. Many of the dunes in the region are devoid of plant life. The majority of residents in this zone are semi-nomadic pastoralists, although there exist minority groups of semi-nomadic agro-pastoralists.

ZONE IV: Zone IV constitutes the conjunction of the steppe with the southernmost limits of the Sahara. In much of Zone IVA, mountainous dunes replace the rolling steppe as the predominant characteristic of the terrain. From Zone IVA to IVB, vegetation becomes progressively more scarce, frequently limited exclusively to cuvette interiors. A large proportion of the surrounding dunes remain devoid of plant life year-round. The water table in Zone IV is more accessible than in the more southerly Zones II and III due to the depth of many of the cuvettes and valleys found therein. In addition, perennial springs at Agadem and Dibella (Zone IVB) offer water at ground-level. Residents of this region are nomadic and semi-nomadic pastoralists.

The total population of the Department of Diffa was estimated at 185,140 in 1988. This population consists of a multiplicity of ethno-linguistic groups (see Map C). The largest of these groups is that of the Kanouri, which can be divided into five sub-groups; the Mobeur, the Manga, the Kanembou, the Sougourti, and the Jetko. Kanouris account for 58% of the departmental population. Most Kanouri reside in Zone I. Fulani constitute the second largest ethno-linguistic group, representing 22% of the departmental population. The Fulani of Diffa consist primarily of the sub-group Fulbé (semi-nomadic agro-pastoralists), with the number of Wodaabbé (nomadic pastoralists) varying yearly depending on pasture conditions. Most Fulani inhabit Zone II. The Toubou (semi-nomadic agro-pastoralists) account for 8.9% of the departmental population. The Toubou inhabit Zones III and IV. The

Arabs (nomadic pastoralists and semi-nomadic agro-pastoralists) account for 2.8% of the departmental population. Arabs cohabit with the Toubou in Zones III and IV. The number of Boudouma (semi-nomadic agro-pastoralists) is not indicated in the census figures for 1988, but it may be presumed to vary annually depending on pasture conditions in the Lake Chad basin. The presence of Boudouma is limited to the Lake Chad basin (Zone IC). Likewise unindicated is the population of Bouzou (sedentary and semi-nomadic agro-pastoralists) residing in the western portion of Zone II.

Various factors are thought to be responsible for the department's low population. The region is environmentally incapable of supporting a large population; accounts dating from the beginning of the colonial era, describing the region as semi-desert, imply that this is not a new phenomenon. In addition, for most of its known history, the region is said to have been highly insecure. Until the 1910s, razzia[10] by pastoralist Toubou, Arab, Tuareg, and Boudouma were regular occurrences; although fellow pastoralists were not excluded, these raids were perpetrated primarily on the sedentary Mobeur and Manga in the southern portions of the department.

Imposition of colonial authority at the beginning of the Twentieth Century is said to have instaurated a period of relative security, but said government's monetary and military service exactions supposedly continued to make the region unattractive to potential settlers. The departure of this colonial authority 30 years ago is said to be an important factor in the region's return to a state of chronic insecurity. In addition, two major droughts during the past 20 years, in conjunction with an economic boom in neighboring Nigeria, are said to have favored emigration from the department. Finally, the Diffa Department exhibits an unusually high incidence of unproductive pregnancies (17%) and sterile unions (29%).[11] The department's relatively slow rate of growth is in part attributable to this phenomenon.

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[10] raids, usually for capture of slaves and pillage

[11] Bulletin trimestriel population Info. No. 1, juillet, 1985 DSD

MAP C

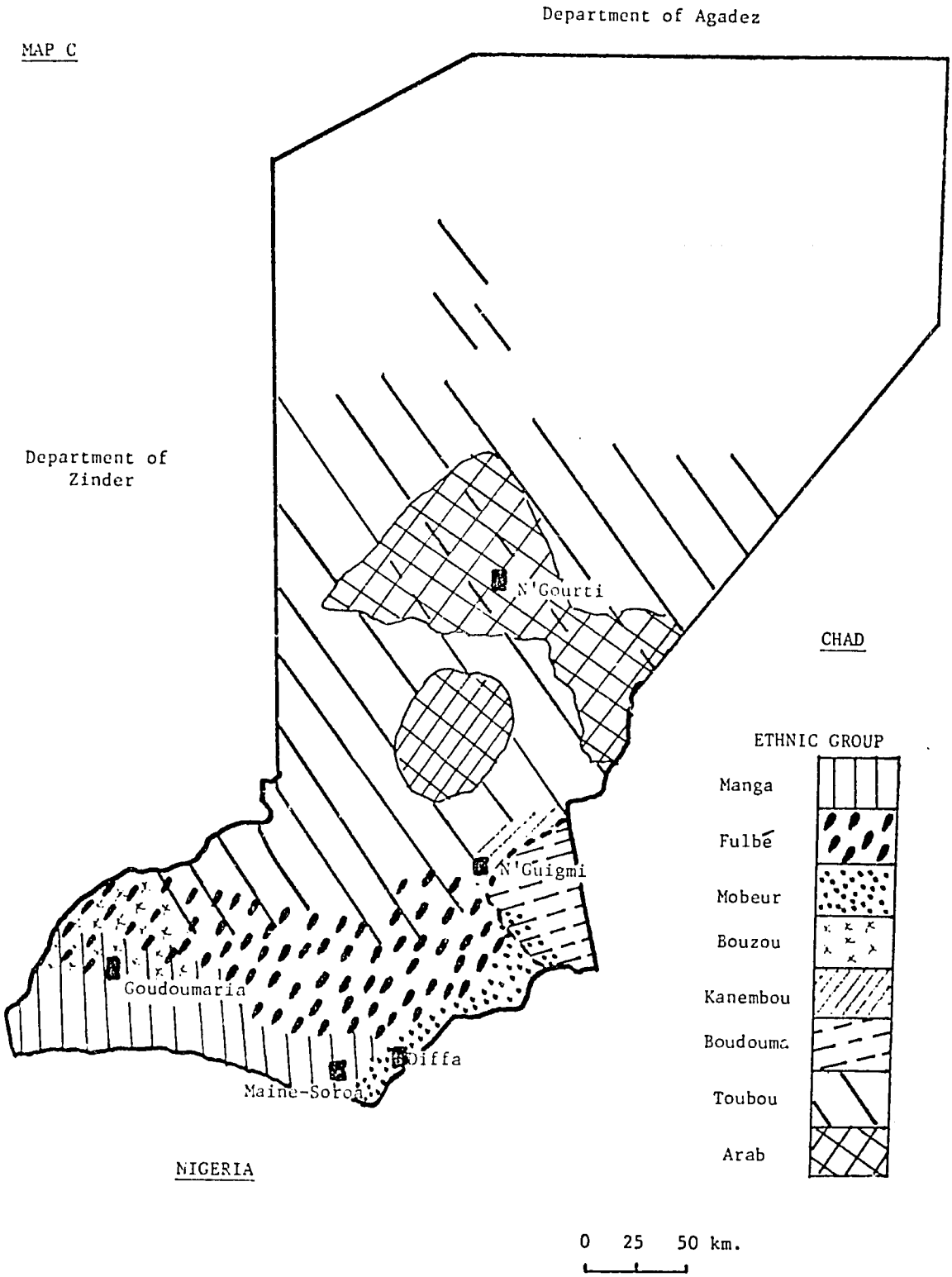
Department of Agadez
Department of Zinder
N'Gourti
CHAD
ETHNIC GROUP
Manga
Fulbé
Mobeur
Bouzou
Kanembou
Boudouma
Toubou
Arab
N'Guigmi
Goudoumaria
Diffa
Maine-Soroa
NIGERIA
0 25 50 km.

TABLE 2

ETHNIC GROUP	% of departmental total	
	1977	1988
Toubou*	1.8	8.9
Arab**	5.4	2.8
Kanouri	54.7	58.6
Fulani***	30.6	22.4
Hausa	3.4	4.7
Djerma	0.4	1.0
Other	2.6	0.4

* Concerning the Toubou, the discrepancy between the 1977 and 1988 figures almost certainly does not reflect a net growth in their numbers. More likely, it is due to Toubou populations' inaccessibility to census agents in 1977. The 1977 count was conducted in November, the time when cool weather and abundant post-rainy season pasture encourages northward movement and population dispersion, whereas the 1988 count was conducted in May, when settlement is generally more southerly and concentrated.

** This figure should be regarded as hypothetical. Over the past decade, significant part of the Arab (Washili) population formerly residing in the area around N'Gourti is said to have emigrated in a southwesterly direction to the regions near Bouti and Taskér. However, over the past five years, there has been significant immigration of Arabs (Hassaouna and Mohedi) from Chad.

*** The decrease in population of the Fulani is attributed to emigration to the southwest, into the Mangari and into the Zinder Department.

2.

SYNTHESIS

The three topics of this study are land use/natural resource management, adaptive strategies, and commerce/cross-border trade in the Diffa Department. Findings for each topic may be categorized according to which one of the agro-pastoral zones it applies to.

I. Land use/natural resource management

The populations inhabiting the Diffa Department have different interpretations of rights (theirs and others') applying to the land and natural resources around them.

A. Zone I, Sedentary Agro-pastoralists

The population of sedentary agro-pastoralists inhabiting Zone I frequently regards land as an appropriable commodity. This includes the (Kanouri) ethnic sub-groups Manga and Mobeur, residing in the regions comprising the cuvettes, the Komadougou River, and Lake Chad. Their history in the region is said to date between 100 and 1,000 years.

Proprietary rights may be invested in an individual, family, or other group. In certain cuvettes of Zone IA, a low but reportedly increasing incidence of land sales is reported. No such phenomenon is found for the Komadougou River or Lake Chad areas (Zones IB and IC), but informants therein claimed this is due to social factors rather than customary prohibition; sale is said to be technically possible in these zones as well. Ownership in Zone I does not appear to depend on continual exploitation of the land in question; numerous instances are found of proprietors whose land is said to have remained uncultivated for as much as a decade without jeopardizing their claims of ownership. As regards the use of land and natural resources, agricultural activities are given priority over grazing or other uses. This leads to conflict, usually with transhumant Wodaabbé herders, who disagree with resident populations' appropriation of resources which they consider public. The chefferie[12] represents the arbiter of land use and transfer in the region. The regulations which it wields constitute a combination of Koranic and sometimes ambiguous "traditional" precepts. Nowhere is the Rural Code cited as influencing land tenure policies.

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[12] general reference to the chiefly class

B. Zone II, Semi-nomadic Agro-pastoralists

The semi-nomadic agro-pastoralists residing in Zone II exercise control over land and natural resources based on a right of access or use rather than ownership. This includes the Fulbé of Zone II and some Daza/Azza/Agra of Zone III. The Fulbé are said to have resided in the region for about 100 years, the Daza/Azza/Agra for about 200.

Herding activities (based on cows and small ruminants) frequently necessitate movement of their settlements during the dry/cold season, but most informants appear to return to a fixed site for their rainy season farming activities. Norms governing such agricultural lands are premised on a right of access/usage rather than on appropriation of the land itself. Continual utilization of the land appears to represent the only viable manner in which such tenure is perpetuated. Leaving a parcel uncultivated is said to be tantamount to the abandonment of usage/access rights. The chefferie represents the authority to which disputes concerning such lands are addressed. Disputes involving agricultural lands generally pit the longtime Manga residents against more recently settled Fulbé, the latter of whom wish to farm but whose access to land is often restricted by the Manga.

Natural resources such as pasture and water are said to be unappropriable, but access to them tends to be carefully controlled. Refusal or limitation of watering rights at a well constitutes the primary means by which undesired groups and their herds are prevented from exploiting local pasture. Only about half of the informants having had disputes concerning natural resources claim to have invoked the authority of the chefferie, the remainder asserting that they had singlehandedly imposed their will. The majority of such disputes are said to pit local Manga and Fulbé against transhumant Wodaabbé herders. Resident Manga and Fulbé seek to preserve pasture resources for their own animals.

C. Zones III and IV, Semi-nomadic and Nomadic Herders

The semi-nomadic herders residing in Zones III and IV exercise their control over land and natural resources based on the right of access/use. Most use is for herding rather than agricultural purposes. Such populations include the Teda, Daza, and Washili/Hassaouna Arabs. Their inhabitation of the region varies between 250 and 5 years.

These semi-nomadic camel-herders exhibit a higher degree of mobility than do the agro-pastoralists to the south, but nonetheless regard certain areas as their "home territory." Access to grazing privileges in such areas is controlled at the well-head. Disputes are said to involve both transhumant and local herders, their incidence generally increasing in years of poorer pasture

development. Most informants claim that their disputes are resolved without invoking the authority of the chefferie.

II. Adaptive strategies and food security

Recent studies imply that cyclical drought represents an environmental norm for the Sahel.[13] The various methods which populations use to adapt to such conditions are called coping strategies; these are defined as *methods households use to acquire food when more conventional methods of production and purchase are unavailable*.[14] In this study, an attempt has been made to distinguish between coping strategies during crises and the "normal" income diversification strategies employed in non-stress periods. Coping consists of various social, economic, and ecological mechanisms.

ECONOMIC STRATEGIES. The objective of economic coping strategies is to expand on all the activities (enumerated above) which constitute normal-time production systems. In the agro-pastoral realm, diversification of the kinds of crops cultivated and the number/type of animals herded represent primary variables. Other activities of importance are commerce, migration, and craft. The purpose of these strategies is to accumulate assets, including agricultural products, animals, jewelry, work implements, or other which may be divested of in times of dearth.

SOCIAL STRATEGIES. The objective of social coping strategies is to redistribute available resources among family, clan, caste, or age group. The premise of this strategy is reciprocity; such sharing ensures that the giver, if subsequently in difficulty, will have the right to solicit aid (reciprocation) from various individuals he/she formerly gifted. This strategy includes gifts and/or loans of money, animals, land, and chattels. It may also include sending children to live with relatives or marrying daughters to priests or wealthy individuals.

ECOLOGICAL ADAPTATIONS. Various alterations in planting and herding techniques represent ecological adaptation. For farmers, these may include planting different crops related to soil types, altering fertilizing practices, and inter-cropping. For herders, grazing patterns may be altered depending upon the availability of water and quantity/variety of pasture.

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[13] DE WAAL, Alexander, Famine that Kills, Oxford: Clarendon Press, 1989

[14] Disaster Preparedness and Mitigation Program, Program Assistance Approval Document (683-0271/0279), Volumes I and II, USAID/Niger, June 1992, p. 22

A. ZONE I

Zone I is populated primarily by sedentary agro-pastoralists of the ethnic affinity Kanouri (sub-groups Manga and Manga). The economic strategies, social strategies, and ecological adaptations employed by these groups differ according to what section of Zone I they inhabit.

1. Zone I A

a. Economic Strategies:

AGRICULTURE: Irrigation of manioc, yams, and various leguminous vegetables in cuvette bottomlands during the dry/cold season constitutes Manga residents' primary agricultural economic strategy. Informants claim to cultivate these crops even during years of "normal" cereal production, but assert that the number of individuals engaging in such activities climbs sharply in stressful times (i.e. grain shortages). Approximately 85% of the male Manga informants claimed to engage in such gardening activities presently or in lieu of household grain shortages. About 50% of the women interviewed claimed to participate in such activities with their husbands, such gardening seldom appears to be an independent activity of women. This strategy is said to have been employed on a large scale since the 1960s, but that since the mid-1980s falling water-tables have put the activity into regression. It is an activity which is limited to those in good health and with access to limited cuvette-bottom lands.

As applies to cereal cultivation, increasing the surface area cultivated constitutes an economic strategy of nearly universal use.

EXTRACTION: Harvesting and sale of natron is said to constitute an important non-agricultural economic strategy for married Manga men in the age-group 27-55. Approximately 25% of the male informants claimed to engage in this activity on an annual basis, this increasing by 15% in years of inadequate grain harvests. Most of these informants claimed to have limited or no access to cuvette-bottom gardening lands. The number of individuals harvesting natron is said to increase in years of poor grain harvests. Less than 10% of female Manga informants claimed to engage in natron-harvesting. Half of those claiming to do so averred that they did so in association with their husbands. This activity is said to be at least 150 years old.

MIGRATION: Seasonal migration (to Nigeria) constitutes another important non-agricultural economic strategy for Manga men. While many younger emigrants (ages 18-35) asserted that their motivation had not been strictly economic, this was not the case with older and married informants. Older and married individuals all claimed to leave their villages only when compelled by poor

grain harvests and lack of alternate local income-earning activities. Such local alternatives were generally said to be due to lack of access to cuvette-bottom gardening lands or, for those who did have access, lack of able-bodied children in their families (labor force to work such lands). Likewise, access to local natron-harvesting activities was said to be limited. Migrants are almost always male and in good physical health. Seasonal migration is said to have become an economic strategy of widespread use during the past 20 years.

HERDING: Over the past 10 to 20 years, small ruminants have replaced cows as the animals of choice for individuals of average economic means. This re-orientation represents an adaptation to environmental conditions which are less favorable to cows. It also reflects residents' generally diminished economic status. Goats and sheep are perceived as well adapted to prevailing silvo-pastoral conditions, economically attainable for individuals of modest economic means, and easily converted to cash or bartered. They are cited by the majority of informants as the productive asset of choice for investment of surplus cash.

WOMEN'S ACTIVITIES: Women's economic strategies are often linked to those of their husbands (i.e. participation in cuvette-bottom gardening, natron-harvesting, etc.). The most important independent activities mentioned included the purchase of small ruminants, the weaving of nattes, and the processing of burr.[15] Approximately 90% of women informants claimed to invest their savings in goats (the other 10% prefer jewelry). This strategy is said to have become popular in the past 15 to 20 years. Weaving of nattes and the processing of burr are activities of nearly-universal popularity. Both may be practiced during sieste,[16] after the evening meal, and during other unoccupied moments. There is more time for these activities after the cultivation and harvest of millet (i.e. during the dry/cold season). Natte-weaving and burr-processing are said to have become income-earning (i.e. commercial) activities only during the past 20 years. Of the two, natte-weaving is said to be slightly more popular because it is less laborious and the requisite raw materials are more easily procured.

For the elderly, handicapped, or infirm, natte-weaving is said to be the economic strategy of choice.

b. Social strategies

Social strategies for the Zone IA most commonly appear to be loans of land, aiding with physical labor for cultivation/harvest,

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[15] a sweet fiber which is removed from the exterior of the fruit of the doum palm (Hyphaena thebaica)

[16] rest period during the hottest part of the day, generally between about 12:00 noon and 3:00 pm.

sharing work implements or pack-animals, giving of zakat[17] to priests or poor, taking commissions (i.e. individual going to market runs errands/fills requests of those who remain in village), and temporarily/permanently placing children with relatives. None of these strategies is said to be of recent origin.

c. Ecological adaptations

Two important ecological adaptations for Zone IA are said to be cultivation of rainy season crops on steppe and duneland rather than in cuvette-bottoms and the apparently total cessation in the use of manure to fertilize such fields. Both adaptations are said constitute responses to reduced rainfall.

FOOD SECURITY

Food security is perceived of as consisting of a combination of both traditional and more recently adopted activities. Traditional activities consist of rainy season cereal cultivation, natron-harvesting, and livestock ownership. Strategies adopted within the last 20 years include increasing the surface area of rainy season fields, engaging in cuvette-bottom gardening in the dry/cold season, changing herd composition from cattle to small ruminants, migrating during a part of each year to seek income, involvement in commerce, and (specifically for women) natte-weaving and burr-processing on a large scale.

2. Zone IB

a. Economic strategies

AGRICULTURE: Irrigation of pepper as a cash crop constitutes the singlemost important economic strategy employed by residents of Zone IB. Approximately 80% of all male informants cultivate pepper annually, regardless of cereal harvests. Widespread farming of pepper as a cash crop began in the early to mid-1980s. There is usually at least one secondary crop found in pepper fields, usually consisting of wheat, onions, yams, and/or Contre-saison legumes. It is limited to men possessing access to river-edge land, adequate capital, and good physical health.

Cultivation of rice in the riverbed is an activity of long date. As an economic strategy, it is said to have lost popularity to pepper farming. Cultivation of rice frequently appears to be the alternative of individuals without access to pepper-farming. Rice farming is said to increase in response to poor cereal harvests.

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[17] an annual tithe imposed by Islam, based on an individual's combined assets (total wealth). See Annex IV for details.

MIGRATION: Seasonal migration does not appear as important in Zone IB as in Zone IA. The Lake Chad basin is the most commonly cited destination for these migrants, such having been the choice since the 1970s. Indications are that this is changing, as progressive drying up of the lake basin soils is making erstwhile farming and fishing activities impossible. This kind of seasonal migration appears to be of primary importance to individuals who lack either sufficient operating capital or land access necessary for pepper farming. Many of these are young, unmarried men in good physical health.

HERDING: The same 15 to 20 year-old re-orientation from cattle to small ruminants noted in Zone IA is said to have occurred in Zone IB.

WOMEN'S ACTIVITIES: Most married women's economic strategies appear to be linked with those of their husbands. They generally participate in dry/cold season pepper-gardening, inter-cropping okra as an independent activity of their own. Economic strategies undertaken independently include the purchase of small ruminants, natte-weaving, and burr-processing. As in Zone IA, the latter two are strategies of recent origin (about 20 years).

b. Social strategies

Social strategies for Zone IB are most commonly cited as loans of land, equipment, and capital necessary for pepper farming. They also include aiding with physical labor for cultivation/harvest, sharing work implements, giving of zakat to priests or poor, taking commissions to market, placing children with relatives, and marrying daughters to rich or important individuals. Except for those related to pepper farming, none of these strategies is said to be of recent origin.

c. Ecological adaptations

An important ecological adaptation for the region is the limitation of transhumant herders' access to water and pasture in the riverbed, thereby attempting to save such resources for their own livestock. This adaptive measure excites controversy with the herders, for whom passage through the zone becomes increasingly problematic. Ecological adaptation involving agriculture include the cessation of fertilizer use on rainy season fields and millet-bean inter-cropping.

FOOD SECURITY

Food security in this zone was traditionally based on rainy season cereal cultivation, some dry/cold season irrigated tuber/legume gardening, and cattle herding. Since the mid-1980s, gardening of pepper has supplanted all other activities in economic importance. It is with the cash from pepper commercialization that

cereals are purchased in the event of food shortages; some farmers appear to have abandoned millet cultivation altogether, in favor of purchasing 100% of their cereal requirements with pepper revenues. Although the actual profitability of pepper appears to vary annually, most residents of Zone IB equate their food security with pepper production. Apart from pepper production, households' food security may also be based on cultivation of various garden crops (rice, wheat, yams, Contre-saison legumes), possession of small ruminants, natte-weaving, and burr-processing.

3. Zone IC

a. *Economic strategies*

MIGRATION: Seasonal migration to the borders of the Lake Chad (now located outside of Niger) represents the economic strategy of choice for young, able-bodied men in Zone IC. This strategy is of is recent date, in response to progressive recession of lake waters since 1988 and more recent diversion of the Komadougou River.

AGRICULTURE: Economic strategies concerning agriculture includes corn's replacement of sorghum as the dry/cold season crop of choice. This adaptation is said to have occurred during the past 15 years, due to corn's imperviousness to bird attack. Beans constituted an important cash crop in the late 1980s, but are cited as having been drastically reduced since 1990 due to insect attack and receding water-tables.

WOMEN'S ACTIVITIES: As in Zones IA and IB, women participate in the agricultural tasks which constitute the major economic strategies of their families. Independent strategies for women in Zone IC appear to be limited to the acquisition of goats.

b. *Social strategies*

Social strategies include aiding with physical labor for cultivation/harvest, giving of zakat priests or poor, placing children with relatives. Concerning seasonal migration, friends or relatives frequently migrate together, living and working communally at the destination site.

c. *Ecological adaptations*

The change from sorghum to corn for reasons of predation represents lakebed residents most significant ecological adaptation.

FOOD SECURITY

Perceptions of security in this zone are almost entirely based on dry/cold season agricultural strategies. Reduced success of such strategies locally over the past five years (due to recession of lakewaters) compels an increasing proportion of the male population to engage in seasonal migration.

B. ZONE II

Zone II is populated primarily by semi-nomadic agro-pastoralists of the ethnic affinity Fulani (sub-group Fulbé).

a. Economic strategies

Some of the economic strategies employed by residents of the more northerly Zone II resemble those of the southerly Zone IA, (the Zones are adjoining), but several factors prevent their being identical; Zone II has lower rainfall, it is farther from commercial centers, it has fewer irrigable or natron-producing cuvettes, and its residents are generally more attached to a pastoral lifestyle than residents of Zone IA.

HERDING: The semi-nomadic residents of Zone II have effected a less marked re-orientation from cows to small ruminants than sedentary populations of Zone I. When possible, they have maintained their cattle herds by purchasing foodstuffs (burr and cotton seed) with which to supplement the animals' diet. There is reportedly an increase in mobility of camps/herds as well. Where conversion from cows to small ruminants has occurred, it frequently appears to be regarded as an interim change; more than half the informants having thus converted avowed determination to reconstitute cattle herds eventually.

AGRICULTURE: As applies to cereal cultivation, increasing the surface area cultivated constitutes an economic strategy of nearly universal use.

Irrigated gardening in the cuvette-bottoms during dry/cold season represents a recent change for the Fulbé of Zone II. Of the 30% of informants employing this strategy (another 50% claim they would but for lack of irrigable cuvettes or land access therein), the majority claim it is a regular, annual activity regardless of good or bad cereal harvests. Manioc, yams, corn, onions, tobacco, and various legumes constitute the primary crops cultivated. This is said to be a strategy of the able-bodied, male, and land-owning or borrowing. It seems to be employed by those who do not have many cows (i.e. which may be equated with wealth and which necessitate movement). Such irrigated gardening is generally limited to the southernmost part of Zone II (the N'Gourbaye). Most informants claim this strategy has been employed since the mid-1980s.

MIGRATION: Seasonal migration (within the department) for wage labor is an important non-agricultural strategy of Zone II residents. This appears to involve males only, usually between the ages of 16 and 35. It is a strategy of those whose families have few or no cows and who lack access to dry/cold season gardening lands. Migration is said to drop sharply in years of good cereal harvests. It is said to have become a strategy of widespread use over the past 15 years.

WOMEN'S ACTIVITIES: Women's economic strategies appear less often linked to those of their husbands than those found for sedentary populations of Zone I. In the southern portion of Zone II, close to the region of doum palms (*Hyphaena thebaica*), approximately 70% of women informants claim to have begun weaving nattes and processing burr as an economic strategy during the past 15 years. In this same southerly portion of Zone II, women frequently sell milk and butter in sedentary Manga villages. This activity depends on the number of cows belong to the family. In addition, it is not a year-round activity; changes in pasture conditions determine how much milk is produced and for how long.

For the elderly, handicapped, or infirm, natte-weaving is said to be the primary economic strategy.

b. Social strategies

Restructuring of family units in relation to diminished cattle herds constitutes a significant and reportedly new social strategy for Fulbé. It takes two general forms: an increased number of men who remain in their fathers' camps after having married due to their fathers' inability to provide the requisite number of animals for the sons' independent herd; and an increased number of impoverished individuals living with relatives who retain viable herds ("regrouping"). the loan of land and animals, giving of sadaka/zakat to priests or poor, placing children with relatives.

c. Ecological adaptations

Some informants claimed to have changed rainy season cultivation sites from cuvette-bottoms to steppe and duneland in response to reduced rainfall, but data are insufficient to make a regional generalization about this adaptation. Concerning herding, greater flexibility in the location and frequency of movement appears the most significant recent change.

FOOD SECURITY

Perceptions of security in this zone vary. For the majority of informants, it appears that perceptions of security remain fundamentally based on the traditional combination of herding cows/small ruminants and cultivating millet (both premised on a substantial family labor force). In lieu of these activities'

insufficiency, recent strategies for men include irrigated gardening and seasonal migration. For women, they consist of selling dairy products, nattes, and burr. Various social strategies entailing the redistribution of indigents ("regrouping") are employed with the objective of more effectively rationalizing exploitation of the existing animal/agricultural resources.

C. ZONES III + IV

Zones III and IV are inhabited primarily by semi-nomadic Toubou and Arabs, most of whom are camel-herders practicing no agriculture.

a. Economic strategies

HERDING: Most economic strategies found date to the droughts of 1968-75 and 1980-85. These include the re-orientation from cattle to camel-herding and generalized southward movement of all populations. Herd size is said to have been reduced as well, but this appears attributable more to animal mortality and reduced reproductivity rather than to deliberate measures adopted by herders. Mobility has increased in response to reportedly scarcer pasture resources. Small ruminant-husbandry has acquired increased economic importance, even for those informants possessing comparatively large herds of camels; sale of such small ruminants, which is said to have been socially unacceptable for camel-herders before the 1980s, now appears to represent a significant source of cash income for such pastoralists (and a means to avoid selling their camels).

TRADE: For individuals whose herds are too small to permit them to live from herding activities alone, commerce with Bilma or Chad represents the most important available economic strategy.

WOMEN'S ACTIVITIES: For the minority caste group Azza, women's natte-weaving is responsible for an important percentage of families' cash income in certain cases.

b. Social strategies

Social strategies include aiding family or community members with such tasks as digging wells, searching for missing animals, watering at the well-head, and taking commissions to market. Giving of zakat to priests or family members and placing children with relatives are noted at as well. None of these is cited as a new strategy.

c. Ecological adaptations

The change in grazing patterns, manifested in the post-1980s southward movement of populations, represents the primary ecological adaptation undertaken. With regard to movement into the

Lake Chad basin (the predominant pattern during the 1980-85 drought), informants generally claim that in the event of drought in the future that they would not again choose this destination; undesirable pasture types and/or bad water found in the lakebed are blamed for a high rate of miscarriage and mortality among the camels which were taken there. In lieu of the lakebed, some informants claim they would reduce mobility (i.e. stay in place) or move southwest into Zone II.

FOOD SECURITY

The perception of security in this zone is most commonly said to be based on two elements: possession of a sufficient number of camels and of enough family members to ensure proper maintenance of the herd. Camels constitute the productive assets whose milk provides the basis of daily alimentation and whose sale assures provision of cereals (no one appears subsist exclusively on milk). For the symbiotic relationship between herders and their animals to remain in balance, between 5 and 7 reproductive female camels for each adult human being is cited as the minimum acceptable ratio. For families whose herds are inviably small, men's commerce with Bilma and/or Chad is said to be the primary means with which household food security is assured.

III. Commerce and cross-border trade

A. ZONES I + II

1. Zone IA + II

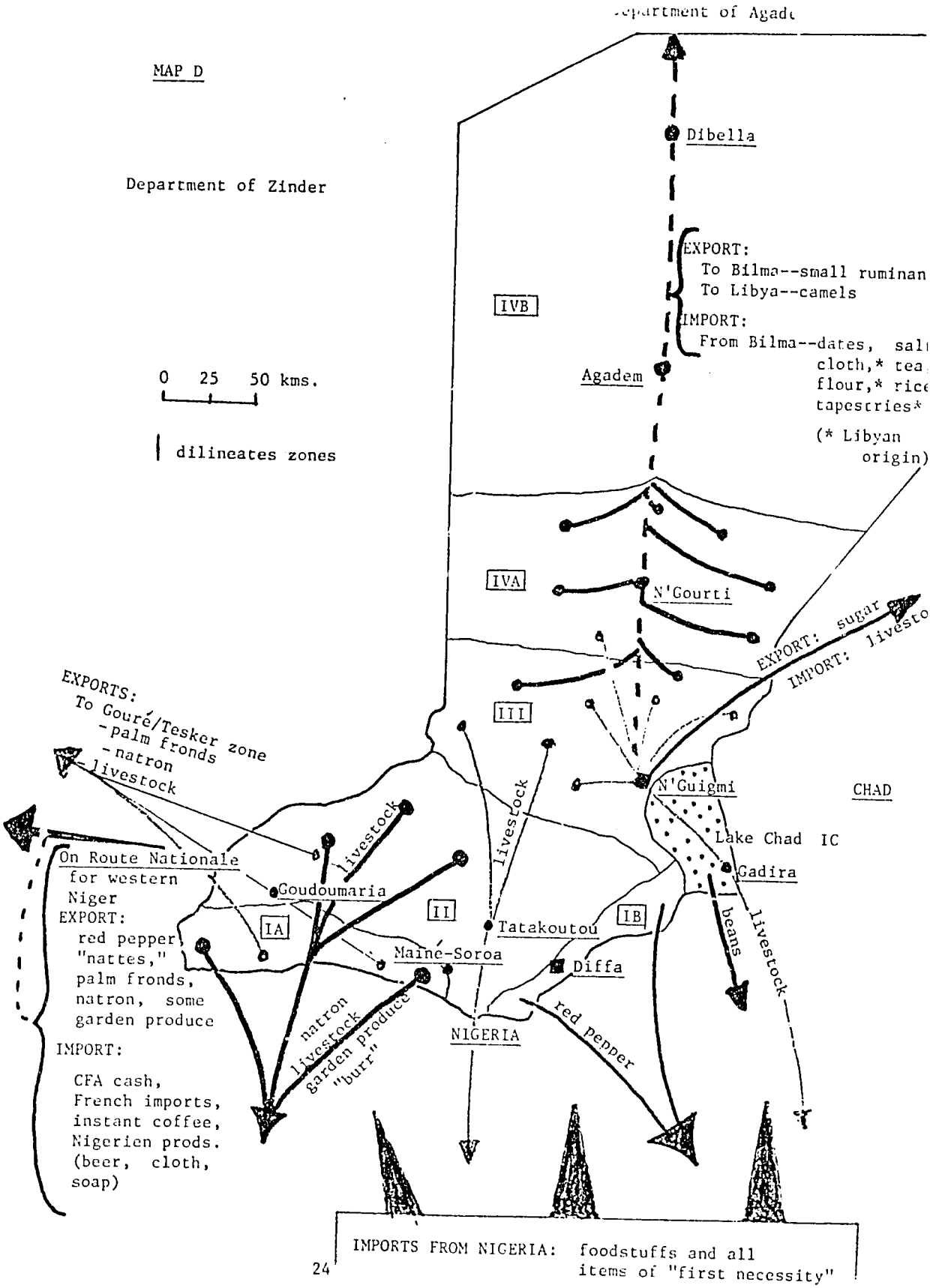
Commerce in Zones IA and II is more diversified than any other found in the study area. Such commerce includes a variety of agricultural, animal, extractive, and craft products, in addition to services. Some items are produced and sold within the region or exported, some (particularly livestock) are of external provenance but traverse the region on vertical north-to-south commercial routes, and others are imported from outside (most from Nigeria).

Primary exports from these zones are livestock, natron, palm fronds, nattes, and agricultural produce (manioc, corn, onions, yams, dates, and citrus). The majority of these products is exported to Nigeria, a small quantity also being exported to the western regions of Niger. Imports to the region are almost entirely of Nigerian provenance. The most important of these are cereals, in addition to most all basic, non-perishable goods employed by the average household. Many of these commodities are subject to one or more resale transaction before they reach the consumer (in the case of imports) or leave the department (in the case of exports); the small profit accruing to each trader in the course of these "turn-over" transactions constitutes a significant

part of some individuals cash. Other commercial activities include weaving of nattes, processing of burr, sale of dairy products, sale of firewood, and furnishing services (transport, agricultural labor, etc.).

2. Zone IB

Since the development of pepper as a major cash crop in the mid-1980s, Zone IB is primarily a zone of export production. Wheat, yams, okra, onions, rice, coriander, and Contre-saison legumes are also exported, but neither their volume nor their economic value compares with that of pepper. Nigeria appears to be the destination of choice for the bulk of these exports. As found for Zones IA and II, cereals and items of first necessity constitute the most significant imports (all of Nigerian provenance). Livestock traverses the region on north-to-south commercial routes, but the amount of animal trade actually generated internal to Zone IB appears much smaller than that in Zones IA and II. Small-scale resale of manufactured products (Nigerian) and such local items as burr, nattes, sauce condiments, dairy products, and firewood also serve as generators of cash income.


MAP D
Department of Zinder
0 25 50 kms.
dilineates zones
Dibella
EXPORT:
To Bilma--small ruminan
To Libya--camels
IMPORT:
From Bilma--dates, sal
cloth,* tea
flour,* rice
tapestries*
(* Libyan origin)
IVB
Agadem
IVA
N'Gourti
III
EXPORT: sugar
IMPORT: livesto
EXPORTS:
To Couré/Tesker zone
-palm fronds
-natron
-livestock
N'Guigmi
CHAD
Lake Chad
IC
Gadira
On Route Nationale
for western Niger
EXPORT:
red pepper
"nattes,"
palm fronds,
natron, some
garden produce
IMPORT:
CFA cash,
French imports,
instant coffee,
Nigerien prods.
(beer, cloth,
soap)
Goudoumaria
IA
II
IB
Tatakoutou
Maine-Soroa
Diffa
livestock
livestock
livestock
beans
livestock
natron
livestock
garden produce
"burr"
red pepper
NIGERIA
IMPORTS FROM NIGERIA: foodstuffs and all items of "first necessity"

3. Zone IC

Except for commercial traffic traversing Zone IC, the amount of economic activity involving commodities produced within the region appears minimal. Exports appear to be limited almost entirely to agricultural products. Beans, which constituted the region's most important export crop in the late 1980s, have suffered from severe insect infestation for the past three years. Corn, wheat, barley, and rice are also produced in and exported from the region, but reportedly in lesser quantity than beans (they are often consumed rather than commercialized). Little of the livestock which is locally commercialized appears to be of local origin; most of that found in local markets appears to be transitting the region in its course from the pastoral north to terminal markets in Nigeria. Services such as transport appear to be offered by outsiders (Toubou) rather than locals. Womens' involvement in sale of handicraft and natural products is noticeably less in Zone IC than in other parts of the department.

B. ZONES III + IV

Comparatively little commercial activity occurs in the interior of Zones III and IV. Rather, the large external market centers of N'Guigmi, Bilma, and Geidem (Nigeria) serve as conduits for most of the commercial traffic in the region. It is on these markets that livestock (the primary product of Zones III and IV) is sold. In exchange for livestock, the market at Bilma is the source of all Libyan imports, the market at N'Guigmi for Nigerian imports (most importantly, cereal and sugar). This commerce appears to involve men exclusively. Internal commerce is limited to the boutiques of N'Gourti, which offer cereal and items of first necessity, or local exchanges which occur at herders' living sites. This commerce includes sales of commodities such as nattes (Azza women), milk sales (women), camel-hair sacks (Arab women), and services such as metal-smithing (Azza men), leather-work (Azza men), and well-digging (Azza and Fulbé men).

3.

FIRST TRIMESTER OF STUDY (Zones IA and II)

The Mangari

The first three months of this study concern the greater part of the Arrondissement of Mainé-Soroa and the western section of the Arrondissement of Diffa. Most of this area falls into that which local residents have named the Mangari (*place of the Manga*). The Mangari is divided in two sections; the Mandaram in the south and the N'Gourbaye to the north.

A. Physical milieu

The Mangari is noteworthy for its high incidence of cuvettes. A cuvette is a depression, whose diameter may vary between several hundred meters and five or ten kilometers. Both soil types and flora in the interior differ markedly from those of the surrounding Sahelo-Saharien landscape. It is necessary to distinguish between two general types of cuvettes, according to their relative latitudes; the soils of those located within the southeasternmost zone (roughly, south of the Route Nationale and west of Mainé-Soroa) are higher in salt and natron (soda). Their water-tables are generally very shallow and in some areas water collects in pools during the rainy season. It is the high incidence of salt and natron reserves in the southern region which are responsible for its appellation, Mandaram, deriving from the Kanouri word manda for salt.[18] Both higher watertables and higher rainfall in these cuvettes permit them a dense vegetal cover, including *Tamarindus indica, Hyphaena thebaica,* and *Phoenix dactlifera* (introduced). In the zone to the north of the Mandaram (called the N'Gourbaye), cuvettes exist but lower rainfall and deeper watertables contribute to make most of them too arid to sustain the lush oasis micro-environments of the Mandaram variety. Nor do N'Gourbaye cuvettes contain such rich natron reserves as do those of the Mandaram.

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[18] MAIKOREMA, Zakari, Contribution à l'histoire des Populations du Sud-Est Nigerien, Le Cas du Mangari, Etudes Nigeriennes No. 53, Institut de Recherches en Sciences Humaines (IRSH), 1985, p. 20

The land surrounding these cuvettes is distributed is characterized as typically Sahelien; soils are sandy and the water-table located at greater depths than within the depressions. Vegetation on the dunes and steppe separating the cuvettes is generally more dense in the southern zones due to higher rainfall, giving way in the north to sparser tree-cover (predominance of *Acacia raddiana* and *Salvadora persica*) and more degraded soils. In both southern and northern regions, *Cenchrus biflorus* and *Brachiaria psammophiles sahélien* constitute much of the pasture.

Drought and desertification are reportedly not new phenomena in this region. Even at the beginning of the Twentieth Century, accounts describe the Mangari as "quasi-desert." It may be said, however, that degradation of vegetal cover and soil conditions over the past twenty years have reached serious proportions, even by comparison with historical precedents.

B. Social milieu

1. The Manga

The Manga belong to the ethno-linguistic group Kanouri. Although the history of their residence in the southeastern quadrant of Niger is subject to debate, it has been ventured that "*...l'unanimité est acquise sur le fait que...leur installation au N'Gourbaye...remonte, en grande partie, seulement au siècle dernier.*"[19] Salt and natron extraction activities in the cuvettes are said to have attracted these first immigrants. The importance of these activities is said to have been greatly reduced by the end of the first half of the Twentieth Century due to deforestation (trees being necessary to salt processing) and market preferences for sea salt. The Manga remained, however, adapting their activities to include irrigated agriculture in the cuvettes, and rainy-season cropping and herding on the surrounding steppe and duneland.

The Manga are a sedentary, agro-pastoral people. The social foundation of a village is generally based on one or more lineages. A system of castes is said to have existed historically, including nobles, a middle class (commerçants,[20] farmers, herders, and warriors), and a lower class (blacksmiths, butchers, and griots).[21] These distinctions appear to have lost much of their relevance. Economic and environmental change in the Manga milieu have broken down barriers which formerly maintained the integrity,

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[19] MAIKOREMA, Zakari, Contribution à l'histoire des Populations du Sud-Est Nigerien, Le Car du Mangari, Etudes Nigeriennes No. 53, Institut de Recherches en Sciences Humaines (IRSH), 1985, p 66 Salt

[20] traders or business-people

[21] a combination of ritual story-teller and town-crier

indeed the raison d'être, of these groups.

It was the extraction of natron and production of salt which are supposed to have first attracted the Manga to the region sometime during the Nineteenth Century; "...*une richesse minérale a permis à des sédentaires de vivre dans un pays qui convient surtout à l'élevage....*"[22] Most of these first inhabitants stayed only seasonally near the cuvettes which they exploited, returning to their permanent homes to the south for rainy season agricultural activities.[23] The decline of this extractive industry may be attributed to various factors, perhaps most importantly the shortage of combustible material required for the long cooking process of salt. As early as the 1910s, it was observed that "*le pays est dès maintenant complètement déboisé à grande distance des villages; il est devenu une steppe.*"[24] In addition, the market for Mangari salt declined, due to both its inferior quality (compared to Bilma salt, for example) and to the introduction of sea-salt from Europe. Salt processing and natron extraction nonetheless remain viable economic activities of the Manga today, albeit on a much reduced scale.

Mangas' most important rainy season agricultural activity is the cultivation of millet, and to a lesser extent sorghum and beans. Over the past fifty years, dry/cold season crops such as manioc, corn, sugarcane, onions, wheat, cotton, dates, and fruit-bearing trees have come to occupy an important part of Manga agriculture. Their importance is said to have increased proportionate to the decrease in that of salt and natron extraction activities. However, chronic drought over the past two decades is said to have adversely affected this activity. A significant number of cuvettes in the Mangari have been abandoned because they no longer sustain these irrigated crops.

Animal husbandry occupies an important part in Manga economic activities. Before the droughts of 1968-75 and 1980-85, cattle ownership is said to have been extensive. The sedentary Manga are said to have practiced a passive form of husbandry; "...*les troupeaux Manga passent généralement toute l'année sur les pâturages situés autour des villages.*"[25] Herds were decimated in

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22 CHUDEAU, R., Sahara Soudanais, 1909

23 MAIKOREMA, Zakari, Contribution à L'histoire des Pooulations du Sud-Est Nigerien, Le Cas du Mangari, Etudes Nigeriennes No. 53, IRSH, 1985, p. 69

24 THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, Projet Développement de l'Elevage dans le Niger Centre-Est (PDENCE), octobre, 1987, p. 113

25 THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, Projet Développement de l'Elevage dans le Niger Centre-Est (PDENCE), octobre, 1987, p. 113

the droughts of 1968-75 and 1980-85, when these grazing lands were prematurely exhausted and the sedentary proprietors unprepared to undertake long migration. In the aftermath of these droughts, small ruminant husbandry is reportedly favored over cattle-herding.

2. The Fulbé

The Fulbé belong to the ethno-linguistic group Fulani. The presence of Fulbé in the Mangari appears relatively recent, no historical mention of them being made until 1909.[26] It was supposedly in large part due to the arrival of French colonial authority and the subsequent cessation of Toubou/Arab/Tuareg razzia that Fulbé immigrated from the west. They are said to have encountered little resistance (from indigenous Manga) to their settlement, as their preference was for the pastoral N'Gourbaye (to the north of most Manga habitation).

The Fulbé are a semi-sedentary, agro-pastoral people. Similar to the Manga, their village structure is usually based on common lineage. The nuclear family (wuro or household) is the essential unit of production, tending a herd and cultivating a field of its own. Several households comprise a guré, or encampment. An agglomeration of encampments, sometimes distributed over several square kilometers around a cuvette, constitutes a taardé. Over this entity presides a chef du tribu. Up to the level of taardé, relations between the constituents are very strong, "...*notamment au travers de l'entraide...prêt des animaux, des vivres, travaux des temes....*"[27] Even beyond this level, the lineage (lenyol), which is based on a common ancestor, there is said to exist a solidarity "*constantly present...even though most of (the members) don't know one-another.*"[28] It should be kept in mind that, although recognition of and solidarity within a common ancestry are very important, their physical manifestation in the form of a single-family encampment or large, semi-sedentary settlement depends most importantly on how annual rainfall influences agricultural and herding conditions.

Agriculture is said not to constitute a new practice for the Fulbé. Unlike other Fulani groups, such as the pure-pastoralist Wodaabbé, the Fulbé are said to have practiced agriculture for at least several generations. Historically, the rainy season

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[26] CHUDEAU, R., Sahara Soudanais, 1909

[27] ROQUE, Olivier, DJIBIR, Bello, Rapport D'identification et Proposition de Document de Projet Appui Aux Groupements-Nord Goudoumaria, janvier, 1991, 3.3.2.

[28] ROQUE, Olivier, DJIBIR, Bello, Rapport D'identification et Proposition de Document de Projet Appui Aux Groupements-Nord Goudoumaria, janvier, 1991, 3.3.2.

cultivation of subsistence crops millet, sorghum, and beans, in conjunction with herding activities, provided sufficient sustenance. Reduced rainy season harvests and the decimation of herds over the past twenty years have reportedly compelled a significant number of Fulbé to engage in dry/cold season farming in cuvettes, as do the Manga.

Fulbé cattle herds were reduced during the droughts of the past two decades, but they are said not to have been so dramatically affected as those of the Manga. Fulbé appear to retain a significant number of cattle. In addition, the majority of Fulbé interviewed for this study stated their determination to reconstitute their cattle herds. Although husbandry of small ruminants is said to have assumed greater importance since the loss of cattle,[29] most Fulbé do not seem to regard permanent conversion to goat and sheep-herding as a desirable alternative. Rather, it is regarded as a temporary concession to presently untenable environmental conditions, by means of which cattle herds may be slowly reconstituted. Fulbé herding does not generally involve long migration such as is practiced by other Fulani such as the Wodaabbé. In a year of adequate rainfall, the Fulbé keep their herds in relatively close proximity to the home-cuvette, watering them from shallow wells dug within. Fulbé informants for this study claimed that, even in years of dearth, they did not generally migrate more than 100 to 200 kilometers from the Mangari.

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[29] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, PDENCE, octobre, 1987, p. 67

I.

LAND USE AND NATURAL RESOURCE MANAGEMENT

Land-use and natural resource management will be examined as they bear on (a) agricultural (b) herding, (c) extractive, and (d) gathering practices.

A. Agriculture

Farming activities of Manga and Fulbé populations take place in two different settings, the interior of cuvettes and on the exterior steppe and duneland. The norms of land ownership, usage rights, and transferal vary somewhat as they apply to these respective zones.

1. Cuvette interior parcels

In the Arrondissement of Mainé-Soroa, all the cuvettes have proprietors.[30] Informants did not agree on how these proprietary rights had developed. Some individuals claimed that in historical times the chief had distributed the cuvette lands among his villagers, whose descendants one sees farming them today; these informants claimed that these arable portions of the cuvette remained ultimately at the chief's disposition. Others claimed that their ancestors' clearance of the land had in itself established their tenure. Independent of the various disagreements on the historical origins of their tenure, almost all informants recognized the chief's present-day position as arbiter in the case of disputes concerning cuvette lands. Equally, they recognized his right to repossess and redistribute lands of which an owner had died without issue. Most informants claimed that the chief would be consulted as a matter of course when a proprietor wished to sell loan, or otherwise transfer his/her lands.

a. Sale of cuvette-bottom parcels

The sale of land is said to represent a new and not widespread phenomenon. In most of the Mangari, the land is accorded the special value of something belonging to God (Allah). Its alienation (in the form of sale) is not undertaken lightly. Sale implies the cession of the seller's descendants' heritage. Most informants asserted that they were unable to attach monetary value

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30 Analyse Thématique des Problèmes de Département de Diffa, Cellule technique du SDDR du Département de Diffa, août, 1991, p., 149

to the land. This appears to be changing, however, possibly due to the influence of Occidental ideas and, more decisively, the increasing rarity of cuvette-bottom parcels.

b. Loans of cuvette-bottom parcels

A much more common type of transfer is the temporary cession of usage rights (loan). The terms of loans appear to vary widely according to how well the owner knows the borrower, what semi-permanent fixtures already exist on the parcel (wells, trees, etc.), and what the borrower wishes to do with the parcel. It appears that most prospective borrowers who succeed in acquiring a parcel on loan are either friends or relatives of the owner. These loans are usually of one to three-year duration. Owners usually take the precaution of summoning at least two or three witnesses (the village chief included) to ensure that a borrower knows the conditions of his loan are public. In cases of owners' refusal to loan land, it has been noted that "...*beaucoup des chefs d'exploitation refusent le prêt en estimant que les bénéficiares pourraient refuser le respect des contrats sous-crits.*"[31] This is often the case involving parcels on which date palms, wells, and other semi-permanent fixtures are located. Proprietors fear that borrowers will abuse these fixtures.

There appears to exist enormous variation in the terms of loans. The most common scenario cited by informants involves an owner who insists on three points: that the borrower plant nothing whose foreseeable harvest time exceeds the period of the loan; that the borrower touch none of the parcel's existing trees (indigenous or domestic) or their fruits; and that the parcel be restored to the owner in sufficient time for him to prepare it for the subsequent season. The first of these stipulations is designed specifically to prevent the planting of fruit trees, which is regarded as tantamount to staking a claim to ownership. The second stipulation, as it applies to pre-existing fruit tree or date palms, is intended to protect the owner from pilfering by a borrower. Special instances were cited in which borrowers had been allowed to harvest dates, palm boughs, and citrus fruits for a small share accorded them by the owner. As this "don't touch" stipulation applies to indigenous tree species, it appears designed more to protect owners from fines levied against them by Eaux et Forets[32] agents than from proprietors' appreciation of such trees. The last stipulation of the loan agreement ensures that the proprietor repossesses his field in time to weed, cultivate, and make other preparations necessary for the subsequent season. Some proprietor-informants expressed a willingness to allow a borrower

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[31] Analyse Thématique des Problèmes de Département de Diffa, Cellule technique du SDDR du Département de Diffa, août, 1991, p., 149

[32] equivalent of the Department of Forestry

much greater leeway with his or her activities; the borrower could dig a well, plant fruit trees, even construct a house, but it was to be understood that all these improvements would revert to the proprietor when the loan expired. Such lenient proprietors appear to be exceptional, though data are lacking to confirm this.

No case was encountered in which a borrower paid a proprietor rental fees for a loan. This may be due in part to the fact that most loan recipients appear to be friends or relatives of the proprietors.

c. Inheritance of cuvette-bottom parcels

Apart from the sale or loan of land, inheritance is the only other manner in which it is said access rights to it may be transferred. Inheritance of land in the Mangari is governed by both Koranic stricture. It appears that males alone have the right to inherit land. According to informants, a woman inherits land only she is the sole member of the family remaining (after a search for male heirs has been made to a "depth" of three generations). It is also stipulated that a woman may pass on to her sons certain innate rights which they may exercise to secure access to cuvette lands belonging to their maternal grandfather.

d. Assets pertaining to cuvette-bottom parcels

The trees, wells, and other semi-permanent fixtures in a cuvette-bottom parcel may have a value independent from the land on which they are situated. This is to say, such assets may be sold without affecting the land on which they are situated (and vice-versa).

Numerous examples were found of individuals who had sold fruit-harvesting or pasture-access rights without selling the land on which these resources were located. Following are two example cases:

> The first involved a middle-aged Manga farmer, resident in a large village in the N'Gourbaye. He bought mature date palms from a neighboring Fulbé. The purchase did not include the land on which the date palms were situated. Incidentally, his stated objective is actually to acquire the land as well; he reasons that, having bought the trees, the proprietor will be more amenable to loaning or selling the land eventually because he doesn't have to worry about anyone stealing the dates.
>
> The second example involved the sale of grazing rights to Fulani herders by a local Manga. This sale took place in a large village in the Madaram, on a cuvette which is exploited for natron and

gardening. The seller was the administrator in charge of the natron resources belonging to the chef du canton. This administrator is not the proprietor per se of the land or the resources on it, but he controls access rights in the name of the chef du canton. He governs exploitation of natron reserves and, under the pretext of protecting the natron in formation (in pools), also controls a certain perimeter around the waterhole. It is in this perimeter that a highly valued, natron-rich pasture develops. With or without the knowledge of the chef du canton, the administrator restricts access to this resource and sells rights to it as he wishes. This appears to be a common practice currently in cuvettes of the Mangari.

As regards inheritance, the norms are similar. Individuals may inherit usage rights to the semi-permanent fixtures on a parcel without acquiring the parcel itself. Contrary to the situation of land inheritance, women may inherit rights to fruit trees and date palms. In several situations, informants claimed women held proprietary rights to the trees themselves and/or a right to part of the fruits harvested therefrom.

e. Informal transfer of usage rights to cuvette-bottom parcels

Informal transfers of usage rights most often appears to involve women. They are frequently allocated a part of their husbands' garden in which to cultivate sauce condiments and other items for the household's needs. This is reportedly not a new phenomenon. What is said to be relatively new is Manga women's securing parcels on which they cultivate during the dry/cold season (for subsequent commercialization of the harvest). The parcel thus exploited was found usually to have been loaned by someone within the family.

2. Steppe and duneland parcels

The terms of sale, loan, and inheritance applying to steppe and duneland parcels are characterized by less formality than governs transactions involving cuvette-bottom lands. This is perhaps due to the fact that they are more plentiful.

a. Sale of steppe and duneland parcels

None of the informants claimed to know of steppe or duneland fields having been sold.

b. Loans of steppe and duneland parcels

Prospective borrowers petition the village chief if the parcel

they seek appears unowned. They petition the owner if one exists. The incidence of refusal to loan steppe and duneland fields appears much lower than that for cuvette-bottom garden sites. This may be seen as a function of their relative abundance. Conditions most often placed on such loans are said to concern fertilization (with manure) and clearing of indigenous tree species. Informants stated unanimously that they no longer fertilized their steppe and duneland fields and prohibited borrowers from do so as well (rainfall insufficient to incorporate manure). With regard to indigenous tree species growing in such fields, proprietors claimed to prohibit clearing of them by borrowers, adding that they did not like the trees ("*they harbor birds which eat our millet*") but feared penalties imposed by forestry if such trees were removed.

c. Inheritance of steppe and duneland parcels

Norms of inheritance applying to steppe and duneland fields are identical to those applying to cuvette-bottom lands.

d. Appropriation of "unowned" steppe and duneland parcels

Clearing of land (défrichement) as a means of establishing ownership plays an important role in tenure of steppe and duneland. Whereas all cuvette bottomlands are said to have proprietors, they appear to constitute a small proportion of the total surface area under cultivation in the Mangari. A large part of the Mangari consists of "unowned" bushland. On such land, clearing literally represents "staking a claim." Whether this constitutes a claim to ownership or simple usership depends on the proximity of other farmers. In areas already inhabited, the prospective cultivator demands permission of the village chief before clearing such land. The chief decides whether to allocate proprietary rights or temporary user's privileges. In more remote areas, informants claimed simply to have cleared and cultivated land at whim.

e. Dormancy of land rights

Numerous examples were encountered of land tenure disputes arising from what may be called "latent" or "dormant" rights attaching to parcels. These proprietary rights are said to remain valid despite the fact the fact that the subject parcel may remain unexploited. Some cases were cited in which such rights thus remained "dormant" for decades with lapsing. In several cases, informants alleged that such rights were fictitious, having been invented simply to prevent prospective users from acquiring access to an area. Following are two example cases, the first applying to a cuvette and the second to steppe/duneland:

> Residents of a Fulbé village, located in the Mandaram for about fifty years, dug wells in and began cultivating what appeared to be an abandoned

cuvette nearby. Soon after this activity commenced, about four years ago, local Manga residents attempted to repossess the cuvette, claiming they retained proprietary rights. The informants admitted that the Manga were indeed resident in the area before the Fulbé, but their sudden acquisitiveness may have been strongly influenced by a project's installation of numerous cement wells in the formerly uninteresting cuvette. After disputes involving both village and canton chiefs, only three of the once-numerous Fulbé farmers succeeded in acquiring parcels in the cuvette. The Manga were largely successful in reclaiming the land based on their dormant rights. The Fulbé informants claimed that such rights never actually existed, that the Manga chefferie's bias against newcomer Fulbé meant that they rarely prevailed in such cases.

Over 40 years ago, the informant (a Toubou of Chadien origin) immigrated with his family and animals to their present site in the N'Gourbaye. Twenty-two years ago, the informant began to farm sorghum on a parcel of land which appeared abandoned. Two years ago, Manga from local villages reportedly asserted claims to this land. The informant retained a small portion of the disputed parcel by personal negotiation with the individual claimants. He claimed not to have taken the case before the local chief because he believed such tribunal to be biased against non-Manga. Of dormant claims and the local Manga, he claimed the latter "*would retake anything they want on the pretext that their grandparents farmed it.*"

B. Herding

Pasture and water rights are the most important determinants of herding activities in the Mangari.

PASTURE: Concerning natural pastureland, the situation said to exist in the Diffa Department is that of "*surpâturage... l'exploitation excessive des pâturages par le betail entraînant le dégradation de la végétation et des sols.*"[33] With regard to crop residues, grazing rights to these are reportedly refused systematically because they use the residues themselves or fear the adverse effects of manure in the field (i.e. a herd grazing on such residues fertilizes a field with its manure, but if rainfall is insufficient to incorporate such manure it causes rapid dehydration

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[33] Analyse Thématique des Problèmes de Département de Diffa, Cellule technique du SDDR du Département de Diffa, août, 1991, p., 58-61

or "burning" of crops).

The combination of surpâturage and the negative effect of manure on agricultural lands incline local residents to restrict access to herders. The primary means of controlling access to pasture is by restricting access to wells.

WATER: Cement wells are said to be public because they are installed by the government or a project. In reality, access rights appear to be controlled by resident populations. Strangers generally negotiate the terms of their stay (or continued passage) with the village chief. For the reasons detailed above, informants generally affirmed that their chiefs dissuaded transhumant herders from lingering.

Traditional wells are governed by norms which differ according to region. In the more southerly Zone IA (the Mandaram), higher watertables and greater abundance of trees (with the boughs of which the shaft is re-enforced) make well-construction a simple task. In such areas, wells can be dug and maintained by a single individual or family. With few exceptions, these wells are dug in cuvettes and are used for both agricultural and herding purposes.

Traditional wells in the northerly Zone II (the N'Gourbaye) are also located in cuvettes but they are generally used more for herding than agricultural purposes. Deeper water-tables and scarcer trees make well construction and maintenance more complex. Such tasks are frequently shared by family or community members.

Almost all of informants claimed to allow strangers and their herds to use their wells (cement or traditional) at least once without any payment. Whether they are allowed to remain for extended periods often appears to depend on whether or not herders know local residents. Both Manga and Fulbé locals claimed to allow other local (Fulbé) herders whom they knew to use their wells for extended periods of time. They claimed that this was often based on friendship and gifts of milk from the herders. That such herders often aid in the upkeep of the well without being solicited further cements such relationships. Manga and Fulbé informants expressed less tolerance for unknown transhumant herders such as the Wodaabbé. Cited drawbacks of allowing such herders to tarry include rapid exhaustion of pasture, danger that poorly supervised animals would destroy crops, and the risk that incoming herds bring disease. Where extended well use privileges are given to such herders, the latter often pays for them (in cash or with animals).

C. Extraction

1. Natron

The extraction of natron represents the oldest economic activity in the Mangari. Natron forms in the deepest part of a cuvette, where rainwater pools. Evaporation of such water leaves a crust of mineral matter (natron), which is then collected. Historically and presently, it is a predominantly Manga activity. Ninety-four cuvettes are estimated to be exploited presently,[34] most of them in Zone IA. Most natron is commercialized in its raw form, a smaller quantity being transformed into salt.

Within the Mangari, all natron reserves are said to belong to the chef du canton or one of the collateral branches of his family. This proprietary right has evolved from what was reportedly once a simple right of taxation; historically, canton chiefs levied a tax on those who wished to exploit natron reserves within their domains, but this right of taxation has evolved into recognition of the chief as proprietor of the resource itself.

Individuals wishing to harvest natron negotiate with the representative of the chief (a wakil), one of whom resides in every village near a natron-producing cuvette. Informants claimed that terms of an may agreement vary. Negotiation may be based on the quantity of natron to be harvested or on the size of the area to be exploited. In exchange for this right of exploitation, in-kind payment is allegedly more common than cash payment. The amount of in-kind payment rendered is said to vary between one-third and two-thirds of the total harvest.

D. Natural resource gathering

Apart from natron, most natural resources continue to be regarded as unappropriable. This conception appears subject to change based on the availability of the resource in question.

1. Fodder

Harvesting hay to stock or sell as fodder is a practice said to have begun only in the past 10 or 15 years. It is a practice usually reserved for years of poor natural pasture development. It is a predominantly Manga activity and is more prevalent around larger villages where pasture tends to be quickly exhausted. Most informants claimed to harvest fodder indiscriminantly. Land-owners allegedly do not regard this activity as sufficiently intrusive to warrant a formal request for access rights.

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[34] ROQUE, Olivier, DJIBIR, Bello, Rapport D'identification et Proposition de Document de Projet Appui Aux Groupements - Nord Goudoumaria, janvier, 1991, 1.3.5.

2. Firewood

Informants expressed ambivalence about proprietary rights concerning firewood. They acknowledged that gathering wood on a parcel belonging to someone else could arouse antipathy, even though the land-owner had no recognized right to assert proprietary claims to the wood. This phenomenon was more remarkable near larger villages where wood had become scarce.

3. Doum palm (*Hyphaena thebaica*) products

Concerning the fruit and fronds of the doum palm (raw material for burr and nattes, respectively), the case appears to be analogous to that of fodder and firewood. The conflict of practice and principle was illustrated in several sedentary villages, where informants asserted doum palm were unappropriable, but nonetheless complained of outsiders who had recently begun to exploit such palms nearby.

4. Gum arabic (*Acacia senegal*)

Harvesting and commercialization of gum arabic was reportedly an important activity before the droughts of the 1968-75. Most of the necessary tree species have disappeared since.

II.
ADAPTIVE STRATEGIES AND FOOD SECURITY

This section is intended to clarify what strategies local populations have adopted for coping with the changes which have beset their traditional agro-pastoral activities over the past twenty years.

A. Agriculture

1. Rainy season farming

Millet cultivation is said to account for between 72% and 86% of the Mangari's annual agricultural product,[35] but actual production is said to have fallen during the past 20 years. Farmers have attempted to adapt their farming practices in a variety of ways.

The most apparent attempt to boost millet production has been to increase the surface area under cultivation. Informants claimed to perceive various advantages in cultivating the banks of dunes. For example, in years when rains are separated by long dry spells, the millet on a dune bank is said to suffer less dehydration than that on top of the dune or that inside the cuvette. Ground-water percolates from the top of the dune to the banks. By contrast, plants located inside the cuvette benefit from a large amount of water immediately following a rain, but as the soil (which is higher in clay and organic content) begins to dry out residual moisture is trapped rather than released to plants. Dune bank-planting is practiced in addition to (not instead of) planting the cuvette-bottomlands. This strategy of spreading risks is said to have been employed only in the past decade.

Fallowing is reportedly practiced in some areas, but it is not said to represent a new strategy for reclaiming soil fertility. In some areas, fallowing is practiced at the whim of the individual. In others, it is by collective decision that an area is fallowed. In one such case, as observed by Projet Danois in the Mandaram, farmers collectively abandoned one cuvette and moved their fields to another one close-by, having noticed that the fertility of the original had declined. Villagers in most of the region covered by this study either lack sufficient arable land or the necessary social cohesion required to implement such a strategy.

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[35] Analyse Thématique des Problèmes de Département de Diffa, Cellule Technique du SDDR du Département de Diffa, août, 1991, p. 159

TABLE 3
Evolution of duneland brought under cultivation (in hectares).

Years	DIFFA	MAINE SOROA
1972	2320	13220
73	3450	14600
74	3450	17500
75	16200	23100
76	16100	29636
77	18460	36930
78	18460	36930
79	30720	27000
1980	31640	24000
81	31370	28700
82	42676	42574
83	19735	27850
84	32068	29833
85	38476	39113
86	46525	38841
87	44493	40626
88	42903	38908
89	29384	53167

Source: Established using figures from the "bilan departemental" and "l'annuaire des statistiques de l'agriculture."

2. Dry/cold season farming

Irrigated gardening in cuvette bottomlands is said to have begun in earnest during the 1960s and 1970s. It represents the most significant of recent changes in local agricultural practices. The majority of its participants is Manga.

Manioc is the most important crop cultivated in cuvette-bottom gardens. Wheat, corn, yams, onions, and sugarcane are of secondary importance. The importance of date palms and fruit trees appeared to differ with each informant interviewed; fruit trees consist primarily of citrus, with secondary emphasis on mangos and bananas. No informant was encountered who raised fruit as a primary economic activity. Irrigated gardening is primarily a man's occupation, women and children participating collaterally. Approximately 75% of Manga women married to gardeners claimed to participate in their husbands' garden labors. Half of the adult, Manga, male informants claimed that a third or more of their annual income or subsistence was derived from such gardening activities.

Date palm culture in the Mangari is estimated to be about fifty years old.[36] Although dates are both consumed and marketed throughout the region, it appears that few farmers have perfected growing, harvesting, or storage techniques. A five-cuvette study by the Projet Palmeraie Diffa in 1988 estimates that only half of a 30-ton date harvest was consumable. Of this harvest, it is

[36] MAURET, Claude, Approches des Revenus et des Stratégies Paysannes dans la Zone de Keboulwa, Projet Danois, mai, 1992, p. 25

estimated that 80-90% of all the dates were sold immediately after harvest, when prices were lowest. As in the case of other fruits, no informant was encountered who raised dates as a primary activity.

TABLE 4
Dry/cold season produce commercialized for Arrondissement of Mainé-Soroa.

product(tons)	1985	1986	1987	1988	1989	1990
red pepper	57	109.44	297.86	462.77	381.74	416.29
sugarcane	-	438.33	456	295.73	333.45	261.25
manioc	24505.25	5564.96	3289.66	4701.47	5934.08	5335.2
yam	-	19.76	27.87	234.34	404.98	509.2
potato	11.4	13.22	31.92	646.84	53.01	26.6
Contre-Saison	-	42.59	520.05	592.57	1094.74	1120.00

Source: Service statistique Diffa

Only a few incidents were encountered of woman (all Manga) farming the abovementioned crops independent of men. More commonly, women were encountered cultivating small parcels belonging to their husbands or male relatives. Such parcels usually contained sauce plants or gorko.[37] Although these crops belong to the women who farm them, most sauce plants end up being consumed by the household. By contrast, gorko is often commercialized by the woman-grower.

As stated earlier, cuvette-bottom gardening involves primarily Manga. Fulbé do not generally have the same opportunities to engage in cuvette-bottom gardening because most reside in the northern Mangari, where irrigable cuvettes are scarce. In addition, in some of these places Manga control access rights to the cuvettes and reportedly refuse to accord them to Fulbé.

The Fulbé gardens viewed during this study were generally smaller than those of Manga; approximately 30% of informants attributed this to lack of access to larger parcels, whereas 55% claimed that an insufficient labor force was responsible. Fulbé gardens contain the same crops (enumerated above) as found for Mangas, the one exception being tobacco. Fulbé both commercialize and smoke their tobacco harvests (Fulbé and Arab are the only ethnic groups in the department which smoke). Some informants claimed to plant and harvest two crops per year. Surplus is sold locally and in Nigeria. Tobacco farming is primarily a male activity, but women harvest the tobacco flower, which is chewed with cola nuts as an added stimulant. Fulbé informants claim tobacco farming is not a new activity.

[37] a small plant whose berry women use as a beauty product to dye their teeth red

Cuvette-bottom gardening appears to be a more recently adopted strategy for Fulbé than for Manga, informants generally claiming to have started such activity only in the past 15 years. No instances were found of Fulbé women gardening independently of men. In contrast to the situation of Manga women, only about 20% of Fulbé women married to gardeners claimed to participate in gardening activities. About 75% of all male, Fulbé employing this strategy asserted that it was responsible for more than a third of his household's annual income or subsistence requirements.

The viability of dry/cold season cuvette gardening activities appears hindered by several factors. All farmers interviewed complained that falling water-tables had compelled them to abandon some cuvettes and reduced the cultivable surface area in others. Although this retreat of water-tables began at least a century ago,[38] it is said to be responsible for a recent and perceptible regression in irrigated gardening activities.[39] Refusal of access rights to cuvette lands, as discussed above, constitutes a major obstacle to potential gardeners in new-comer groups such as the Fulbé. Lastly, where access was not a problem, the under-utilization of available cuvette gardens was generally attributed to a shortage of available labor. Manga informants frequently claimed that their sons preferred seasonal migration to Nigeria rather than working in the cuvette garden. Fulbé informants more frequently claimed that their sons were needed more urgently for watering and supervising the family herd than for working in the garden.

B. Herding

1. Manga

a. Small ruminants

Before the droughts of 1968-75 and 1980-85, the Manga are reported to have maintained large cattle herds year-round near their villages. Cattle ownership is said to have been common to all but the poorest individuals. Under post-drought environmental conditions, only comparatively wealthy individuals have preserved or reconstituted their herds of cattle. For most others, goats and sheep are said to have become the animals of choice; they require smaller cash investment and are better adapted (than cows) to prevailing silvo-pastoral conditions.

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[38] MAURET, Claude, Approches des Revenus et des Stratégies Paysannes dans la Zone de Keboulwa, Projet Danois, mai, 1992, p. 25

[39] MAURET, Claude, Approches des Revenus et des Stratégies Paysannes dans la Zone de Keboulwa, Projet Danois, mai, 1992, p. 25

Approximately 45% of male informants claimed to invest excess cash in small ruminants before anything else. By contrast, 85% of women informants expressed this to be their first choice. Most informants conceive of small ruminants as figurative "piggy-banks," providing a reasonably safe place for spare cash without requiring excessive outlays for maintenance. More than half of the total informant group regarded investment in small ruminants as short-term, generally anticipating animals' resale within a year of the date they were purchased. Given that most transactions take place in Naira, a currency whose rapid devaluation is recognized, even such short-range security is valued.

The sale of small ruminants by a woman appears to be more indicative of distress/economic hardship than such sale by a man. Women have fewer sources of investment than men. In addition, they appear less likely than men to divest of such assets for non-essential purposes. Of married women informants, 60% claimed they would sell their animals only in the case of their families' needing "necessities." More than 90% of the single women informants claimed "*only hunger*" would make them sell their animals.

b. Cows

Cattle ownership among the Manga appears to be limited to a minority. It is almost always synonymous with an above-average degree of wealth/security. Given relatively inhospitable environmental conditions and considerable herd-maintenance costs, cattle often represent a "prestige investment" rather than a source of security. In years of insufficient pasture development, cow-owners claimed to supplement their animals' regimens with cotton seed, wheat bran, burr, and crop residues. Investment in cows is generally regarded as long-term.

c. Camels

Approximately 25% of Manga informants claimed to own one pack-camel. Only one informant claimed to herd camels for breeding purposes.

2. Fulbé

Before the droughts of 1968-75 and 1980-85, Fulbé are reported to have maintained large herds of cows, migrating short distances and generally returning to a fixed site for rainy season cultivation. Fulbé priorities appear to have been the reverse of their Manga neighbors, for whom herding constituted an activity of secondary importance, collateral to farming; Fulbé cultivated "...*non pas dans l'objectif d'un auto-suffisance céréalière mais*

dans le but de pouvoir vivre plus facilement de troupeaux..."[40] Also different from the Manga is the socio-economic dynamic underlying cattle ownership. For Manga, cattle generally represent a source of investment, whereas Fulbé derive from them both their livelihood and a sense of social identity.

a. Cattle

The Fulbé generally lost fewer cows than did the Manga during the droughts of 1968-75 and 1980-85. Although this was probably due in part to their greater mobility, informants also expressed a marked reluctance to sell their animals (even when economic factors would seem to encourage such sale). Presently, informants claim that increasing the range of migratory movement and supplementing cows' diets (with burr, cotton seed, wheat bran, and crop residues) constitute their primary adaptive measures.

As mentioned above, the Fulbé derive from their cattle a sense of social identity. An intimacy exists between the Fulbé and their animals, as the individual history, character, and name of animals are known to each herder. In addition, some animals in a herd are gifts or loans from other herders (symbolizing friendship, sealing marriage, etc.). This symbolic, non-economic perception of cows is in some part responsible for the different manner in which some Fulbé have adapted to change in their traditional way of herding. In a situation involving food shortage, approximately 75% of cattle-owning Fulbé informants claimed that they would reduce the number of daily meals, sell assets, and leave the pastoral homesite to search for paying work before they would agree to sell cows. Consequently, it appears that the manner in which adaptive change by cattle-herding Fulbé should not be evaluated according to the more purely economic criteria which may be applied to other ethnic groups.

b. Small ruminants

Among Fulbé heads of households, all claimed to own some small ruminants. Although most asserted that they had owned such animals for more than 20 years, approximately 90% said that their importance (to the economic security of the family) had increased significantly during the past 10 years. They generally concurred that, more than 10 or 20 years ago, cattle rather than small ruminant sales had ensured the economic security of their families, and that the reverse was presently the case. Approximately 30% of the informants claimed to own fewer than 10 cows, and more than 20 small ruminants. *"When there were many cows,"* one informant commented, *"goats were just for slaughtering to honor guests. Then, I would have scorned the idea that today I would be selling*

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[40] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, PDENCE, octobre, 1987, p. 69

one goat at a time to buy what I need."

In contrast to Manga, most Fulbé expressed determination to reconstitute their cattle herds. Re-orientation to small ruminant-herding is generally regarded as a temporary expedient. This study cannot generalize on how effective such strategy is for (1) generating income with which to repurchase cattle or (2) simply "breaking even" by preserving animal capital. Informants affirmed that goats and sheep reproduce faster than cattle and are better adapted to existing pasture conditions, but they are also more susceptible to disease. Approximately 15% of Fulbé heads of households claimed to have repurchased more than 5 cows with funds generated exclusively by the sale of small ruminants.

c. Camels

In a situation analagous to that of Manga, approximately 50% of Fulbé claimed to own at least one pack-camel, but no informants were encountered who were primarily camel-herders.* Despite camels' being ecologically well adapted to the region, most informants claimed that the logistics (high mobility) and problems with theft persuaded them not to herd these animals.

* The researcher did not cover the northern half of Zone II, where most such Fulbé are said to reside.

d. Animal loans

The practice of habbaané[41] is an aspect of Fulbé husbandry which does not appear to exist among ethnic groups in the department. It is reportedly not a new practice. The traditional form is said to have stipulated a mature female cow, to be left with the borrower until it had given birth to one or two calves and then returned to the owner. All informants claimed that habbaané continues to be practiced today, but its real economic utility is unclear in light of the general reduction in the number of female cows available to be circulated.

e. Regrouping

Regrouping is a social strategy employed by Fulbé whose herds become too small to support their families. Such impoverished families are integrated with families possessing herds which remain viable. Approximately 25% of the Fulbé male heads of households claimed to have accepted one or more such indigent relatives during the last decade. An incidental effect of this strategy is to concentrate the labor force more efficiently (vis-à-vis viable herds), but it also puts a strain on the limited quantity of milk produced by the herd.

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[41] a term in the dialect Fulfuldé referring to the loan of animals

A regional study conducted in 1987 found another consequence of Fulbé animal losses was reflected by an increased incidence of married men remaining in their fathers' camps for lack of marriage-gift animals with which to constitute their own herds. Of the 182 families interviewed during that study, 43% were found to have one or more married sons thus constrained to remain in the paternal camp.[42]

f. Hired herding (gardiennage)

Herding of other peoples' animals (gardiennage) appears to be a predominantly Fulbé occupation. Approximately 10% of the Fulbé heads of households interviewed claimed to practice gardiennage for pay (due to many informants' reticence to discuss gardiennage, it is possible that the real figure is higher). This occupation is said to have developed largely over the past 15 years.

Several instances were encountered of gardiennage involving shepherds who owned only one or two cows in a herd which otherwise belonged entirely to absentee owners (Manga or Fulbé). These shepherds claimed to receive only the milk produced by the herd as payment. While the terms of such a contract appear exploitive, shepherds working thereunder actually claimed to feel fortunate that they had found a means to stay in the bush; these individuals most commonly claimed to be building herds of their own (often starting with small ruminants) while living off the herds of their employers or families in the meantime. Most cases involved male heads of households who had either lost their own animals or whose families had not been able to furnish them with animals of their own upon marriage. As stated by one informant, "*when you have lost your own animals, what do you do?*" These individuals claimed that the alternatives to anything but the pastoral way of life were unacceptable.

In the examples of Fulbé gardiennage observed, there was some variation in the norms of each contract. A significant number of herders returned animals to their owners during the off-season, the risk of their dying deemed to be too high (this despite the fact that herders supposedly incur no penalty for animals which die in their charge). Others insisted that owners provide cotton seed and wheat bran to supplement animals' regimens.

C. Extraction activities

1. Natron

Harvesting and sale of natron is said to constitute an important non-agricultural economic strategy for married Manga men

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[42] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, PDENCE, octobre, 1987, p. 106

in the age-group 27-55. Approximately 25% of the male informants claimed to engage in this activity on an annual basis, this increasing by 15% in years of inadequate grain harvests. Most of these informants claimed to have limited or no access to cuvette-bottom gardening lands. The number of individuals harvesting natron is said to increase in years of poor grain harvests. Less than 10% of female Manga informants claimed to engage in natron-harvesting. Half of those claiming to do so averred that they did so in association with their husbands. This activity is said to be at least 150 years old.

2. Salt

Processing salt from natron is said to have been the major industry in the region during the 19th Century. The invention of sea salt is said to have been crucial in destroying the market for salt produced in the Mangari. Deforestation (already advanced by 1900) is said to have contributed as well to this industry's decay (e.g. wood is needed to cook the salt).[43]

Salt-processing demands a team-effort. Men or women collect natron and deposit it in a large, palm-fiber basket serving as a filter. Women then pour water through the filter, a container catching the impermeated liquid underneath. This is poured into moulds and cooked until all the liquid evaporates (about 24 hours), leaving solid cakes or pillars of salt. This activity allegedly pays poorly. About 5% of male informants and 2% of female informants (mostly divorcées) claimed to participate in such activity annually. Approximately twice as many informants claimed they would consider such work in years of poor cereal harvests.

D. Gathering activities

1. Firewood

Firewood harvesting and sale appears is dominated by the Fulbé, among whom it appears to be the choice of very marginalized individuals. It is an activity of recent date (about 15 years) involving men ages 10 to 50. Approximately 45% of male Fulbé informants claimed to have harvested firewood for sale at some time during the preceding 5 years. Of these individuals, 25% claimed firewood sales represented a regular, annual income-earning activity. The remaining 20% claimed they engage sporadically in this activity, just to earn income to surmount a temporary situation of food shortage/hardship. An example case:

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43 MAIKOREMA, Zakari, Contribution à L'histoire des Populations du Sud-Est Nigerien, Le Cas du Mangari, Etudes Nigeriennes No. 53, IRSH, 1985, p. 166

The informant is the head of a household of 5, residing in the northern N'Gourbaye. They own approximately 25 small ruminants. At the moment they chose to harvest and sell firewood, they had sown and weeded their millet fields, which were ripening quickly, but no food remained in the household. To earn money to buy food, they chose to sell firewood rather than selling one of their animals. The informant claimed to have engaged in this activity in other years in response to short-term food shortages. He claimed firewood sales represented an activity of limited duration which would not separate him for long from his home and anticipated harvest activities.

The informant and his son harvested the wood locally and transported it on donkey-back to a sale site about 50 kilometers away from their home village. He claimed to accept monetary or in-kind (millet) payment.

2. Doum palm (*Hyphaena thebaica*) products

The doum palm is utilized for both its fruit and its fronds.

Doum palm fruit (or nut) is stripped of the sweet fiber on the exterior, which is called burr (Kanouri). It is used primarily to supplement the diet of animals, secondarily as a condiment for human consumption. Processing and sale of burr is a woman's activity.

The preparation and sale of burr is said to be an activity of long date for Manga women. Approximately 35% of such informants claimed to process burr regularly as an income-earning strategy. An additional 30% claimed they would engage in this work only if alternatives (mat-weaving, natron-harvesting, gardening, etc.) appeared less profitable. Of Fulbé informants, most claimed to have taken up this activity only during the last ten years. Approximately 25% of such informants claimed to process burr regularly as an income-earning strategy. It generally takes a woman two full days to fill one 50-kilogram-size sack with burr. The sack reportedly sells for between 300 and 400 CFA in dry season when demand is highest. Burr is marketed both domestically and in Nigerian markets. The processing of burr is an alternative unavailable to many residents of the N'Gourbaye, where cuvettes containing doum palms are fewer than to the south.

In addition to its fruit, the doum palm is exploited for its fronds. Fronds are used primarily to weave mats. Harvest and sale of doum palm fronds is generally a man's activity.

Harvesting and sale of fronds in bulk is said to be an activity of recent date (10 years) for both Manga and Fulbé. Approximately 35% of all male informants claimed to have

participated in this activity at some time during the preceding three years. Of these individuals, 15% asserted that it served as a regular source of income for them; these appear to be marginalized groups, generally without gardening sites, natron-harvesting access, animal assets, etc.

Harvesting palm fronds is a dry/cold season activity which yields a cash return relatively quickly. After having cut, dried, and bundled the fronds, informants claimed that they transported them (usually by camel) to a market or a site on the Route Nationale.

E. Craft

1. Nattes

The weaving of nattes (palm-fiber mats) for household use is said to be a very old activity. Weaving of nattes in bulk for commercialization is said to be an activity which has begun during the past 15 years. This activity appears to include Manga and Fulbé, both men and women, and all age groups. Following are some examples:

> The informant is a Manga man of about 60, who resides with his family of five in the Mandaram. His income sources include cuvette-bottom gardening and transport (by camel). He weaves nattes during his spare time in the evenings and at sieste. He claims to have woven nattes all his life, but that age compels him to seek less strenuous means of earning income. He gathers the raw palm himself in local cuvettes. He sell his nattes at local markets.

> The informant is an unmarried Fulbé man of 23. He makes nattes while tending his family's herd, walking to the field, or sitting with friends at sieste. Any time his hands are not otherwise occupied, he works on a strip of natte, which is suspended in a coil from a string-and-pole apparatus he carries on his shoulder. The informant claims he is motivated to engage in this activity because it represents his only personal source of income; cultivating his family's field and supervising their herd yield nothing for him personally. All income from natte-weaving is his. He harvests palm fronds from local cuvettes, selling his nattes at a large Nigerien market nearby.

> The informant is a Fulbé woman of about 40, the first of two wives to a farmer/commerçant in a

large N'Gourbaye village. She has engaged in natte-weaving all of her life, but only during the past 15 years has she sold her work. The reason for this change is cited as the failure of her husband's business, which had before provided enough income to meet all the family's needs. Because she is semi-cloistered, she is unable to engage in income-earning activities which would take her outside the home; she weaves nattes at home and gives them to one of her daughters to sell in the local weekly market.

F. Seasonal migration

1. Manga

Seasonal migration for Manga appears to involve men alone. Approximately 45% of all male Manga informants claimed to have engaged in seasonal migration at some time during the preceding five years. Whether individuals migrate primarily due to economic necessity or for other reasons seems to correlate with age-group.

Most younger informants (ages 18-35) who had migrated claimed not to have done so solely for economic reasons. Many implied that they had been motivated more by curiosity than by economic need (*rite of passage*-style migration). Their destination was usually northern Nigeria. This area supposedly became a pole of attraction during the 1970s and 1980s with the expansion of the Nigerian economy, the same time in which the Mangari was suffering from drought. Most younger migrants asserted that they had been employed in various forms of menial labor, some in large agricultural projects and others in the commercial enterprises, freight terminals, and construction sites of bigger towns. The majority of these occupations was short-term and offered little remuneration.

Migration of older and married individuals (ages 35-50) appears to be more clearly motivated by economic necessity. Approximately 90% of such informants claimed that lack of food in their households was what motivated them to migrate. Although this kind of migration is not cited as being new, it is said to have become more frequently necessary during the past 25 years. Most informants asserted that they would not leave their homes if they had viable economic activities there. When they migrate, they claim to seek more permanent and better paying occupations than younger migrants. Many seek fields of their own, often in the northeastern sector of Nigeria which abuts on Lake Chad. Such informants claimed that their primary objective is to return to their homes in the Mangari with enough money or foodstuffs to sustain their

families until the subsequent rainy season.

2. Fulbé

Fulbé engaging in seasonal migration appear to be almost exclusively male. Approximately 60% of such informants claimed to have engaged in seasonal migration at some time during the preceding five years. This phenomenon is said to date between 15 and 20 years. The incidence of *rite of passage*-style migration appears much lower; informants from almost all age-groups claim to have been motivated by economic necessity.

Unlike Manga migration, most of which appears to take place during the dry/cold season, Fulbé migration occurs in rainy season as well. Rainy season migration most often appears to be short-range (in time and distance). Among informants practicing it, all were between the ages of 15 and 30. Most such individuals claimed to have finished the cultivation of their families' fields and, rather than remaining idle at home, sought short-term contracts cultivating others' fields (usually within 50 kilometers of home). They returned to their families' fields for harvesting.

Dry/cold season migration concerned approximately 50% of Fulbé informants at some time during the preceding five years. A higher percentage of migrants seems to come from the N'Gourbaye, where the number of dry/cold season work alternatives is limited; there are fewer cuvettes which can be gardened or exploited for natron than to the south. It appears that this form of migration becomes a regular event in the lives of many young men (beginning at ages 14-16) and continuing until marriage (25-33). What informants remarked upon, however, is the increased frequency with which men continue to migrate after marriage. Upon marrying, the acquisition of animals is normally said to eliminate the need for such migration, but numerous informants commented that these marriage-herds are now insufficient for this purpose.

(see Annex II for table on seasonal migration and activities engaged in)

III.
DOMESTIC AND CROSS-BORDER TRADE

A. Agricultural products

MANIOC: Manioc appears to be the most important of the cuvette-bottom garden products commercialized in the Mangari. Informants claimed manioc is usually traded in its primary form. Because it's cheaper, refined manioc products such as flour (gari, Hausa) are bought from Nigeria rather than transformed locally (in one village, a mill for transforming manioc to gari had been abandoned for this reason). A large part (possibly the majority) of local manioc is exported to Nigeria. The quantity of manioc commercialized locally (e.g. in the Mangari) is said to increase in years of insufficient millet production.

SECONDARY PRODUCE: The same general commercial norms apply for yams and corn. Sugarcane and onions are said to be sold locally in most cases. Their production is said to fall in years of poor millet production, as garden plots tend to be more devoted to subsistence items such as manioc, corn, and yams. With regard to citrus fruits, many informants stated that fruit-buyers search them out from as far away as Zinder. These individuals are said to come in cars or trucks, usually buying at points along the Route Nationale, but sometimes to the cuvette sites themselves.

DATES: Approximately 70% of date-producing informants claimed to export the greater part of their harvests to Nigerian markets. Such destination is preferred to smaller local markets because demand is reportedly constant and large quantities accepted. A considerable number of informants (included in the 70% cited above) sold a part of their dates in local markets, but all of these sales were said to be piecemeal. That cash from dates sales is often used to buy millet (which is cheaper in Nigeria than on local markets) is said to constitute another factor favoring export. Local dates appear to be of mediocre quality. This limits the possibility of their being commercialized in urban markets such as Diffa, Zinder, and others, where they must compete with higher quality imports from Algeria and northern Niger.

WHEAT: Most of the wheat grown in the Mangari appears to be exported to Nigeria. The demand is generated by both bread-making and flour industries. In a situation analogous to that of manioc, wheat is more cheaply transformed in Nigeria than in Niger.

Logistics

Most informants asserted that the best prices for their products (dates and wheat excepted) are garnered in bigger towns, whether Nigerien or Nigerian. Many informants cited that they are unable to reach these centers due to lack of time, business connections, or transport. The first of these was the most commonly cited by farmers who wished to market their own products, as opposed to selling in the field to middlemen. Such farmers, who cannot afford extended periods away from their fields, agree that the unavailability of motorized transport greatly reduced the commercial potential of their produce. One informant noted that individuals who had quit produce farming to become produce transporters and sellers often fared better; *"we're the producers, but since they (ex-farmers) became middlemen, they've become richer than we are."*

Use of proceeds

Most informants selling garden produce claim to use their proceeds chiefly for the purchase of millet. When there is sufficient food in the household, small ruminants are said to be the most common source of investment. A few farmers who sell their produce in Diffa say they buy onions, okra, and peppers there for resale in markets of the Mangari. Middlemen generally claim to re-invest a part of their profits in their trade (but like farmers, a part is also invested in small ruminants).

B. Animals and animal products

The commerce of animals and animal products constitutes a major part of all economic activity in the Mangari. Concerning cows, it appears to be a north-to-south-running export market. Contrarily, the small ruminant trade appears to be more "circular," moving animals around the region and involving locals.

1. Cattle

Transactions involving cattle are said to have dropped markedly over the past 18 years. For those informants who carry on the trade, however, most agree that the logistics have remained largely unchanged; it is an export trade, in which the markets of the Mangari serve as small collection points for animals which are taken south to larger collection points at roadheads in Nigeria, where they are eventually shipped to Kano or Lagos. The vast majority of these animals is said to be transported on the hoof. In Nigeria, those with the cash available load them on trucks and accompany them to the terminal market. Those unable to take their animals south

sell them at roadhead markets. More than half of the informants claimed to smuggle their animals past Nigerien douaniers[44] without paying, whereas a small, arbitrary payment is arranged with Nigerian officials. Participants in this trade appear to be primarily middle-aged men who have at least 20 years' experience. They also have considerable liquid assets and/or established good credit.

2. Small ruminants

The majority of animal commerce in the Mangari presently involves goats and sheep. Whereas some of it follows the same north-to-south flow of cattle export, a significant part of it remains internal (to the Mangari). Informants attributed this to the fact that the investment required for small ruminants is much less than that required for cattle. In this commerce there is also a certain flexibility which is not permitted in cattle trade; the distances traveled (i.e. time spent away from home and other occupations) between the points of purchase and sale may be much shorter. Unlike participants in the cattle trade, small ruminant traders are of diverse age groups and income brackets. This activity is accessible to younger individuals with less capital and experience. Following are some examples:

> The informant is a 20 year-old Manga, living with his single mother in the N'Gourbaye. He buys a few goats at a Thursday market 30 kilometers north of his village, transporting them on the hoof or by local taxi to sell at a Saturday market 50 kilometers south. He buys and sells hides at the same time. This activity reportedly furnishes his sole source of income. He engages in it year-round, even in rainy season, because it does not take him away from fieldwork for too long.
>
> The informant is a 22 year-old Manga, living with his parents in the Mandaram. Up until this year, he engaged in small ruminant trade. He bought goats and sheep from local Fulbé, whom he encountered at well sites. He accumulated a small number, usually no more than ten, which he would take subsequently (on the hoof) to a Nigerian market 20 kilometers to the south. He expresses that he would have liked to have been able to truck these animals to Lagos, but that for lack of cash he was unable. He practiced this trade for four years before stopping this year. He claims that profit margins remained about the same but that rising

[44] collectors of customs dues

millet prices made such small ruminant trade unworthwhile (although he avers that taking the animals all the way to Lagos remains profitable). Presently, he derives his income from gardening and transport activities.

In addition to these small traders, there are individuals who invest more capital and transport the animals over greater distances:

The informant is a 30 year-old Hausa butcher, resident in a large N'Gourbaye village for the past seven years. He exports goats and sheep to Lagos (along with cows, hides, and dried meat). The animals exported are acquired over a month-long period by piecemeal purchase from individuals who bring animals to him or which he buys in the market. At the end of each month, he takes them on the hoof to the nearest big market in Nigeria, about 35 kilometers to the south, paying 150 CFA per head to Nigerien douaniers (no receipt given) and an all-inclusive charge of about 1000 CFA to Nigerian officials (also no receipt). He loads the animals into trucks at the road-head market and takes them from there to Lagos. Although there are considerable bribes which must allegedly be paid enroute, he claims that selling animals in Lagos is lucrative. Small ruminants reportedly constitute the foundation of this trade, as they are much more numerous than cows in markets of the Mangari where he buys.

That buyers can be found at any market allows the seller to choose how far south he wants to take the animals (a function of his time and money). This is a trade which many informants said they engaged in sporadically, depending on how its profitability stood in relation to other agricultural or commercial prospects, the price of millet, and the strength of the Naira.

Logistics

Animal commerce in the Mangari operates almost entirely without motorized transport. Consistent use of motorized vehicles for transporting animals appears to begin at Nigerian roadhead markets. Cattle are generally implicated in a southbound export trade, whereas a significant part of the small ruminant trade appears to be internal ("circular" within the Mangari).

3. Skins and hides

The commerce of skins and hides in the Mangari is reportedly

not of recent origin. Informants said that up until about five years ago they sold many of their products within Niger to "government" agents, but that these buyers are no longer present. Most skins and hides are now said to be exported to the terminal market at Kano, Nigeria. The quantity of skins and hides being traded has allegedly dropped over the past 20 years, as have their quality. In addition, a large part of this market now allegedly involves small ruminant hides rather than cowhides.

No informant was encountered who claimed that the trade in skins or hides constitutes his primary commercial activity. Rather, individuals generally claim to buy and sell a few hides along with other items (produce, livestock, etc.) which constitute the "main line" of their commercial activities. Such informants as the butcher cited above are typical of this phenomenon.

C. Extraction

Natron

The natron harvested in Zone IA is exported to Nigeria or to the pastoral zone around Gouré (Niger).

Most natron exported to Nigeria is sold at the cuvette harvesting site. Informants who sell natron in this manner claimed they simply gathered the natron in sacks and awaited the arrival of buyers. The buyers are most often Nigerians, commonly using large trucks (of Nigerian registry). Natron is exported to Nigeria on a smaller scale by Nigeriens who use animal transport (camel). These individuals, both the harvesters themselves or middlemen, reportedly do not usually take more than ten sacks (of 50 kilograms) at a time.

An undetermined amount of the natron exported from Zone I is taken to the Gouré and Kutus regions, where demand is generated by camel-herders. Such natron sales take place either at the cuvette harvesting sites or along the Route Nationale.

D. Services

1. Transport

Transport appears to be an activity largely dominated by Fulbé. Approximately 20% of Fulbé informants claimed to engage in transport on a regular basis (as opposed to about 5% for Manga). Half of these individuals asserted that this activity was the most important of their income-earning strategies. Demand is said to be consistent, in lieu of a scarcity of motorized vehicles. This activity is generally said to be practiced year-round, although it may be somewhat diminished to accommodate rainy season cultivation.

Camels are the pack-animals of choice for this activity, as they are able to carry greater weight, at greater speed, over greater distances than donkeys. Informants generally claimed to employ an average of two to four camels (per transporter). Most informants claimed that their transport activities did not consist purely of portage of other people's goods, but rather combined this with their own personal commerce. Following is an example case:

> The informant is a 27 year-old, married Fulbé. He entered the transport trade three years ago. He claims to engage in transport only during the dry/cold season. At the outset, he contracts with a local commerçant for the portage of the latter's millet from Nigeria to the Mangari. Before setting out for the Nigerian town in which the millet is located, he buys and charges his camels with natron or palm fronds at a local cuvette. He sells these items upon reaching his destination in Nigeria, using the proceeds to buy necessities. Thereafter, he charges the camels with the millet for which the commerçant commissioned him and returns to the Mangari. The round-trip takes two weeks, after which he allows the animals to rest and graze two weeks. If he wishes to redepart immediately, he rents two or three camels locally and recommences the same cycle. He claims to have begun transporting three years ago, and that it represents his family's primary source of income.

2. Trekking

Another service activity dominated by Fulbé is trekking, or the shepherding of other peoples' animals to market. Its importance is obvious, given that motorized transport of animals appears almost non-existent and proprietors often do not wish to accompany their animals to market over distances of 50 to 100 kilometers. Following is an example case:

The shepherd is a 30 year-old, single Fulbé living with his mother and stepfather in an N'Gourbaye village. In the off-season, he shepherds large and small ruminants from the N'Gourbaye to a large Nigerian market about 100 kilometers away. A proprietor pays for his services on a per-head basis and according to what border-crossing procedures are observed. If he smuggles the animals, he is paid 500 CFA per cow and 90 CFA for small ruminants. If he goes through customs procedures, he is paid 350 CFA per cow and 40 CFA per small ruminant. It is the proprietor who decides which procedure he prefers, as there is the risk of confiscation if smuggled animals are stopped. This shepherd never takes more than four or five cows at a time, but goats and sheep are taken in larger numbers. Sometimes he goes alone and sometimes he is accompanied by an assistant. Depending on the time of year, the income furnished by this activity is devoted to the purchase of

millet (bought in Nigeria) or small ruminants.

E. Retail

1. Drygoods

Small-scale retail appears to be open to both men and women of all age-groups. It appears that Manga are generally more numerous and better entrenched in these activities than Fulbé. Some informants attributed this to Mangas' longer experience in commerce than that of the Fulbé, who were until recently relatively self-sufficient in their farming-herding activities. Following are several example cases of Manga commerce:

> In two different Manga villages in the N'Gourbaye, informants said that the primary off-season activity of able-bodied males was retail sales on donkey-back in northerly pastoral regions. Informants said that this was not a new activity, but rather dated from their "fathers'" times. Most all of the retailed goods are purchased in Nigeria; tea, sugar, plastic shoes, mirror, safety pins, thread, cloth, razor blades, soap, cola nuts, etc. Some condiments for sauces constituted the only items that might have been procured locally. The average retailer loaded at least two donkeys with his goods and made his circuit with several other such merchants (for social and security reasons). Their rounds take them hundreds of kilometers into the pastoral lands to the north of the N'Gourbaye, where they remain for the weeks or months it takes until their stocks run out. Most of their clients are Fulbé, resident in small hamlets or transient encampments. The retailers commonly accept payment in the form of small ruminants, which they in turn sell in Nigeria to raise cash to restock. They claimed to have no problem with border officials when exporting animals (1000 CFA per goat or sheep to Nigerien douaniers and a small cover charge to Nigerian customs agents), but said all imports were smuggled to avoid what they deemed to be excessive taxation.
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> In several areas of the N'Gourbaye, Manga women were encountered retailing sauce condiments, tea, sugar, cola nuts, and miscellaneous smaller items from tasses[45] they carried on their heads. These women were all between the ages of 35 and 55.

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[45] literally, "cup" in French, but in Niger applies to metal-ware pans, bowls, and other receptacles of various sizes

Some were divorced or widowed. Their sales were all conducted closeby their home-villages; none ever spent the night away from home. They asserted that their clients were local or transient pastoralists. They said their trade dated at least ten years, from when harvests stopped meeting their needs. This activity is sporadic, subject to exclusion by more important tasks or a scarcity of clients.

In a large Manga-Fulbé village in the N'Gourbaye, three different styles of retail were practiced for the same basic sauce items. (a) An elderly Manga widow (childless) began selling sauce ingredients from a stall in the marketplace three years ago, when she became unable to continue farming millet. She does not own the goods she sells, but rather takes them on commission for various proprietors (men and women). She is present everyday at her stall; she does not frequent other local markets. She does not know how to weave nattes or do basketry, a common recourse for the elderly whose eyesight and motor-coordination remain good. She once bought goats with the money she saved, but she was compelled to sell them all this year due to increased millet prices. (b) A Manga mother and daughter, both divorced, purchase butter, nattes, and palm-fiber cord from nearby villages. Many people bring these goods to them, knowing they will be bought. The women sell these accumulated items in Diffa or in one of several large market towns in Nigeria. If the sale is in Diffa, they buy pepper, onions, and okra with the proceeds. When the sale is in Nigeria, they buy vegetable oil, kuli-kuli,[46] peanuts, flour, and various sauce condiments with the proceeds. Items thus bought abroad are sold piecemeal back in their village. With the flour and oil, they make and sell beignets.[47] This is an activity they've engaged in for more than ten years. (c) An unmarried 25 year-old Manga began selling sauce ingredients five years ago after leaving school. He raised capital to start his business by selling a large radio given him by his mother and with two loans from local commerçants. He buys his goods in bulk from a Nigerian market about 100 kilometers away. He pays import duties to both Nigerien and Nigerian officials. He sells his goods piecemeal

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[46] a peanut product, consisting of the solid matter which is left-over after extraction of oil, is sold in hardened form (having been baked), is used in sauces

[47] fried hot-cakes, equivalent of fast food

and in bulk on market-day in his own village and at two other local markets, both about twenty kilometers away. He engages in this activity year-round. He claims that profits are up but that money does not buy as much as it once did.

2. Dairy products

Milk

The sale of milk is appears to be a predominantly Fulbé activity. Fulbé informants claimed that they had not sold milk until recently. Rather, it was cattle-owning Manga who originated the practice of selling milk in the pre-drought epoch. Subsequent to their own economic difficulties and to the disappearance of Manga herds over the past twenty years, Fulbé have become the chief retailers of milk.

The quantity of milk sold is a function of how much the family needs for its own consumption versus what its cash needs are. It has been noted that Sahelien pastoral peoples generally have a greater dependance on exchange with agricultural populations, and that the cereals acquired thereby constitute an increasingly more important part of a diet once based on dairy products. Some families sell just a few liters per day, whereas others load up a donkey with two 25-liter jerrycans-full. Milk production depends not only on the number of lactating females in a herd, but also on the quantity and quality of pasture they consume. July through September tend to be the months of maximum milk production (cheese and butter too), March through June being minimal.

The sale of milk is entirely a woman's activity. She milks the animals, decides how much will be sold, and conducts the sale. No middleman relationships were found (i.e. all the sellers were the Fulbé producers themselves), although they do exist in urban centers such as Diffa. It is not uncommon for a woman to walk twenty kilometers per day with ten liters of milk atop her head to make the sale. The income from milk sales is very important, as it recommences (based on pasture growth) when millet fields are not yet ripe and family grain stores are usually exhausted. It is the woman who administers the proceeds generated from these sales. Despite the ostensible economic liberty of the Fulbé woman, however, in reality a large part of her milk income is devoted to subsistence needs of the family.

Butter and cheese

Most of the butter and cheese (cikou) produced in the Mangari appears to be sold by the producers (Fulbé women) directly to consumers. At several sites along the Route Nationale, however, some local Manga women have developed a system of resale. Butter

and cikou are reportedly brought directly to these women by the producers. Primary customers are said to be motorists passing between Zinder and N'Guigmi. This commerce is said to have developed during the 1970s, when the Route was first paved. Most informants engaging in this trade had diversified to include the sale of nattes, sauce ingredients, and fruits along with butter and cikou. Most of them are married. A male informant commented that their commerce had made some of these women are the chief income-earners of their families.

3. Nattes

A large part of all the nattes made in the Mangari are commercialized in individualized transactions between the maker and a local consumer. A smaller number are reportedly the objects of a wholesale trade which has developed over the past 10 to 15 years. In this trade, local men and women (Manga and Fulbé) buy nattes in bulk and resell them at various market-collection points to traders on the Route Nationale. Following are some examples of this trade:

> The informant is an unmarried, 30 year-old Fulbé, living with his family in the N'Gourbaye. About five years ago, he began buying the nattes made in several local hamlets which he in turn takes for resale in a weekly market nearby. He transports up to 20 nattes at a time on a camel owned by his family. He sells these to the same local bulk-buyer every market-day. This market is located on the Route Nationale, and so serves as a collection point for nattes which will be sold to non-local bulk-buyers from Zinder, Diffa, and N'Guigmi. The informant reaps about 50 CFA profit on each natte. The informant engages in this trade regularly every year during the dry/cold season, alternating with the trekking of animals to Nigerian markets during weeks in which he cannot collect enough nattes. This trade represents the informant's sole source of incom .
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> The informant is a 27 year-old, married Manga woman living in an N'Gourbaye village along the Route Nationale. She began bulk-trading nattes three years ago, starting out with capital raised from goat sales. Unlike the informant in the previous example case who searches out natte-makers in their bush villages, natte-makers bring their wares to her. Since her village is located on the Route Nationale and hosts a large weekly market, it serves as a collection point for nattes. Natte-commercialization is a year-round activity which the informant associates with her commerce in dairy products, sauce ingredients, and fruit.

The informant is a 40 year-old, married Manga man living in an N'Gourbaye village on the Route Nationale. At the weekly market in his village, he buys nattes and/or bundled palm fronds. He arranges his purchases along the Route and bargains for passage with east-bound tractor-trailer rigs. Large trucks rather than taxis are said to be the only ones which make this trade profitable as their drivers derive a windfall from such traders and so negotiate reasonably. These trucks are usually already loaded with some kind of freight, but nattes and palm fronds are easily tied on top. The informant claimed to prefer selling his goods in N'Guigmi because he finds ready purchasers there (supposedly not the case for Zinder). By comparison to Diffa, N'Guigmi is preferred because prices offered are better and because CFA is the medium of exchange (in Diffa it is the Naira). On the return, if market conditions are favorable, the informant stops in Diffa to buy pepper, onions, or okra, which he resells at home.

The informant has been engaged in this trade for two years. This trade does not constitute his sole source of income (he has a cuvette-bottom garden and harvests natron as well), but he claims that he entered the natte business because it provides the fastest cash return.

4.

SECOND TRIMESTER OF STUDY (ZONES IB and IC)

The Kadzell and the Lake Chad Basin

The area of study during the second trimester of this socio-economic study conforms roughly to that of zone 1B and 1C in Map B. Zone 1B constitutes the left (north) bank of the river Komadougou Yobé and is called the Kadzell (or Kazal) in Kanouri. Zone 1C comprises the bed of Lake Chad.

A. Phyiscal Milieu:

ZONE IB: The river Komadougou Yobé runs along roughly 150 kilometers of Nigerien territory, from its point of entry south of Mainé-Soroa to its point of exit near Bosso. It originates on the Bauchi Plain in Nigeria and runs northeast to the basin of Lake Chad. The Komadougou is a seasonal river, said to depend more on rainfall in Nigeria than that in Niger. The volume of water flowing the river has varied widely since the 1960s.[49] Over the same period, the number of days which the river flows have fallen progressively. Presently, waters usually reach Niger in July or August. The bed fills rapidly in the first few days, after which waters continue to rise slowly for the following three to five months. The flow usually ceases sometimes in November, after which the water level falls rapidly. Residual pools remain in the riverbed and attendant marshes. With the exception of a few large marshes and permanent springs, most of these dry up between January and April.

Species commonly found in the densely wooded zone abutting the river (not usually extending more than one kilometer inland) are *Hyphaena thebaica* (doum palm), *Tamarindus indica*, *Diospyros mespiliformis*, *Acacia senegal*, *Acacia seyal*, *Acacia nilotica*, and *Ziziphus spina-cristi*. Further inland, dominant species consist of *Balinites aegyptiaca*, *Salvadora persica*, *Commiphora africana*, *Acacia laeta*, *Acacia raddiana*, and *Boscia senegalensis*. Pasture rarely endures beyond the rainy season due to the heavy animal charge (surpâturage). Rainfall for this zone is estimated to range from 200 to 250 mm. Subsurface water is generally found at between five and ten meters' depth.

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[49] see Annex III for details (volume and number of days' flow)

ZONE IC: The Komadougou River flows into Lake Chad. "*Ce nom de Tchad qu'on lui donna en langue Kanouri, semble avoir dans le dialecte des anciens habitants de la region...la signification de grand amas d'eau.*"[49] The part of the lakebed found in Nigerien territory constitutes the more northerly of the two primary depressions in which lake waters collect (e.g. these two depressions make up what is depicted as the totality of Lake Chad on a map). Of the estimated 10,000 to 25,000 square kilometers occupied by the lake, the portion of the depression situated on Nigerien territory is estimated to cover 3,000 square kilometers.[50] The Komadougou is said to contribute only 1% or less of the waters in the northern depression. The other 99% of lake waters are contributed by overflow from the southern depression (fed by the Chari River in Chad/Cameroon) and rainfall. The extent to which the lake returns is a function of how much subterranean water reserves have been replenished; only when these sub-surface watertables are saturated do surface waters appear. The lake is said to have retreated more or less progressively since 1965. Since a temporary return of lake waters in 1988, Zone IC has remained dry.

Vegetation in the uncultivated areas of the depression is dominated by *Albizzia chevalieri* and *Prosopis*. Pasture consists primarily of *Digitaria lecardii*, and secondarily of *Euphorbia forsekali* and *Sorghum aethiopicum*. In the intermediate zone of plateaus (erstwhile islands), various *Acacias*, *Salvadora persica*, *Maerua crassifolia*, *Boscia senegalensis*, and *Balinites aegyptiaca* predominate. Rainfall in the lakebed area is estimated to range between 180 and 200 mm. The depth of the watertable varies widely, depending each year on contribution by river waters and precipitation.

B. Social Milieu:

The Kadzell (Zone 1B) has the highest estimated population density of any area in the Diffa Department; 32 inhabitants per square kilometer. In addition, villages tend to be both more numerous and larger than in other areas of the department. The total population is estimated at approximately 70,000 individuals.[51] The Kanouri sub-group Mobeur dominates this zone (except for the southernmost 20 kilometers along the river, where

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49 DIONMANSY, Sy, La Penetration Europeenne Au Niger, mai, 1972

50 AMADOU, Ibrahim, Etude Socio-Economique des Espaces Riverains de Lac Tchad: Le Cas de Mamuri au Niger, Maitrise-Géographie, Universite de Niamey, 1993, p. 50

51 Etude de Developpement de la Cuvette de Mamouri, Dar Al-Handasah Consultants (Shair & Partners), volumes 2/3 et 3/3, Dakar, janvier, 1991, p. 32

Manga predominate). Pure pastoralist Wodaabbé pass through this zone during the course of their annual transhumance, their number and duration depending primarily on pasture conditions. To the east of the Kadzell is the bed of Lake Chad (zone 1C). It is estimated to have a population density of approximately 3 inhabitants per square kilometer, but there exists no reliable estimate of the total population. The ethnic majority in most of the Nigerien portion of the lakebed is said to be Mobeur. Also present in this zone are agro-pastoralist Boudouma, pure pastoralists Wodaabbé and Bokologi (Fulani), and agriculturalist Fulbé and Hausa.

1. Mobeur

The Mobeur (or Mawar) appear to have settled on the Kadzell between 500 and 1000 years ago. There is no consensus on their origins. Some versions of oral and written history cite the Mobeur as once having been a slave people of the Sefuwa (rulers of the Kanem-Bornou Empire), who were installed along the Komadougou by their masters. Other speculate that the Mobeur descend from the inter-marriage between Kanembou[N] and more ancient indigenous peoples of the region, the Sao, Do'u, and Badé.

The Mobeur are today the dominant ethnic group in the Komadougou River basin zone. They are a sedentary, agro-pastoralist people. The social foundation of a village is generally based on one or more lineages. Historically, there is said to have existed the same kind of caste/class hierarchy described for Manga social order; a noble class (the chefferie) at the top, farmers, commerçants, and herders in the middle, and blacksmiths, butchers, and griots at the bottom. The influence of these quasi-feudal divisions has been undermined by the development of education, urbanization, and commerce in the region.

The Mobeur are said to have refused to settle far from the banks of the Komadougou because they did not know how to dig wells. It is more likely that the close proximity of and frequent raids by pastoralist Tuareg, Toubou, and Boudouma discouraged Mobeur settlement of the open plains. In addition, traditional Mobeur agro-pastoralism was best adapted to conditions found only in the river basin. During the cold/dry season, wheat, cotton, and yams were cultivated on the river banks, beans and corn being planted in the riverbed itself after recession of the waters. Herding of cattle and goats was reportedly an important complement to these agricultural activities. At the beginning of rainy season, these animals were taken north on the plains and steppe, out of proximity of riverbed agricultural lands. Pasture is said to have been sufficient and water courses plentiful (the river

[N] literally, the people of Kanem, in the language Kanouri

meandered onto much of the plain then). With the onset of dry/cold season, the herds returned to the village environs and the water and pasture resources of the river basin.

Hunting and fishing were important off-season activities, occupying men for the most part. Regarding the latter, the Mobeur residing near the lakebed conducted what is reported to have been a thriving trade in dried and smoked fish with Nigeria from about the 1920s until the retreat of lakewaters.[53] Although a part of the population farmed, it was primarily a fishing culture. The Mobeur along the Komadougou fished only after the river ceased to flow, in the residual pools and marshes. Gathering of wild fruits and grains by women is said to have contributed significantly to households' dietary requirements, particularly in years of poor millet harvests.

2. Sougourti and Jetko

Two other peoples, the Sougourti and Jetko (or Dietko), are also found in the river basin area. As with the Mobeur, each group traces its origins to Kanem, but the Sougourti and Jetko were said to have been pure pastoralists (of cattle) before their settlement on the Kadzell. Sougourti and Jetko found today along the Komadougou and the borders of Lake Chad are virtually undistinguishable from the surrounding Mobeur. This assimilation does not appear to be recent, as an account from century and a half ago observed that "*actuellement...rien ne les distingue des autres populations de la région auxquelles ils se sont mêlés....*"[54] For practical purposes, this report will consider them as analogous to the Mobeur.

3. Fulani

Pure pastoralist Fulani (Wodaabbé) are relatively new arrivals in the Diffa Department. They are said to have first arrived around the beginning of the Twentieth Century. Most are said to have emigrated from the west, their only common point of reference having been their flight from the political centrism and religious orthodoxy of Nineteenth Century Fulani empire based in Sokoto, Nigeria. They were attracted to the Diffa region for the same reasons as their Fulbé cousins who immigrated about the same time, namely that a vast area of good grazing land was made accessible by French pacification of the Tuareg, Toubou, and Boudouma raiders. A second and more recent wave of Fulani immigration took place during the 1970s and 1980s. This is said to have been spurred by

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[53] ANONYME, Notes sur les Populations de la Komadougou, 1961

[54] MAIKOREMA, Zakari, Contribution à l'Histoire des Populations du Sud-Est Nigerien, Le Cas du Mangari, Etudes Nigeriennes no. 53, IRSH, 1985, p. 52

the effects of drought; Wodaabbé from central Niger and Bokologi from Cameroon sought to graze their herds in the Lake Chad basin.

Social structure of pure pastoralist Fulani (Wodaabbé or Bokologi) is identical to that for Fulbé. The nuclear family is the essential unit of production, its members assuring the watering, supervision, and milking of a herd. For social and security considerations, nuclear families often group together in encampments. The formation of larger agglomerations, whether several encampments or a lineage, depends on availability of pasture and water. When attempting to understand Wodaabbé social structure, it should be remembered that "*la notion même de société bodaado (bodaado = singular of Wodaabbé) semble une abstraction n'ayant aucune correspondance avec la réalité,*" and that "*spécificités et...variables, telles que temps, espaces, ressources disponibles, types d'animaux gardés...forment l'histoire concrète des groupes réels.*"[55]

Wodaabbé and Bokologi Fulani are herders primarily of cattle, frequently with a considerable complement of sheep as well. Informants claimed goats were not preferred, as they are excessively susceptible to disease. Many of the Wodaabbé who immigrated to the Diffa Department at the beginning of this century are said to have inhabited the Kadzell and Kaola (northwest of the Kadzell) year-round. In rainy season, there were sufficient pasture and water resources on the plain. In dry/cold season, they either dug shallow wells on the plain or descended to the river basin zone. Environmental change over the past two decades have reportedly rendered such year-round inhabitation untenable. Wodaabbé informants claimed to have spent much of the past decade in Nigeria or Chad. As regards the lakebed, transhumance of Bokologi depends on pasture conditions (in Niger as well as in their native Cameroon) and possible return of lake waters.

4. Boudouma

The Boudouma are an agro-pastoralist people of the lakebed. In Kanouri, the name Boudouma signifies *the people who live amidst and are hidden by the grasses*. Their history appears to have been varied. They inhabited the islands of the lake, cultivating sorghum and herding the Kouri species of cow (characterized by bulbous horns). They are also said to have been notorious pirates and slave-raiders. In addition, they are said to have been accomplished fishermen (it was from the Boudouma that the Mobeur resident near the lake supposedly learned their fishing techniques). Most Boudouma who retained their cattle have followed the lakewaters out of Niger, as they require the type of vegetation found only around the inundated areas. As with the

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55 BONFIGLIOLI, Angelo Maliki, Dudal, Histoire de Famille et Histoire de Troupeau chez un groupe de Woduabé du Niger, Foundition de la Maison des sciences de l'homme, Paris, 1988, p. 2

Fulani, their presence on Nigerien territory varies with annual changes in pasture and water conditions.

5. Recent lakebed immigrants

The drought of 1980-85 and subsequent retreat of lakewaters attracted a significant number of immigrants to the western shore area. These individuals sought to fish the residual pools and farm the lakebottom left dry. These immigrants were primarily Fulani and Hausa. The Fulani are said to be Fulbé agro-pastoralists from the Mangari, the Hausa agriculturalists from Nigeria.

I.

LAND USE AND NATURAL RESOURCE MANAGEMENT

As concerns land use by local populations, the Kadzell may be divided into two bands running parallel to the river. The first band borders the river, containing irrigated garden crops of the dry/cold season. The width of this band does not usually exceed one kilometer In this report, this band will be addressed as the "river basin" zone. The second band is farther from the river. It contains rainy season millet fields. It will be addressed as the "plain" in this report. Most Kadzell residents have at least one field in each band. The norms of land tenure vary as they apply to each zone.

THE KADZELL

A. Agriculture

1. River basin parcels:

All of the 163 informants interviewed expressed the opinion that all lands in the river basin have proprietors. It was added that this does not mean that all available land is under cultivation, but rather that no desirable parcel is without a claimant. These informants attributed this pressure on river basin lands to various factors. The region's long history of inhabitation (500 to 1000 years) means that the lands surrounding villages have long been spoken for by proprietors. Added to this, the development of a highly profitable cash crop farmed on these lands appears to have increased the care with which proprietors guard their claims. Lastly, the diminution of the volume and number of days flow of the Komadougou River has compelled farmers to abandon formerly cultivable outlying areas and concentrate on an increasingly limited amount of riverfront land.

The manner in which Mobeur conceive of proprietorship varies according to the individual and village history encountered. Ownership was defined as *a life-long right of use, including temporary (loan or rental) or permanent transfer (gift or inheritance)*. As for who held these rights and on what historical basis, the responses differed. Generally, informants asserted that these rights appertained to the individual whose ancestors had cleared the land. A few cited the village or canton chief as holder of these rights. With regard to the former, the case

appears analogous to that found for the Mangari; long-time users have become the defacto proprietors. They wield near-total independence regarding the disposition of their parcels. Approximately 60% of informants claimed that the chief's prerogatives concerning the lands of such farmer/proprietors are largely regulatory and consultative. The chief is said to be accorded a role in settling disputes and witnessing various loans or other transfers. Otherwise, the only realm in which his authority was uncontested was in that regarding unowned lands. All of the 163 informants averred that the village or canton chief determined who and under what terms such lands would be cleared for cultivation and administered thereafter.

Sale of river basin parcels:

Informants reported no incidence of the sale of river basin parcels.

Inheritance of river basin parcels:

Of the 163 individuals interviewed, over half asserted that inheritance was the most important manner in which proprietary rights change hands. Inheritance functions in the same manner as that found for the Mangari, in conformity with Koranic law; death of the male head of the household entails the transfer of two-thirds of his lands to his son(s) and one-third to his daughter(s). When a woman landowner dies, her natural son(s) and daughter(s) share equal portions of her lands. This occurs only when a woman has expressly withheld her proprietary rights from amalgamation with those of her husband. If no such precaution has been taken, her lands revert to her husband. In the case of a childless marriage, the woman's death would occasion the return of such expressly withheld lands to her family. Approximately 50% of women informants claimed to have ceded their proprietary rights to their husbands upon the birth of their children.

As concerns women who inherit or (with marriage) retain their proprietary rights do not necessarily retain a right of usage. This particularity seems based more on social factors than it is rooted in land tenure or Koranic law. Once married, a woman must have the approval of her husband before she may cultivate; both male and female informants unanimously cited that an aura of "unseemliness" which would adhere to the woman who cultivated without the approval of her husband. The practical implication of this is that women tend to give up their rights of usage to their lands when they marry. Approximately two-thirds of the women informants who were married claimed to have thusly forfeited their prerogatives upon marrying. Upon divorce or the death of their husbands, women are once again more free to exercise their usage rights. This discussion is largely academic as concerns river basin parcels, as women do not practice irrigated farming in their own right (with the exception of a few sites created by donor

organizations). It will be discussed subsequently in the section concerning the informal transfer of usage rights.

Acquisition of river basin parcels by loan:

Among the 89 farmers interviewed, approximately 58% claimed to have borrowed a parcel at some time during the preceding three years. It appears that the incidence of loans granted is much greater among family members or trusted friends than for simple acquaintances. As in the Mangari, proprietors commonly refuse to loan their lands to strangers for fear that a borrower will abuse his privileges. According to my informants, another important factor influencing proprietors' refusal of loans is simple jealously. 77 of the 163 individuals interviewed claimed that proprietors' reluctance to see others "get ahead" was important in their refusal to loan lands.

For those individuals who do extend loans, the means of insurance against abuse is the same as that found in the Mangari; the village chief and some of his notable witness the agreement. It is oral and includes a prayer (as show of good faith). For loans extending over longer periods (five years or more), informants claimed that a written agreement was often insisted upon (with village or canton chief as witness).

The terms of loans appear straightforward. None of the informants (or any of the studies conducted on the subject) claim that any kind of payment is solicited for a loan. However, a discrete return, usually in-kind, is usually rendered the proprietor after the harvest. This is called zakat, a tithe which usually constitutes ten percent of the total harvest. Although informants insisted that zakat is neither a form of payment per se nor an expressly stated condition on which a loan is predicated, socially it is mandated. Informants asserted that the borrower of a parcel who did not recognize the proprietor with zakat would be regarded as an ingrate.

No examples were reported of loans having been abused. In fact, there do not exist as many opportunities for the abuse of loans as there are in the Mangari. With few exceptions, the parcels in question are devoid of fruit trees, date palms, wells, and other semi-permanent fixtures which constitute the objects of abuse in cuvette-bottom fields of the Mangari. Another study has concluded: "*...rarement des conflits surviennent entraînant la reprise du champ prêté; souvent, le prêteur ne presse pas cet individu à quitter le champ. S'il arrive qu'il quitte c'est au cause du manque d'eau, de la dégradation des sols ou qu'il a dû bénéficier d'une autre terre par héritage ou autres voies.*"[56]

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[56] HAROUNA, Koré, ABDOULFADI, Hamit, Etude de la Filière de Poivron de Diffa, Fonds International pour le Développement Agricole (FIDA), Niamey, août, 1992, p. 21

Acquisition of river basin parcels by clearing:

Clearing (défrichement) of land is an important form of access to the river basin for those who cannot secure a loan. Of the 89 individuals interviewed, 24 claimed to have acquired proprietary or usage rights to a field in this manner at some time during the preceding five years. These individuals added that these parcels were usually the least desirable in the region; *"les champs acquis par défrichage sont dans la quasi-totalité loin des cours d'eau ou sur les plateaux."*[57] This type of field will cause its cultivator much higher fuel costs to irrigate and more time expended to guard against animals than a parcel abutting the riverbed. It is in this domain that the village chief retains all prerogatives to grant rights of défrichement. All of my informants asserted that he alone controls access to unowned land. As in the case of loans from proprietors, the borrower gifts the chief with zakat after the harvest.

Informal transfer of usage rights on river basin parcels:

Informal transfers may be defined as the cession (temporary or permanent) of usage rights which cannot be classified under one of the preceding headings as sale, loan, or gift. Among my informants, the incidence of these informal exchanges was found almost exclusively among family members (nuclear or extended).

The majority of informal transfers among informants involved women proprietors who ceded usage rights to their husbands or male relatives (see discussion under section on inheritance). Of the 74 women informants who claimed to have thus ceded usage rights, only 18 claimed to receive some kind of reimbursement. Of these women, none claimed that the reimbursement constituted a form of rental (i.e. a term upon which the loan was predicated). Contrarily, they stated that it was at the borrower's initiative that they received anything at all. Following is an example of one such case:

> In the village of Zaouraram, a male informant claimed to have borrowed one of the three river basin parcels which he cultivated from his wife. She remained the proprietor, but she had agreed to cede usage rights to him for an indefinite period of time. He had exploited his wife's field during the two years preceding this one and claimed that soil fertility would allow him to continue doing so for at least four more. He asserted that his wife

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[57] HAROUNA, Koré, ABDOULHADI, Hamit, Etude de la Filière de Poivron de Diffa, Fonds International pour le Développement Agricole (FIDA), Niamey, août, 1992, p. 21

demanded no reimbursement for the loan of her field (indeed, that she had no right to do so), but that he had on previous occasions rendered her a sack of dried pepper after the harvest. He estimated this gift as constituting about 5% of the total harvest reaped on the field concerned. This gift was made at his instigation.

Nearly 90% of the women interviewed claimed to have been allocated usage rights to a certain part of their husbands' irrigated fields. (for widows and divorcees, the field of a male relative). This most often involved their sowing okra along the irrigation channels of pepper fields. Less frequently, they cultivate beds of gorko, lettuce, tomatoes, and yallo. No form of reimbursement was said to be made in these cases.

The transfer of usage rights to family lands which occurs between a father and recently married son is often tacit, and therefore difficult to distinguish from an exchange of proprietary rights. Most commonly, a father and son continue to irrigate the same field in which they worked communally before the son's marriage, but a certain stipulated area is placed at the disposal of the now-independent household of the son. Frequently, it appears that this transfer evolves into the son's defacto inheritance of proprietary rights (before the death of his father), but it is unclear how and when.

Lastly, there is the unconditional, permanent transfer or proprietary rights (gift). The incidence of gifts found by this study was exclusively among family members, not among strangers. Of the 163 individuals interviewed, 37 claimed to have given or been the recipient of a gift of land. 26 of these individuals were men who had been gifted with proprietary rights by their wives (often upon the birth of children between them).

2. Plain fields:

The plain which adjoins the river basin is exploited for rainy season crops millet, sorghum, and beans. The terms of acquisition and transfer for fields in this zone differ little from those applying to river basin fields.

Sale of plain fields:

This study encountered no instance of sale for fields on the plain.

Inheritance of plain fields:

Inheritance of plain fields proceeds in accordance with the same Koranic strictures which govern such transfer of river basin parcels. However, for women possessing proprietary rights, it

appears that the consequences are economically more important here than in the river basin (where social restrictions prevent exercise of usage rights). On the plain, 49 of the 74 women interviewed claimed to exercise usage rights on at least one parcel of which she was a proprietor. Of these women, 44 were either widowed or divorced and claimed that their ability to exercise usage rights over their lands constituted an important element in their economic self-sufficiency (this despite poor rainy season harvests).

Loans of plain fields:

Norms for loans of fields on the plain are identical to those applying to fields in the river basin. Preference is naturally given to family members, but the fact that plain fields are neither as limited nor as profitable as river basin fields appears to make proprietors less likely to refuse prospective borrowers. 156 of my 163 informants claimed to be willing to loan an available field on the plain to anyone who requested it. It should be added that, since the cultivation of millet is considered an "essential," the proprietor who refused a prospective borrower would fear being regarded as stingy or unreasonable. The longer the period of the loan, the more formality is required in witnessing the loan. As with river basin fields, an in-kind form of zakat is usually rendered the owner by the borrower if the season is successful.

Acquisition of plain fields by clearing:

Most all desirable land in the perimeter surrounding a village is owned. Most fields acquired by clearing are, therefore, far from village environs. Clearing of unowned land proceeds with the approval of the nearest local village chief. The incidence of individuals clearing without such permission (by virtue of extreme distance from villages) appears less than in the Mangari due to higher population density found on the Kadzell.

Informal transfer of usage rights for plain fields:

All norms which apply to the transfer of usage rights in the river basin appear to govern such transfers of parcels on the plain.

Dormancy of land rights:

With regard to land tenure on the Kadzell, a recent study has stated that "...*le droit d'usage reconnu à l'attributaire n'est pas infini.*"[58] Although informants admitted that this was in fact the premise of land tenure in the zone, they averred that practice

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[58] ISSOUF, Bayard, DJIRMEY, Aboubacar, Etude Socio-Economique et Institutionelle de la Zone 1B de SDDR, Projet d'Appui au Développement Agricole du Département de Diffa (PADADD), septembre, 1992, p. 17

often diverged from the principle. First, the length of time for which rights may lie dormant (i.e. disuse of land not occasioning the forfeiture of proprietary or usage rights) varies widely. Of the 163 land-owning individuals interviewed, 55 asserted that their claims spanned at least a decade. Their claims remained unbroken, despite only sporadic exploitation of the concerned parcels. Almost half of these individuals said that they didn't feel it necessary even to exploit the parcel on this sporadic basis in order to justify their claims. Various factors contribute to how well a family or individual maintains its claims to a parcel, such as its social and economic standing in the community and its personal relations with the village or canton chief. The background of the applicant wishing to break the claim is important as well. Numerous cases were found of villagers wishing to secure access to river basin fields, but who claimed that their requests had been refused by the proprietor and that, in lieu of this, did not wish to incite the animosity of such proprietor (and all those loyal to him) by bringing the case before the chief. Following is an example of one individual who successfully contested dormant proprietary rights:

> The informant is a Mobeur male, approximately 45 years old. He is a native of Diffa who moved to the village of Abadam 15 years ago (his sister had married and moved to Abadam, but otherwise he had no relations there).Until last year, he sought access to rice paddy land in the river basin without success. The desired parcel was unexploited but villagers nonetheless asserted that it had been owned for "decades" by the same family and refused to relinquish either proprietary or usage rights. This year, the informant inveighed the authority of the chef de poste,[*] chef du canton, and the two village chiefs (Abadam has two). Only thusly was he able to break the dormant claims of the proprietor.

Among locals, there exists a very marked reluctance to risk the consequences (social sanction by a part of the community) entailed by confronting the status quo. When posed the hypothetical question, 108 of the total 163 informants claimed that they would not bring their claims before the village chief or other authorities if their personal request for access had been refused by the proprietor. It should be noted that the individual cited in the above example is was not a native of the village in which he contested the dormant claims.

Non-Mobeur strangers in the region have greater difficulty than members of the resident population as concerns these dormant land rights. Another recent study found likewise; "...*les*

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[*] the administrative head of a poste administratif, the units in which an arrondissement is sub-divided

étrangers, sauf dans le cadre des terres aménagées par les projets ont difficilement accés à ces terres."[60] Among the strangers encountered, all claimed to prefer personal negotiation with intransigent proprietors as opposed to confrontation (i.e. bringing the case before the chief). This, they admitted, was partly because they believed the local chefferie to be partial to its local constituency in such disputes.

B. Natural resources

Water rights:

Water for agricultural purposes appears to be regarded as a collective resource. 85 of the 89 informants claimed that no individual could properly contest the "reasonable" use of water for irrigation purposes. The criteria determining what was regarded as "reasonable" appeared to change somewhat according to the scarcity of the resource. The source of water is the river itself, a marsh which is fed by it, or collected rainwater. It is understood that a field (pepper or wheat) should be watered once weekly. Farmers often draw from several sources at the beginning of the season, when residual rainwater and high river waters are close at hand. As these sources become limited, access becomes more problematic. The reasonableness of an individual's digging a channel to divert waters, breaking established precedent in the watering line-up (when one irrigation channel feeds numerous fields), etc. is judged differently in each situation. Most informants claimed that they were able to resolve conflicts on the spot. When this was not the case, they were brought before the village chief.

The conception of water rights as they apply to herding practices--or more precisely, herding peoples--becomes markedly more individualized. Half of the irrigating individuals interviewed claimed to regard water as an appropriable resource when they were placed in competition with herding peoples for the same source. They gave two reasons for this phenomenon (which they claimed had developed largely in the past 10 years); first, that pastoralists' herds had begun to encroach on their agricultural lands (threatening the fields and consuming water resources) and second, that their pepper crops were entitled to all the water resources of the river basin.

The collectivity of water resources has been impinged upon by the simultaneous reduction of water available (fewer days' flow and volume of flow) and the increased demand for such water occasioned by the burgeoning pepper culture. The diminution of the quantity of water flowing in the Komadougou River over the past 20 years has

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[60] HAROUNA, Koré, ABDOULHADI, Hamit, Etude de la Filière du Poivron de Diffa, Fonds International pour le Developpement Agricole (FIDA), Niamey, août, 1987, p. 19

entailed the drying up of many of the meandering water-courses from which animals were once watered on the plain (far from the agricultural zone). Now, animals are watered in close proximity to or within the agricultural belt along the river. Especially as this concerns the large cattle herds of the Wodaabbé (to a lesser extent the camel herds of Arabs), Mobeur farmers resent the consumption of what they consider to be their proper water resources. Before the event of the pepper culture and widespread use of the motorpump (dating from the mid-1980s), demands placed on water resources were more modest. Informants frequently justified their stance, adding that it is the danger of animals' destroying their fields which gives rise to this animosity ("*the Wodaabbé don't care about our fields*"), but it appears that in reality many of them simply regard the river as their own.

For their part, the pastoralist Wodaabbé express frustration that the Mobeur have effectively limited their access to water. The 34 Wodaabbé informants claimed unanimously to regard water as a collective resource. They resent the fact that the agricultural belt formed by Mobeur along the river has become "almost impenetrable." Their access is reportedly more limited each year, due to the expansion of irrigated cultures. They viewed this limitation as unfounded and cited conflicts over watering privileges as the primary cause of conflicts with local Mobeur populations.

Forage rights:

The same 20-year period which has witnessed the diminution of water resources in the river has seen the degradation of pasture on the plain; the exhaustion of meager pasture resources on the plain, usually within a few months after the rains, compels animals to descend to grazing grounds in the river basin. Mobeur informants gave much the same response concerning the appropriability of pasture as that given for water. All of the 163 informants alleged that pasture resources were collective as concerned the grazing of the animals of their fellow-villagers. However, 51 claimed they would protest if the grazer were a pastoralist stranger with many animals. Cited, once again, as the justification for this stance is the danger that cattle will damage nearby pepper fields. This despite the fact that Mobeur animals (particularly goats) are generally more poorly supervised than Wodaabbé herds and are responsible for a considerable amount of crop damage each year.

Gathering fodder:

The gathering of fodder (hay or crop residues) is a practice which most informants claimed began after the droughts of the 1970s and 1980s. Gathering rights to crop residues (millet, sorghum, and beans) are identical to those discussed for the Mangari. When the owner has finished gathering, he may be propositioned for

collection rights to the remainder. By his or her tacit abandonment, free reign may be given to anyone wishing to gather or graze animals on the remainder. Raking of hay on uncultivated land is said to proceed without such formalities. Grazing privileges attaching to crop residues from pepper fields (i.e. after the last harvest animals are grazed on the foliage) are handled differently according to the individual farmer's needs. In most of the cases informants claimed that farmers grouped their own animals together to take advantage of the field first. Most did not attempt to prevent the animals of others from subsequently entering the field, however. The propensity to attach proprietary claims to these fodder resources, whether natural or crop-residue, appears to rise in situations of extreme shortage or due to the presence of strangers (pure pastoralists) near sedentary populations.

Indigenous tree species:

None of my informants claimed that either indigenous tree species or their by-products (timber, fruit, or foliage) were appropriable. This despite the considerable economic importance of some, such as the *Hyphaena thebaica*, *Tamarindus indica*, and *Ziziphus spina-crista*.

With regard to trees located on lands which were to be brought under cultivation, informants asserted that the cultivator (whether owner or borrower) was invested with a tacit right to clear the parcel of trees. Clearing of trees was said to proceed at the risk of this individual. This risk was said to be negligible except in a ten-kilometer radius around Diffa and Bosso, where coverage by forestry agents is allegedly more thorough.

Firewood:

No informants claimed that an individual could establish proprietary claims to firewood.

Fishing:

It is estimated that there are about 5000 fishermen, professional and amateur, in the Komadougou River basin (mono 49). In some of the larger marshes, the historic practice of conducting a collective day of fishing is still observed. Except for these areas, informants asserted that all other areas are open to exploitation by whomever arrives first. They added that there once existed a customary official charged with the administration of fishing rights in Mobeur villages, but tha this individual (or his importance) has all but disappeared. The vast majority of fishing activity is said to occur in the stationary waters which remain in the riverbed and nearby marshes after the river ceases to flow. A large part of the fishing activity in the Komadougou River basin is purportedly not conducted by resident Mobeur, but rather

by seasonal immigrants (Hausa) from Nigeria. They are said to export the bulk of their catch to Nigeria.

THE LAKEBED

A. Agriculture

It should be noted that the extensive dry/cold season agriculture now practiced in the Mamouri area of the lakebed does not have a long history in this area. The village of Mamouri (the oldest settlement encountered in the lakebed) is reputedly only 45 years old. For at least 25 of those years, it was surrounded by lakewaters. The populations which inhabited the region when lake waters were present subsisted primarily from fishing (Mobeur and Boudouma) and animal husbandry (Boudouma), practicing only a limited amount of rainy season agriculture. Those who cultivated during this past epoch reportedly did not more than seed the crop (sorghum) and await the harvest, no weeding labor being expended.[61] Presently, farming activities of the Mobeur and newcomers (Fulani and Hausa) in the Mamouri area take place in two different settings; in the depressions which constitute the old bed of the lake and on the plateaus which made up the ancient islands and shore. Depressions are cultivated during the dry/cold season and plateau fields during the rains. The norms of ownership, transferral, usage rights, and dormancy of such rights vary as they apply to each zone. As on the Kadzell, most of the informants claimed to have access to at least one field in each zone.

1. Depression parcels:

Most of the 35 informants interviewed in the Mamouri area expressed that the acquisition of a field was a simple matter. In marked contrast to lands of the Kadzell, the relatively short history of inhabitation of the lakebed "*...se caractérise par une forte disponibilité en terres.*"[62] Also different from the long-established, well-delineated character of fields on the Kadzell is the ephemeral nature of field boundaries in the lakebed. With the arrival of river waters (in the depression of Mamouri) and the ebb and flow of lake waters, the plan of the region can change entirely over the course of a year. Maps of the lakebed at

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[61] Etude Monographique de la Zone 1B du "Schéma Directeur de Développement Regionale (S.D.D.R.)" de Diffa, P.A.D.A.D.D., août, 1992, p. 11

[62] AMADOU, Ibrahim, Etude Socio-Economique des Espaces Riverains de Lac Tchad: Le Cas de Mamuri au Niger, Maîtrise-Géographie, Université de Niamey, 1990, p. 37

different times over the past century (see maps in Annex III) illustrate this susceptibility to change.

The manner in which land tenure is conceived in this setting differs from that on the neighboring Kadzell. All of the 35 Mamouri area informants claimed to have received their lands by formal request from the local village chief. The majority of informants averred that the land belonged to the Mobeur, by virtue of their comparatively longer residence in the area. The findings of this study concurred with the conclusion of a recent study which cited that the "*...exploitants agricoles...bénéficier de l'usufruit de leurs terres pour des générations.*"[63] Unlike the situation on the Kadzell, however, 32 of the 35 informants claimed that an individual's claims to ownership were based on his or her continued exploitation of the concerned parcel. The village chief is accorded an important role in witnessing transfers, giving permission to clear land, and settling disputes, but there is also a marked incidence of recourse to the chef du canton and chef de poste. Informants claimed this was because many of the disputes involve recent, non-Mobeur immigrants (who do not feel the local chefferie is an impartial judge of their affairs) or nationals of Chad, Nigeria, or Cameroon.

Sales of fields in the depression:

No example was found of the sale of a field in the depression. The concept of a sale is not particularly sound in this instance, where the accessibility of a given parcel is based on how annual fluctuation of sub-surface water tables influences flooding.

Inheritance of fields in the depression:

The value of inheritance is somewhat limited, given the changeable nature of the lakebed terrain. What is an arable field one year may not be the following year, due to a rise or fall in the water table. This aside, it appears that only native Mobeur have the right to pass on proprietary rights to their children. 27 of the 35 informants claimed that newcomers do not have this right. The norms of inheritance are governed by the same Koranic strictures as discussed applying to lands on the Kadzell.

Acquisition of depression parcels by loan:

Loans of parcels in the depression are extremely important as they concern newcomers. According to a study published in 1990, the majority of these newcomers who immigrated in the 1980s are now

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63 Etude de Developpement de la Cuvette de Mamouri, Dar Al-Handasah Consultants (Shair & Partners), volumes 2/3 et 3/3, Dakar, janvier, 1991, p. 4-32

semi-permanent denizens of the region."[64] They often live in small settlements in or near their fields, as opposed to joining the more established Mobeur villages. 17 informants claimed that loans to strangers were granted exclusively through the offices of the village chief. However, others claimed that this regulation has reportedly been changed over the past few years, and that they are now permitted to borrow directly from other farmers (Mobeur proprietors) without necessarily passing by way of the chief. Informants agreed that zakat was rendered the loaner of a parcel, but responses differed with regard to the chefferie. Half of the informants interviewed claimed that the village and/or canton chief retain rights to an annual fee covering traçage[65] and usage rights, regardless of their non-involvement in the loan. Reports on the amount of this payment (usually in-kind) varied widely. According to another study in the region, this practice is more institutional than official; *"ces practiques...se faisaient en toute discrétion...."*[66] The scrupulousness with which such payment is observed gives these loans much more the character of rental than with loans on the Kadzell. These loans were generally said to have only a year-long duration. The proprietor has the right to reclaim his field at the end of each season.

Acquisition of depression parcels by clearing:

It appears that most individuals ask the local village chief for permission to clear land in the depression. Only two of the 35 informants claimed that they had cleared without thus asking permission. Notably, these were both Mobeur. Whether or not they must also pay for traçage, usage rights, and annual zakat seems to vary according to the individual involved. Once recognized formally by the village chief, Mobeur may pass this land on through inheritance.

Newcomers must ask permission from the local village chief before clearing land. Informants asserted that payment of dues for traçage, usage rights, and annual zakat are subject to greater scrutiny in these cases than in those involving resident Mobeur. No situation was reported in which such a newcomer acquired proprietary rights (i.e. the ability to pass on through inheritance). Lastly, it appears that such newcomers are markedly disadvantaged when a change in environmental conditions compels the retracing of field boundary lines (when lake waters compel them to decamp, for example). The chefferie was said to give preference to Mobeurs more readily than to newcomers.

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[64] Etude de Développement de la Cuvette de Mamouri, Dar Al-Handasah Consultants (Shair & Partners), volumes 2/3 et 3/3, Dakar, janvier, 1991, p. 4-31

[65] literally, the "tracing" of boundaries

[66] AMADOU, Ibrahim, Etude Socio-Economique des Espaces Riverains de Lac Tchad: Le Cas de Mamuri au Niger, Maîtrise-Géographie, Université de Niamey, 1990, p. 19

Informal transfer of depression parcels:

Informal transfers appear to be governed by the same norms which regulate river basin lands of the Kadzell.

2. Plateau parcels:

Plateaus may be defined as the former islands in and shores of the lake. They are used for rainy season cultivation only. The demand for such fields is reportedly not as great as that for depression-bottom parcels. The manner in which tenure is conceived for the plateau zone does not differ markedly from that of plain fields on the Kadzell.

Sales of plateau fields:

No example was reported of the sale of plateau fields.

Inheritance of plateau fields:

Half of lakebed informants claimed to have inherited their plateau fields. Inheritance operates here in accordance with the same Koranic strictures which govern that for Kadzell lands.

Acquisition of plateau fields by loan:

8 of the total 47 lakebed informants claimed to have borrowed a plateau field at some point during the preceding five years. Two reasons were given for this relatively low percentage. First, part of the population no longer cultivates plateau parcels because the chance of a successful harvest appears unlikely (they devote themselves to more certain dry/cold season crops). Second, Mobeur have the right to clear plateau lands without consulting the chief (in contrast to depression areas), and so do not need to solicit loans. These loans are most important as they concern newcomers. As in the depression, newcomers are reportedly allowed to borrow directly from the proprietor without involving the chefferie. Unlike the case of parcels in the depression, loans of these fields do not so often have a strictly annual duration. They may extend over a period of several years. Informants claimed that the terms of these loans vary according to the individuals involved. Zakat was invariably said to be rendered the proprietor, the payments rendered a chief varying widely.

Acquisition of plateau parcels by clearing:

Mobeur farmers do not require permission of the village chief in order to clear land on the plateaus. This is not to say that the chief will not be informed or that will not aid in resolution of disputes which may arise in connection with such a field. Newcomers must request the permission of the local village chief. All informants claimed to render the chief zakat as well as nominal

payments for traçage and usage rights.

Informal transfer of usage rights for plateau parcels:

As regards Mobeur, norms governing informal transfer are similar to those which apply to plain fields on the Kadzell. For strangers, usage rights may be granted for the lifetime of an individual, but these are reportedly not heritable. Unless the newcomer in question has married and had children with a Mobeur, the borrowed land (i.e. usage rights) revert to the chief or the proprietor upon his death.

Dormancy of lard rights:

The constantly changing nature of the depression, and therefore the boundaries of fields within, renders the idea of land right dormancy somewhat irrelevant. With few exceptions, exploitation of a parcel appears to constitute the accepted manner of securing one's proprietary claims.

For the plateaus, the situation is similar to that on the Kadzell.

B. Natural resources

Water and forage rights:

Water and forage rights have become focal points for conflict in the Mamouri region of the lakebed. The same 20-year degradation of pasturelands which has compelled herders to descend prematurely from the plains of the Kadzell on the resources of the riverbed has brought an influx of herders to the lakebed. "*En effet toute la production fouragère des plateaux en saison pluvieuse est entièrement consommée en moins de trois mois lors de la remontée des animaux vers le nord et les rejets lors de la descente...la cuvette de Mamouri constitue la plaque tournante des animaux transhumants....*"[67] 29 of the 35 total informants in the Mamouri area claimed to have some kind of conflict with such herders during the past five years. The factors giving rise to these disputes were said to be attributable to an agro-pastoral dynamic different from that existing on the Kadzell. First, it appears that Mamouri residents (Mobeur and newcomer) do not practice animal husbandry on the same large scale as do Kadzell residents; therefore, they don't guard pasture resources with the same scrutiny as do Kadzell Mobeur. Second, they don't practice irrigated agriculture as do the Kadzell Mobeur, and therefore don't guard available water resources with the same tenacity. Because of these differences,

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[67] AMADOU, Ibrahim, Etude Socio-Economique des Espaces Riverains de Lac Tchad: Le Cas de Mamuri au Niger, Maitrise-Géographie, Université de Niamey, 1990, p. 21

Mamouri informants claimed that their disputes were largely caused by damages done their crops by herders (not consumption of natural resources which these locals coveted for their own uses, as is the case on the Kadzell).

Firewood and fodder:

Neither firewood nor fodder was said to constitute an appropriable resource. Concerning crop residues, the same norms appear to apply as do on the Kadzell.

Fishing:

According to oral and written accounts, fishing was the primary economic activity around the Mamouri area of the lakebed until the retreat of lakewaters beginning about 20 years ago. The disappearance of the lake from the region renders irrelevant a discussion of the norms governing this activity.

II.

ADAPTIVE STRATEGIES AND FOOD SECURITY

Traditional agro-pastoral norms for populations of the Kadzell and the lakebed have changed markedly in response to environmental stress over the past twenty years. This section will attempt to describe some of these changes and explain how they represent adaptative responses. As in the previous section, these will be discussed as they apply separately to the Kadzell and the lakebed.

THE KADZELL

A. Agriculture

Rainy season farming:

1. Millet and sorghum

Regarding millet, informants claimed that increasing the surface area cultivated constituted the primary means with which they attempted to compensate for reduced production.

Sorghum is sown in years of relatively high rainfall, when waters collect in the shallow, clay-bottom depressions which dot the Kadzell. Approximately 30% of informants claim that they sow sorghum. They add that it is only the exceptional year (one out of four or five) which offers this possibility. This is reportedly not a new practice.

Approximately 60% of male heads of households interviewed claim to abandon their rainy season fields to devote all their labor to irrigated farming efforts in years which appear to promise little hope of a millet harvest. Under such conditions, informants consider such redeployment of labor more likely to have productive results in an irrigated field.

2. Beans

Beans constitute an important element in rainy season farming on some parts of the Kadzell, particularly in the region between Diffa and Mainé-Soroa. There are two different methods of cultivating beans in this area; as a primary (mono) crop and as a mixed (inter-cropped) with millet.

MONO-CROPPING: Informants claim that mono-cropping of beans began after the droughts of the 1980s, when farmers noted that beans were comparatively resilient despite low rainfall and uneven spacing of such rains. The preferred variety of bean is sown with the first rains (before millet) and ripens in about 40 days, the time when weeding of millet is finished. Informants claimed that thus sown in their separate field developed better than when inter-cropped with millet, due to increased exposure to sunlight. Mono-cropping informants claimed to reap three harvests.

INTER-CROPPING: Approximately 65% of bean-cultivating informants claimed to prefer inter-cropping to mono-cropping. Proponents of inter-cropping (sowing of millet and beans in the same field at the same time) cited various problems with mono-cropping. First, mono-croppers' delayed sowing of millet is said to be frequently responsible for millet's failure to ripen at the end of the season (rains don't continue long enough). Second, the late-sown millet remains in the field, making it more likely to be damaged by animals of the transhumant herders which descend to the Kadzell soon after the cessation of the rains. Third, mono-croppers' exclusive dependance on beans is regarded as very risky in light of severe insect infestation of beans during the past two years.

3. Rice

Rice was introduced to the region during the 1950s and 1960s. Most rice produced on the Kadzell is sown in the riverbed or in nearby marshes during the rainy season (before arrival of the river waters), matures during inundation, and is harvested after the retreat of the river around the end of November or the beginning of December. Informants claim that the rice culture was a very important subsistence crop during the 1960s and 1970s but for two reasons the number of individuals presently cultivating it has fallen. First, there is less land suitable for rice cultivation than there was before, due to the river's reduced volume (and thus the cultivable areas inundated by its waters). Second, many farmers are said to have chosen to devote their efforts to pepper farming (there is a time/labor conflict with rice).

Of the 95 rice-cultivating individuals interviewed, half are women (who did not have direct access to pepper income). These women claim they are more likely to cultivate rice in years in which a millet harvest appears unlikely. They assert that they cultivated rice for consumption, not for sale.

(It should be mentioned that there is also considerable rice production in irrigated parcels, but it is cultivated during the dry/cold season)

Dry/cold season gardening:

1. Pepper

Pepper was introduced to the Kadzell from the urban centers of Nigeria in the 1950s. Commercial demand did not stimulate pepper cultivation as a cash crop until the 1980s. Pepper production now constitutes the desired occupation most able-bodied males resident in the region.

PEPPER FARMING: From start to finish, pepper production is an almost year-long enterprise. Seedbeds are generally sown around May, with the onset of the rains. Seedlings require about 40 to 50 days to mature. Ideal out-planting occurs in late July or early August (after the arrival of river waters), but this is often delayed because families are occupied with their millet fields. Availability of labor appears crucial at this juncture; the informants whose pepper-farming was most successful were those who had larger families (and who had divided them so as to work millet and pepper fields simultaneously).

After out-planting, fields are watered weekly from the river or nearby marsh. Until the 1980s, the device used to bring water to the field was the chadouf, a crane-like device employing a counter-balance, scooping water in a half-gourd. These have been almost entirely replaced by gasoline-powered motor-pumps. The preferred trademark is Yamaha. These pumps, their spare parts, and their fuel all come from Nigeria. They have been in the region long enough that most river basin villages are said to have one or more resident mechanic for repairs.

The benefits of fertilization are apparently well recognized. Almost 100% of informants claimed to fertilize their pepper fields once, about 55% claimed to do so two times or more. Informants unanimously claimed to prefer chemical fertilizers over manure; 20% claimed to use manure, but not to the exclusion of chemical fertilizer. Approximately 85% of informants claimed to have bought fertilizer from Nigeria.

Aphid infestation reportedly causes significant crop losses in certain years. Informants claim to seek recourse to chemical products distributed by Agriculture agents or sold in the local markets [poudre (HCH or lindane)]. The products are said to have a limited effect; this is attributed to products' insufficient quantity or unsystematized application.

Peppers take about five months to develop. In a good year, informants claim to reap between three and five harvests, which occur at two-week intervals. Aphid infestation and premature exhaustion of the water source frequently limit the number/size of harvests.

(For case-examples of pepper farmers, see Annex III for interviews).

VARIABLES: Informants cite a variety of factors which influence the success of pepper farming activities: access to a field with good soil and minimal infestation by invasive weeds; situation near a water source whose endurance ensures at least two or three harvests; employment of proper transplanting, watering, and fertilizing methods; degree of infestation by aphids; vigilance in guarding against goats; the age and maintenance of the motor-pump employed; price and availability of fuel and other accessories for the motor-pump; the terms of rental or ownership of pumps; whether expenses incurred are paid from available cash or from loans (which must be promptly repaid); expenses incurred during the transport of the harvest; distance from markets; and other commercial considerations.

TABLE 5
Pepper production calendar for the Komadougou River region (Zone IB) for 1991-92.

operations	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar
Nursery		X	X	X	X							
Labor				X	X							
Transplantation				X	X	X						
Irrigation				X	X	X	X	X	X	X	X	
Weeding					X	X	X	X				
Fertilization					X	X	X	X				
Treatment for insects								X	X			
Harvest								X	X	X	X	X

Source: Etude de la Filière du poivron de Diffa, Projet FIDA, 1992.

REVENUES: Of the 89 pepper-farming informants, 70% claim that pepper revenues are "indispensable" to their households in years during which insufficient cereal production compels them to buy grains. The other 30% claim that such revenues are not indispensable, but that they enable the informant to retain livestock or other assets that he would be obligated to liquidate without such income. Only in the region abutting the lakebed did informants claim millet is not the cereal most often purchased with their pepper proceeds. 27 informants claim corn is their cereal of choice, due to its greater availability and lower price. In mid-December of 1992, a 50 kg sack of corn in the Nigerian bordertown of Abadam was said to cost 200 Naira, whereas the same size sack of millet cost 250 Naira. Furthermore, informants claim that a sack of corn lasts longer than a sack of millet. After the purchase of cereals, pepper income is reportedly used in

marriage/religious ceremonies, to purchase clothing, and to buy animals (mostly small ruminants). The findings of another regional study (see table below) indicate that pepper sales constitute an important source of cash used to purchase cereals.

TABLE 6
1991-92 correlation of pepper sales with cereal purchases.

PERIOD	Cereal purchases		Pepper sales	
	No. of purchases	%	Total	Freq.
September	6	3,4	0	0
October	2	1,1	0	0
November	6	3,4	0	0
December	4	2,3	10	8,2
January	18	10,2	15	12,5
February	27	15,4	34	28,1
March	17	9,7	22	18,2
April	17	9,7	14	11,6
May	8	4,5	8	6,6
June	19	10,8	12	10
July	12	6,8	3	2,4
August	6	3,4	3	2,4

Source: Etude de la Filière du poivron de Diffa, Projet FIDA, 1992.

2. Secondary garden crops

OKRA: Okra is inter-cropped with pepper. It is sown in the channels which irrigate a pepper field. Except for sowing and harvesting, it is labor-free, since watering occurs incidentally when pepper is irrigated. Womens' access to this activity is generally said to depend on having male relatives who garden pepper. For 30% of woman informants with such access, okra was listed as an important source of income. This form of okra cultivation is said to have developed simultaneous to pepper gardening (since the mid-1980s).

Increased incidence of aphid infestation (of dry/cold season gardens) has a serious effect on okra production. Okra appears to be the first plant on which aphids alight. Having noted this, many farmers claim to have reduced the amount of okra they permit woman to sow in their pepper fields. Several men reasoned that "*okra attracts the aphids, and when they're done with it they jump onto the pepper.*" In other cases, women asserted that the first sign of aphid infestation would lead the pepper farmers to summarily tear out all the okra plants in hopes of routing the process. In certain areas of the Kadzell, both aphid infestation and the counter-measures with which it is met appear partly

responsible for wide variation in the annual production of okra.

ONIONS: Onions are said to be a traditional crop for Kadzell farmers, but they are not cultivated as often as pepper due to their lower profitability and higher labor requirements. Men farm onions in the same garden plots as pepper, but onions do not ripen fully until two or three months after pepper fields are normally abandoned. By such time (around April), water for irrigation is virtually non-existent apart from certain perennial springs and a guard must be kept against animals from sunrise to sunset. In addition, poor storage techniques and resultant spoilage of harvests which are stored further dissuade onion gardening. The event of the Ramadan fast in the middle of onion season during the past three years may also have had an influence on informants' unwillingness to engage in this activity. Approximately 75% of informants claimed they would cultivate onions (on a large scale, for sale) only in years of poor cereal and pepper harvests.

WHEAT: "*La culture de blé est...très ancienne.*"[68] More than half of all male informants claimed to cultivate wheat. Approximately 70% claimed that the amount of wheat cultivated is directly determined by the success of their cereal and pepper production. In the case of possible deficits of one or both, wheat becomes an important cash crop (little is consumed locally). Wheat is sown with the onset of cold season, usually around the beginning of November, and harvested about two and a half to three months later. It appears to have lost much of its importance to pepper because it is not as profitable. In addition, the labor requirements escalate (as with onions) due to wheat's late maturation date. More than half of the informants claimed to have lost at least one harvest during the preceding three years due to premature exhaustion of water resources at the end of the season. It appears, nonetheless, to be regarded as a second-choice cash crop after pepper.

CORIANDER: Coriander is gardened in the same manner and time period as wheat. Coriander is reportedly a cash crop grown exclusively for export to Nigeria. It is not cultivated as often as wheat because a large surface area must be sown to produce a marketable quantity and because coriander yields no crop residues (for animals) as does wheat. Only 5% of informants claim they sow coriander rather than wheat in years of poor cereal and pepper production. Approximately 80% of the informants who sow coriander claim to be motivated by news of high prices offered in Nigerian markets.

LEGUMES, <u>GORKO</u>, AND <u>CONTRE-SAISON</u>: Squash, cucumber, yam, tomato, <u>yallo</u> (a relative of eggplant), melon, and <u>gorko</u> appear

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68 ANONYME, <u>Notes sur les Populations de la Komadougou</u>, 1961

to be gardened primarily for household consumption. None of these is said to be a new crop in the region. All of these except yams are usually gardened by women, in a fashion similar to okra, peripheral to the main crop pepper. Recently introduced contre-saison items such as lettuce, carrots, and eggplant seem to be more widely produced in close proximity to Diffa and several larger Nigerian bordertown markets where there is commercial demand for them.

B. Herding

1. Mobeur

Before the droughts of 1968-75 and 1980-85, ownership of cows is said to have been common to all economic groups among the Mobeur. Large herds were kept in close proximity to river basin villages on a year-round basis. General impoverishment of the population, adverse environmental conditions, and changes in land-use patterns are said to have discouraged the reconstitution of such herds. Pasturelands were reduced by the effects of drought and an increase in agricultural activities (namely pepper farming) Simultaneous to these changes, the Komadougou River shrank, provoking the contraction of the greenbelt; many corridors giving access to water and riverbed vegetation were shut off. In lieu of these changes, it appears that Mobeur production systems in the Komadougou River zone have been adapted to favor agriculture over traditional herding practices.

a. Cattle

Presently, cattle ownership among the Mobeur appears to be limited to a minority. It is synonymous with an above-average degree of wealth/security. Approximately 25% of all informants claimed to own more than five cows. Of this group, more than half averred that they had owned these animals for more than 15 years (i.e. they were not sources of recent investment). For those who had purchased cows recently, such investment is said to be regarded as a long-term placement of capital; most such informants are of above-average wealth and claimed not to envision selling their cows as first recourse in the event of a food shortage in their households (other assets are available). Maintenance costs and/or labor for the upkeep of cattle has generally surpassed the capacity of the average family; pasture volume has been reduced and agricultural land increased, necessitating greater movement and supervision of cows, respectively. Families without a significant labor force are not capable of keep such animals, unless they are able to hire a guardian. Most Kadzell cow-owners do not supplement their animals' regimens as is practiced in the Mangari. Rather, animals are grazed in the riverbed pasturelands (after recession of the water) when pasture on the plain is exhausted.

b. Small ruminants

Approximately 75% of Kadzell informants claim to own more than five small ruminants, more than half of which are women. Informants claim to prefer small ruminants to cattle for numerous reasons: their modest price; the ease with which they are resold (even on the smallest markets); the animals' ability to subsist on a wide variety of pasture types (unlike cows); and the minimal investment necessary for their maintenance. Despite significant annual fluctuation in the price of small ruminants, informants universally find them more secure than retention of the Naira (the currency of exchange on the Kadzell).

Approximately 75% of woman informants claim that the majority of their personal wealth is invested in small ruminants (the other 25% invest in gold jewelry). Men generally claim to use their excess cash for speculation (stockage and resale of pepper) or investment (in working capital such as motorpumps, charettes,[69] etc.). As found for the Mangari, the sale of small ruminants by a woman appears to be more indicative of distress/economic hardship than such sale by a man. Men voice willingness to liquidate their small ruminant assets for the satisfaction of relatively mundane, non-urgent needs. Contrarily, women claim to regard investment in small ruminants as long-range and not to be liquidated except in a crisis situation.

2. Wodaabbé

The number of Wodaabbé herders migrating through the Kadzell each year depends on pasture conditions. The 20-year cycle of drought which has compelled other groups to change herd composition to favor small ruminants does not seem to have likewise affected the Wodaabbé. Of 34 Wodaabbé informants, 27 claim to own between 25 and 40 head of cattle (per nuclear family). Some of these informants claim to have a complement of sheep as well (the number sometimes exceeding the number of cattle), but they do not cite this as a recent development. Goats are not preferred because they tend to be more susceptible to diseases (of which there are many in the lakebed, where certain Wodaabbé spend a considerable part of each year). Wodaabbé retain their preference for cows, but indications are that the size of their cattle herds has changed; in 1980-81, the average number of cows in a Wodaabbé herd was estimated at 48, whereas in 1987 it was estimated to be 38.[70]

A high degree of mobility enables Wodaabbé to continue with herds consisting primarily of cows. Whereas the agro-pastoralist Fulani of the Mangari have selected to reduce mobility, supplement

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[69] a two-wheeled cart pulled by a donkey or two bulls

[70] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, Projet de Développement de l'Elevage dans le Niger Centre-Est (PDENCE), octobre, 1987, p. 80

Fulani of the Mangari have selected to reduce mobility, supplement the diets of their animals, convert part or all of their cattle to small ruminants, and increase non-herding activities, Wodaabbé select to increase movement and to maintain the integrity of their cattle herds. The Lake Chad basin is most commonly cited as their destination, having been so since the droughts of 1968-75 and the retreat of lake waters. Returning to the Kadzell is said to depend on annual changes in pasture conditions. Progressive diminution of preferred pasture species and restricted access to water (and consequent conflicts with Mobeur farmers) as additional reasons for this decision.

C. Natural resources

1. Gathering

Informants claim that wild fruits and grains have become scarce (disappeared in some cases) since the end of the 1968-75 droughts. Before that time, such natural resources are said to have provided an important source of food security in the event of cereal shortfall. What is most commonly collected today is said to be limited to fruits of the *Tamarindus indica*, *Ziziphus spina-cristi*, *Hyphaena thebaica*, *Balanites aegyptiaca*, *Boscia senegalensis*, and *Diospyros mespiliformis*. For the general population, their role in alimentation is described as "negligible" at present. With regard to specific groups, however, such as elderly women, such natural resources can represent up to 50% of annual consumption/income needs.

2. Fishing

Fishing activities are said to have been in decline since the 1970s. Approximately 95% of informants fish at some time during the year. Although none claims that such activity constitutes an important source of revenue, it does contribute protein to the diet. For many families, meat is a rare luxury consumed once or twice a year at ceremonies; otherwise, their only source of protein comes from fish. Fresh fish is available only during a few months of every year, but a significant proportion of the total catch is dried and subsequently added to sauces (providing some protein when fresh fish is unavailable).

D. Craft

Nattes:

The weaving of nattes for sale is said to have begun during the past 15 years. Approximately 70% of Mobeur informants claimed to derive some part of their annual income from nattes. Of these informants, the elderly (men and women) tend to attach the most

importance to this activity. Some of them claim to satisfy up to 40% of their total consumption/income needs from this activity alone. Younger and more able-bodied informants engage in natte-weaving more sporadically (during sieste, the evening, or the month of the Ramadan),[71] when alternate activities are not so numerous. The income is much less important for these individuals.

Basketry and cordage:

Basketry is a woman's activity which is not said to be of recent origin. It appears to be much less practiced than natte-weaving, except within close proximity to Diffa (where there is commercial demand). Weaving of cordage is said to be a traditional activity of elderly men, most often those who are blind and cannot weave nattes.

E. Seasonal migration

The Lake Chad basin is said to be the destination of most seasonal migrants from the Kadzell. The rate of seasonal migration appears to have fallen over the past 5 to 10 years due to the concomitant decrease in lakebed farming/fishing activities and increase in Kadzell pepper gardening. The economic incentive of pepper farming has reportedly persuaded many former migrants to remain in their villages on the Kadzell. Alternatively, erstwhile farming and fishing activities in the lakebed are no longer possible except at greater distances (in Nigeria or Chad).

Fewer than 25% of male informants on the Kadzell claimed to have migrated at some time during the preceding five years. These individuals were between the ages of 16 and 41. The primary reason given for migration was their inability to engage in pepper gardening (lack of capital or land access). A report published in mid-1992 estimated that only 4% of Kadzell residents are involved in seasonal migration.[72]

For those who migrated, the Lake Chad basin is the destination of choice. Farming and fishing are the activities engaged in. Farming is of beans and/or corn. Beans are most frequently said to be sold, whereas corn is often taken back to the home village for consumption. Those who do not secure fields claim to hire themselves out as laborers in others' fields. Fishing is said to be non-existent since the retreat of lakewaters (following a tentative return in 1988-89). Farming activities have suffered from this same retreat. Decimation of the bean crop by

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[71] an annual 30-day fast prescribed by Islam

[72] ISSOUF, Bayard, DJIRAEY, Aboubacar, Etude Socio-Economique et Institutionelle de la Zone 1B de SDDR, Projet d'Appui au Developpement Agricole du Departement de Diffa (PADADD), septembre, 1992, p. 15

insects for two successive seasons has also discouraged potential farmers in the region.

THE LAKEBED

A. Agriculture

Rainy season farming:

Millet is the primary rainy season crop in the lakebed. The variety (called Boudouma for the people who introduced it) is a hybrid which is said to mature in about 40 days. As on the Kadzell, it appears that residents' primary response to falling production has been to increase the surface area cultivated.

Dry/cold season farming:

Dry/cold season agriculture in the lakebed differs from that on the Kadzell in that it entails no irrigation. Except for some pocket-watering to aid seed germination, crops depend entirely on soil humidity. Agriculture represents a recent development in the evolution of the region. Historically, local populations are said to have farmed only cursorily, the Mobeur living primarily from fishing and the Boudouma from herding.

1. Sorghum

Sorghum is said to have been the principle crop of lakebed Mobeur until the 1980s. Susceptibility to ravage by birds is cited as the primary reason for why it was rapidly abandoned after the introduction of corn. Informants claimed that corn was introduced by the migrant Hausa, Manga, and Fulani who arrived in the area in the 1980s (during the droughts). Introduction of the wheat and beans which contribute to the "polyculture" of the zone today are also attributed to these populations.

2. Corn

Corn has reportedly replaced sorghum as the subsistence crop of choice. There exist a 90-day and 4-month variety. Both are sown during the cold season, after work in the millet fields is finished. That corn is impervious to birds enables farmers to devote themselves to other crops in the time which used to be spent guarding sorghum. It appears that most of the corn produced is consumed in the households of the farmers; all of the 35 individuals interviewed claimed to consume at least 50% of their harvests.

3. Wheat and barley

The variety of wheat found in the area of study is said to ripen within 50 to 60 days, the variety of barley in fewer than 45 days. Both are generally sown around the end of January. Cultivation of these crops is said to be of secondary importance (after corn and beans). Informants claim that both wheat and barley are cash crops; a small amount is consumed on ceremonial occasions. All informants claim to sell more than 50% of their harvests. A major drawback of these crops is said to be their susceptibility to attack by birds. Informants generally stated that, because wheat and barley need more water than corn or beans, they have been more immediately affected by the progressive drying out of the region.

4. Beans

Although insect infestation has reportedly severely reduced harvests over the past several years, beans are said to constitute the most important cash crop raised in the area. Beans are generally sown around the end of February in the humid, low-lying areas. Harvest ideally occurs before arrival of the rains and re-inundation of the depression. All male informants who farm claim to consider beans their most important source of cash income. The commercial demand for beans (from Nigeria) which has spurred its cultivation as a cash crop is said to have developed during the mid-1980s. Reduction of bean harvests is attributed primarily to insect infestation, secondarily to drying out of the lakebed (blamed partly on a diversion of the Komadougou River by Nigerians).

TABLE 7
Lake Chad basin agricultural calendar for 1990.

TYPE OF CULTURE	Jan	F	M	A	M	J	J	A	S	O	N	D
millet (rain)					^^	^^	--	--	••			
corn (humidity)	--	--	--	••	••					^^	^^	
wheat/barley (hum.)		--	--••	••						^^	^^	
beans (hum.)		--	--	--		••	••					

Source: Etude Socio-economique des Espaces Riverains du Lac Tchad, Niamey, 1990.

^^ = preparation of field
-- = weeding and other maintenance
•• = harvest

B. Herding

1. Mobeur

Lakebed Mobeur appear to have fewer animals than Mobeur on the Kadzell. The reason most often given for this phenomenon is that, until 20 years ago, production systems of lakebed Mobeur were

based on fishing. Animal husbandry appears to be based almost entirely on small ruminants. As on the Kadzell, a greater percentage of women than men owns these animals. Informants give approximately the same responses for why goats are preferred: their modest price, easy resale, their ability to subsist on various pasture types, etc. Also as on the Kadzell, women appear to invest a greater proportion of their personal wealth in small ruminants than do men, and to be less willing to liquidate such assets in non-crisis situations.

2. Boudouma and Bokologi (Fulani)

Boudouma are agro-pastoralists, said to live in a manner similar to the Fulbé, cultivating during the rainy season and herding cows (species Kouri). Their presence on Nigerien territory is usually limited to the rainy season, since their cows prefer green fodder. Otherwise, since the 1970s, they are said to follow the retreating lakewaters into Chad and Nigeria. Information on this population is lacking.

Bokologi are pastoralist Fulani (like the Wodaabbé). They herd cows (species Zebou), often with a significant complement of sheep. Their presence on Nigerien territory is said to date from the retreat of lakewaters, when they came from Cameroon. Their cohabitation in and around the agricultural zone of sedentary populations reportedly gives rise to frequent disputes over passage rights and crop damage.

Other pastoralist and agro-pastoralist groups sometimes found on Nigerien territory (but not covered by this study) in the lakebed include Kanembou, Sougourti, Jetko, Toubou, Arab, and Ouda (Fulani sub-group).

C. Natural resources

1. Gathering

Little of the flora found in the lakebed is said to be harvested for consumption or sale.

2. Fishing

From approximately the 1920s until the droughts of 1968-75, fishing is said to have constituted the primary source of livelihood for Mobeur populations near the lakebed. Since then, lakewaters have retreat entirely from Nigerien territory.

D. Craft

The variety of handicrafts exhibited by Kadzell Mobeur appears

almost entirely absent among lakebed Mobeur. Informants explain that this is because their traditional handicrafts, such as fabrication of canoes and the various trapping and preparatory implements that were integral to the fishing culture, are no longer relevant.

E. Seasonal migration

In the mid-1980s, the lakebed attracted immigrants. Farming and fishing are said to have flourished in the wake of receding lake waters. Some of this migrant population settled permanently in the area. Until very recently, it is said that no one considered migrating out of this area. It appears that two factors have changed this; continued retreat of lakewaters have rendered farming and fishing progressively less productive and the bean crop (on which the majority of residents depend) has been destroyed by insects for three consecutive years. Approximately 60% of informants claim that these factors are responsible for the new phenomenon of young mens' seasonal migration out of the area. A group of elders claimed, "*if this year is like the past three (e.g. failure of the bean crop), we'll leave too.*" Despite the fact that their subsistence needs are satisfied, informants generally perceive of their fortunes as greatly diminished, citing that in their own lifetimes, they were first a fishermen and then cultivators (of sugarcane, yams, fruit trees, and other tropical crops); both of these ways of living have disappeared. They express the point of view that "*we used to have things to do all year-round--now we just get by.*" Most individuals who migrate from the area claim to go southwest to a site called Shimowa (Nigeria), where the presence of lake waters permits farming and fishing.

As regards populations of the lakebed lands, displacement and/or migration should perhaps not be regarded as a new or especially traumatic phenomenon. Constantly changing water levels and farming/fishing/grazing conditions always necessitated a certain degree of mobility. The fact that some informants consider their possible displacement with such displeasure is perhaps because they had recently (5-40 years) become more accustomed to a more sedentary existence.

III.

Domestic and cross-border trade

Food security on the Kadzell and in the lakebed region appear to be based on trade with Nigeria. Agricultural products constitute the primary medium of exchange in this trade.

TABLE 8

Conversion of CFA to Naira	
1991 to beginning of 1992	1,000 FCFA = 55 N
most of 1992	1,000 FCFA = 80 N

THE KADZELL

A. Agriculture

Rainy season products

1. Millet

Most millet found on the Kadzell is said to be imported from Nigeria. Despite occasional ruptures in this supply, 144 of the total 163 informants on the Kadzell assert that it constitutes their assurance of food security; *"in most years, if it weren't for Nigerian imports, we couldn't stay here--what do you see here that we can eat?"* Millet appears to be imported to the Kadzell in one of three general fashions: in bulk by farmers and traders who buy in the Nigerian interior; in medium quantities (two to four sacks) by farmers who buy in Nigerian bordertowns; and in small quantity (less than one sack) by individuals who buy in bordertown markets.

BULK IMPORTATION: Of the 12 large-scale buyers interviewed, 7 claim to import millet for both their own consumption and for sale. The point of purchase is reportedly most often a city in the Nigerian interior, usually Maiduguri. Of the 12 bulk-buyers interviewed, 10 are pepper farmers (as opposed to professional grain merchants). All 10 claim that the sale of their peppers constitutes the primary source of cash with which they purchase millet. They enumerate two distinct strategies which they employ in these transactions. First, they try to place their peppers on

the market as soon as possible (often selling fresh pepper) to take advantage of high pepper prices at the outset of the season and to buy millet at the earliest opportunity (when prices were lowest). Second, they group together with others to rent a vehicle, transport the pepper to the Nigerian interior (where demand is higher than on the border), make the sale, purchase millet, and return with it. Once back on the Kadzell, their actions cease to be concerted. Some individuals claim to stock millet and await price increases before selling, whereas others sell immediately.

MEDIUM-QUANTITY IMPORTATION: Medium-range millet buyers are those importing about two to four sacks. Of the 38 such individuals interviewed, all claim to be consumers of what they import (not resalers). To raise the cash to make these purchases, all claim to have sold pepper. All claim that pepper sales constitute the primary source of cash with which they make their millet purchases. 11 of these sales were in Niger, 27 in Nigeria. All but 5 of these individuals buy their millet in a bordertown market of Nigeria, not judging the small amount bought to justify the expense of a trip to an interior city. These transactions are notably more individualized than those conducted by bulk-buyers. No informant claims to have grouped together with other medium-range buyers in the process of selling pepper or buying millet. Some of these individuals appear to be no less economically well-off than the large-scale millet buyers, but various constraints (need to stay in the field, lack of knowledge of commercial circuits, etc.) prevent their employing a bulk-purchasing strategy.

SMALL-QUANTITY IMPORTATION: Small-scale millet buyers are those who buy a sack or less at a time. 75 of the informants claimed to buy millet in this fashion. Of these individuals, 24 claim to be both consumers and resalers, whereas 51 claim to be exclusively consumers. Of the all the informants in this small-quantity category, 58 are women (more than half of these are widows or divorcées). Only 11 of these informants claim that the sale of pepper constitutes the primary source of income with which millet is purchased. Income generated from the sale of <u>nattes</u>, basketry, small ruminants, gathered fruits/grains, and items of first necessity is said to furnish an important percentage of the cash used for such grain purchases. Their strategy is to buy millet in a Nigerian bordertown market. The purchase of millet does not so often constitute the primary reason for their trip to market as it coincides with their small-scale commercial activities (sale of sauce items, cola nuts, nattes, etc.). For both economic and logistical reasons, the quantity of millet purchased reportedly does not usually exceed the quarter sack (12.5 kilograms); money is not available to buy a larger quantity, and the purchase is often returned to the village atop the purchaser's head. Some of this millet is said to be resold by the measure (<u>tasse</u>) in local markets of the Kadzell.

These are the three most commonly described methods by which millet is said to be to be imported to and distributed throughout the Kadzell. There are numerous others, but the dynamic appears to be essentially the same; the source of millet imports is Nigeria and the means of exchange is usually pepper (with the exception of small-scale buyers).

There appears to be a small quantity of locally produced millet which is commercialized on the Kadzell. Of the 163 individuals interviewed, 23 claim to have sold a part of their millet harvests at some time during the preceding four years (for two of these years there was no harvest). All of these individuals are pepper farmers who claimed that cash-flow problems are what motivate such millet sales (this sale furnishes cash with which they purchase fuel, fertilizer, or motor-pump parts). They claim to prefer selling millet rather than taking a loan, even though they know they will be compelled to subsequently repurchase cereals at higher prices.

2. Beans

Commercialization of beans on the Kadzell is said to be most important in the region to the southwest of Diffa. Approximately 20% of the informants from this particular part of the Kadzell claim that beans constitute their second most important source of cash with which they purchased cereals (the first is pepper). Bean farmers claim to stock their harvests (to await high prices) if their situations permit. Stockage entails burying the beans in an unlined subterranean chamber which is sealed with compacted soil; this method of stockage is said to suffocate the insects harvested with the beans and to prevent others from gaining access. Informants agree that Diffa is the market of choice for sales by the measure (tasse), whereas bulk sales (exceeding one 50-kg sack) are generally taken to Nigerian bordertowns. A significant number of these farmers claim that beans smuggled to Nigeria are subject to confiscation by Nigerien douaniers.

During the 1991-92 season, beans reportedly sold for 20 Naira per tasse on the Diffa market (400 Naira per 50-kilogram sack). The price was said to have increased to 30 Naira per tasse (600 Naira per sack) during the hot season. In February of 1993, the price was said to have fallen to 20 Naira per tasse due to the influx of newly harvest beans from the 1992-93 season.

3. Rice

Of the 95 informants claiming to cultivate rice, 67 claim to sell a portion of it. Approximately 70% of these individuals claim to use the proceeds to buy millet. Between millet and rice, the former is said to be the preferred foodstuff for daily consumption for two reasons; an acquired taste preference and because a sack of millet lasts longer than a sack of rice (rice commercialized in

this region is unhulled). Of the informants who sold some of their rice, approximately 80% claim to have sold it in a bordertown in Nigeria, the others at a market on the Kadzell. The price is usually about the same for a sack of rice and a sack of millet, the latter costing several hundred francs more at times.

In the Diffa market, it is reported that rice sold for 10 Naira per tasse and 200 Naira for the sack (50 kg) at its least expensive during the 1991-92 season. The price is said to have risen to 15 Naira per tasse and 300 Naira per sack at its most expensive. In February of 1993, it is reported that the tasse is sold for 14 Naira and the sack at 300 Naira.

Dry/cold season crops

1. Pepper

Pepper sales appear to provide the singlemost important source of cash income for Kadzell farmers. Pepper is sold both fresh and dried.

On the part of the Kadzell between Diffa and Mainé-Soroa, a significant amount of fresh pepper is commercialized. These sales are the first of the season (November-December), taking advantage of high prices offered on a starved market. Farmers sell this pepper in 50-kilogram-size sacks. Transport and sale of fresh pepper must be relatively rapid, as the fruit begins to spoil after two or three days. The destination of all such fresh pepper is said to be the urban centers of Nigeria; no informant was encountered claiming to sell fresh pepper (in bulk) in Niger. Approximately 85% of informants claiming to sell fresh pepper say that the sale occurred in a Nigerian bordertown (the rest sold to Nigerian traders directly in the field). Both the risk of spoilage and the volatility of the market seem to discourage most farmers from attempting to take their products to the terminal markets in the Nigerian interior. The price for such pepper falls rapidly after the first few harvests, when the market is glutted. All such pepper is said to be destined for Maiduguri, Kano, or Lagos.

Pepper which is dried, stocked, and sold between six and ten months after the harvest generally brings a better price than that which is sold fresh. However, the advantage of selling fresh pepper in November-December, even while profits are not quite as good as for dried pepper sold later, is that November-December is a time of relatively low millet prices. Most informants reasoned that the higher profits to be gained by drying and stocking for six to ten months would be largely nullified by increases in millet prices over the same period. Consequently, they preferred to sell fresh pepper so as to buy millet immediately.

The vast majority of all pepper which is commercialized is not fresh, but rather dried. It is sold in 50-kilogram-size sacks

which weigh approximately 17 kilograms when full. The majority of all pepper produced in Diffa Department appears to be exported to Nigeria, an inferior quantity being sent to urban centers of Niger.

Sale in Nigeria:

The commercialization of dried pepper in Nigeria is said to benefit from a better transport and storage infrastructure than exists in Niger. Informants claim that this, in addition to a reduced incidence or amount of taxation is crucial in persuading them to sell in Nigeria rather than Niger. In addition, informants claim that there is never a time at which Nigerian markets are not receptive to pepper, whereas Nigerien demand is said to fluctuate. Of the 89 pepper-cultivating informants, all claim to sell at least a part of their harvest (fresh and/or dried) in Nigeria.

Sale in Niger:

Approximately 70% of pepper-cultivating informants claim to have sold a proportion of their harvests in Niger at some time during the preceding three years. If this pepper is bound for western markets in the Nigerien interior, it is often sold at a roadside station at which pepper is collected. These stations constitute a place where local and in-coming commerçants place orders for pepper. The individual in charge of such a station (dilali) in turn buys pepper from farmers (who bring it to the station) to fill the order. Informants claim that the price offered at these stations is often ten or twenty Naira higher than that offered in bordertowns of Nigeria. These stations are said to have developed beginning in the mid-1980s. Most are located on the paved Route Nationale. The three largest of these collection stations are said to have a maximum turn-over of 300 to 400 sacks of pepper weekly during peak season.[73]

Aside from pepper which enters Nigerien markets through stations, a smaller percentage is bought directly from farmers in their fields. It appears that these buyers are usually Diffa commerçants, who send their representatives to scour the production zone in pick-up trucks. Pepper thus bought is usually transported to Diffa for stockage or for transfer to a larger vehicle for shipping west.

In addition to large-scale transactions of the kind detailed above, there are small-scale sales on local markets. Peppers are sold by the measure (tasse) throughout the region, to be used in

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[73] HAROUNA, Koré, ABDOULHADI, Hamit, Etude de la Filière de Poivron de Diffa, Fonds International pour le Développement Agricole (FIDA), Niamey, août, 1992, p. 65

sauce preparation. Sale in this fashion is said to be a woman's occupation (men sell in bulk). Many of these peppers are said to be those which the woman/seller earns by participating in harvesting and de-stemming labors, and which they stock until price increases favor such piecemeal sale.

The Nigerien market for pepper is said to be based primarily on demand from urban centers such as Niamey, Maradi, and Zinder. Pepper is produced in the areas surrounding these centers, but ostensibly not in sufficient quantity to satisfy existing demand; "*la production des 3 regions est inférieure de Diffa. Elle ne couvre pas leurs besoins compte tenu de l'importance de la démande urbaine.*"[74] Despite this demand, however, most informants claim to prefer exporting to Nigeria for the relative ease of transport and lower incidence of "unreasonable" taxation.

2. Okra

Okra is a woman's crop. Depending on the amount needed for home-consumption, a woman may conclude the season with a surplus. Of the 74 women informants on the Kadzell, 44 claim to cultivate okra. Of these women, 18 claim to have concluded at least one of the past three seasons with two or more sacks (50 kg-size) of surplus okra. Five of these women sold the surplus immediately, whereas 13 stocked theirs for several months until price increases beginning around April or May. Those who stocked their surplus claimed to have sold at least one sack by the measure (tasse) in local markets on the Kadzell. Bulk sales are usually in bordertowns of Nigeria.

In the 1991-92 season, the price of okra is said to have been 15 Naira per tasse and 300 Naira for a sack (50 kg size, not weight). This is said to have risen to 400 Naira per sack during the most expensive period. This season, when okra was least expensive, it was reportedly sold for 20 Naira per tasse and 400 Naira per sack. The price is said to have risen subsequently to a maximum of 25 Naira per tasse and 500 Naira per sack.

3. Onions

Of the 89 cultivators interviewed, 38 claim to produce onions. Approximately 65% aver that they concluded at least one of the past three seasons with a surplus which they commercialized. Approximately 85% say they had stocked their harvests to await price increases beginning around April or May, whereas 15% claim to have sold their harvests immediately. Out of the 27 individuals who commercialized their onions, 24 claim to have done so in a

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[74] HAROUNA, Koré, ABDOULHADI, Hamit, Etude de la Filière de Poivron de Diffa, Fonds International pour le Développement Agricole (FIDA), Niamey, août, 1992, p. 82

bordertown market in Nigeria. The remaining three, all of whom live within 15 kilometers of Diffa, sold their onions on the market there.

In the 1991-92 season, onions were reportedly sold for 60 Naira per sack (50 kg) when least expensive and 300 Naira at their most expensive. In February of 1993, the first onions entering the market from the new harvest have brought prices down to 80 Naira per sack.

4. Wheat

Most of the wheat produced on the Kadzell appears to be exported to Nigeria. Of the 56 wheat farmers interviewed, 95% claim to sell more than 50% of their annual harvests in a Nigerian bordertown. Farmers who harvest first sell quickly, taking advantage of the high prices offered by a starved market in much the same fashion as occurs with fresh peppers. After this initial period, informants claimed that their particular demands (loans to repay, ceremonies to be held, etc.) determine whether or not they stock harvests until price increases or sell immediately (at low prices). Approximately 80% of informants assert that they had to sell at least a part of their wheat immediately after harvest. The price curve for wheat appears to parallel that for pepper, increasing during or after the rainy season and continuing to rise until the subsequent harvest.

During the rainy season of 1992, it is reported that wheat prices in the Diffa market rose to 20 Naira per tasse and 400 Naira for the sack (50 kg). As of February, 1993, these prices remain in effect because the season in progress has not yet yielded the harvest. It should be mentioned that although these prices were quoted, no wheat is actually available for sale; Nigerian traders were said to have bought it all.

5. Coriander

The case for coriander is almost identical to that of wheat. The majority of all coriander produced on the Kadzell appears to be exported to Nigeria. All of the 22 coriander-producing informants, all claim to sell their harvests in Nigerian bordertown markets. Whether or not these individuals stock their harvests until price increases depends on roughly the same factors which determine wheat stockage. It should be mentioned that many individuals who cultivate coriander abstain from wheat cultivation (and vice-versa) because the timing and labor requirements are identical.

6. Legumes, gorko, and Contre-saison

The proclivity with which squash, cucumber, yam, tomato,

yallo,[75] and mellon are commercialized appears to be related to the proximity of the producer to a large market (i.e. a village of 2,000 or more inhabitants). Of the 163 Kadzell informants, 147 claim to cultivate at least one of these crops, but only 78 consider that it is responsible for more than 20% of his or her total annual income. Of these 78 individuals, more than half are women.

Tomatoes (dried), squash, and yam are often said to be stocked to await price increases before they are sold. Cucumber and yallo must be sold immediately in fresh form. Gorko, a berry which is used by women to dye their teeth red, must also be sold in its fresh form. In no case did an informant claim to sell any of these items in bulk. Among the individuals interviewed, these items are most often to be found for sale among various others commodities (nattes, roasted peanuts, sauce items, small measures of millet, etc.). Their sale is not said to constitute the primary objective of the seller's trip to market, but rather one among several.

Contre-saison items lettuce, carrots, and eggplants are commercialized with much greater frequency near larger towns. The first of these products usually appears on the market in Diffa sometime in December. Excessive supply soon thereafter leads to a rapid decrease in prices offered. In the Diffa market, many of these contre-saison items are not commercialized by the cultivators, but rather by resalers. Supply of such produce does not exceed three or four months out of every year.

B. Animal commerce

The commerce of animals and animal products does not appear to have the same importance among economic activities of Kadzell residents as it does those of the Mangari. This may be partially explained by the fact that the Kadzell is a predominantly agricultural zone, whereas the Mangari is in large part pastoral.

1. Cattle

Purchase. Of the 18 cattle-buying informants, 15 claim Nigerian bordertown markets are their first choice for purchases (due to selection and proximity). All of these informants claim that pepper commercialization constitutes the primary source of the income with which they purchase these animals. Cattle thus bought in Nigeria are usually smuggled back to the village to avoid customs dues. All informants claim to have returned the purchased animals on the hoof, not in motorized vehicles, using the services of a family to herd them or paying a small fee to

[75] a vegetable similar to an eggplant, which is eaten uncooked

trekkers. For these informants, cattle represent the preferred form of long-term savings.

Sale. Of the 197 informants (Mobeur and Wodaabbé), 63 claim to have sold cattle at some time within the preceding three years. A bordertown market in Nigeria is the stated forum of choice for all but 7 of these informants. (It should be noted that many Kadzell markets conduct cattle transactions only in the rainy season; that this study was conducted during the dry/cold season may lend undue importance to Nigerian markets). Cattle sales are said to be conducted through the offices of a middleman (dilalma in Kanouri). Approximately 80% of informants claim to accompany their animals to the market of sale before relinquishing them to the dilalma. Only 20% say they entrust their cows to a dilalma to take from the village, sell at market, and bring back cash. Notably, these were all Mobeur, who knew and trusted their dilalma.

A small incidence of cattle sales involves local butchers. All of the 31 individuals who claim to have made such a sale during the preceding 3 years said it was compulsory, invariably involving animals which were sick or dying. Such animals were reportedly sold to the butcher at between one-third and one-quarter of the price they would have brought if healthy and sold on the open market. Sales to butchers are a means of avoiding total loss.

2. Small ruminants

Of the 197 Kadzell residents interviewed (Mobeur and Wodaabbé), 132 claim to own small ruminants and to have commercialized them at some time during the preceding three years. Roughly three-quarters of these individuals claimed that goats rather than sheep are preferred. Of these informants, 72 are women, 60 are men.

Purchase and sale. Goats are found in every market in the region. Men and women of all age groups are involved in their commercialization (although the market transaction itself is conducted exclusively by men). It appears that the economic importance attributed to small ruminant commercialization is greater among individuals without direct access to pepper income. Naturally, this means most women. Of such women informants, 38 are widows or divorcées. The majority considers that the capital invested in such animals represents their most important source of financial liquidity in times of economic stress. Of the 72 women, 66 say that they would weave nattes, sell gathered fruits/berries, conduct small-scale resale, and prepare snack foods before animal assets would be parted with. It would be the sale of the last goat that many of these women claim would mark them as "truly destitute." Most animal sales by women in this sample group are said to occur in the hot and rainy season (April-September), when animal prices are lowest and millet prices at their highest.

C. Craft

Nattes

Of the 163 Kadzell informants, 121 claim to weave nattes for sale (69 women and 52 men). In this group, the economic importance attributed to natte sales is said to depend on individuals' access to pepper income. Of the women, about half are married to a pepper farmer, but say pepper income is administered by their husbands. Natte sales provide these women with a source of personal income. Hot season is the time of most natte-weaving and sale, as the number of alternate activities is most reduced in this period. Except for a limited incidence of bulk sales in the Diffa market, commercialization of nattes on the Kadzell appears to be almost invariably piecemeal. The majority of informants claimed to sell their nattes as soon as they were completed. They express that they weave and sell nattes to satisfy immediate needs, not stocking them to await higher demand during the rainy season. Nattes are sold in every market in the region (Nigerien and Nigerian). They are said to be taken to market usually as an incidental item for sale along with the seller's "main line" of goods. The sale of a natte does not usually constitute an individual's primary reason for attending the market. Nattes made by the handicapped or infirm are confided to a relative or friend to sell when he or she attends the market.

A man's or woman's natte (the most simple variety) is said to entail between one and two weeks of work, depending on the weaver's skill. One such natte cost 15 Naira one year ago. The price has subsequently risen to 20 or 25 Naira.

D. Small scale drygoods commerce

Small-scale commerce of items of "first necessity" is engaged in by men and women of almost all age-groups (newly married women being the only exception). Following are three example cases which may be considered ubiquitous:

> The informant is a married Mobeur woman of approximately 53 years of age, resident in a river basin village. Her husband is a farmer of millet and rice (he weaves nattes in the off-season). They have two dependents (an unmarried daughter and a granddaughter). The informant owns 12 goats (her husband owns one donkey). When she is not assisting her husband in their fields or attending her okra (in a son's irrigated field), she weaves nattes and engages in small-scale commerce. This commerce consists of the sale of vegetable oil in the home

(daily) and the sale of sauce condiments and nattes in the village market (weekly). She buys the oil from a Nigerian market 15 kilometers away. There are at least three other women who sell oil thusly from their homes in the same village. She claims to sell at least one 18-liter can of oil every week or two, rendering a profit of between 20 and 30 Naira (per can). She began this commerce three years ago. In addition, she attends the weekly market in her village, selling sauce condiments, nattes (which she has woven), and sometimes millet or rice by the measure. She claims that she is not entirely content with the modesty of the benefits accrued by her commercial activities, but that her involvement in various household and agricultural tasks limits the time which she might otherwise devote to them.

The informant is a married Mobeur man of approximately 32 years of age, resident in a river basin village. He cultivates millet, pepper, and wheat (he co-owns the motor-pump with his father). He owns 7 goats, 8 sheep, and 1 horse. His wife is his only dependant. She aids him in their fields, owns 5 goats, and weaves "nattes" in her spare time. He engages in small-scale commerce on a year-round basis. He sells sugar, tea, cola nuts, biscuits, plastic shoes, cloth, safety pins, batteries, soap, mirrors, razor-blades, and assorted other items. He attends three markets regularly; one in Nigeria (15 kilometers away) to buy his products, one in the pastoral zone (60 kilometers away) to sell, and that in his home-village to sell. On a daily basis, all of the abovementioned items are sold from his home. He started this commerce during the past 5 years with income from pepper farming. He aspires to begin trading in millet, which he says is high lucrative. He notes the fact that his father and wife guard the pepper and millet fields during his absence at markets is an important factor in his continued involvement in commerce.

The informant is an unmarried Mobeur boy of 16, resident in a river basin village. He participates in millet cultivation in his family's field. He cultivates pepper with one older brother. He owns no animals. He has no dependents. He used profits from the previous season's pepper farming activities to buy soap, detergent, plastic shoes, biscuits, matches, and cigarettes (these products are generally of a quality and quantity inferior to those in the above example). He restocks his

products at a Nigerian market 15 kilometers away. He sells his goods in his village's weekly market. He claims to store his goods during non-market days (not selling out of his home as in the above example). Unlike the above informant, this individual claimed that his commerce did not contribute significantly to his total annual income. Nonetheless, he aspired to expand the trade. Notably, he asserted that this expansion would rely more on infusions of capital generated by his agricultural activities than by the commerce itself. He claimed that the profit margin for such small-scale and sporadic commerce was too small to permit the rapid expansion to which he aspired.

THE LAKEBED

A. Agriculture

Rainy season crops

Millet

Of 47 informants from the lakebed region, 44 express that the commercialization of millet is not important. All of these individuals claim to consume most or all of the millet they produce.

Dry/cold season crops

1. Rice

Rice was introduced to the lakebed area around Mamouri only in the past decade, but informants claim that the crop is in recession due to the diversion of the Komadougou River. Of the 6 individuals who claim to continue cultivating rice, 5 say they sold more than half of their total production to raise cash. Following is an example case:

> The informant is a 25 year-old Mobeur male. He farms with one older brother. Their household includes three others who are dependant on them. Despite having cultivated, they reaped neither millet nor beans. Their total production for the 1991-92 year consisted of 30 sacks (50 kg.) or corn and 10 sacks (also 50 kg.) of rice. They reserved all of the corn for their subsistence needs. The rice was sold to raise cash. They sold eight of the ten sacks total. They sold this rice at Malam Fatori, a large Nigerian bordertown market about 3 kms from their

village. The entire amount was sold over a two-month period (soon after harvest). They transported the rice on donkey-back and avoid customs officials. The informant asserted that the income generated by these sales was applied primarily to expenses incurred by ceremonies and the purchase of clothing.

2. Corn

All of the 47 individuals interviewed in the lakebed area claimed that corn was their most important subsistence crop. Whether or not these individuals commercialize a portion of their harvests appears to depend on their involvement in alternate farming activities (rice, beans, or wheat, primarily). None of the individuals claiming to harvest only corn claimed to sell more than 25% of the total production. The point of sale is almost invariably said to be the large Nigerian market of Malam Fatori. Only 7 of the total 47 individuals claimed to have sold corn in Nigerien markets at Bosso (4 kms away) or Gadira (35 kms away).

3. Beans

Income derived from bean sales has reportedly dropped drastically during the past three years, due to devastation of the crop by insects. During the last 1980s, the sale of beans is said to have constituted the most important source of household revenue (see diagram in Annex III).

4. Wheat

Approximately 20% of informants claim to sell some of the wheat they harvest. All of these individuals claim to sell at least half of their total harvests. The large Nigerian bordertown of Malam Fatori is invariably the point of sale. Most of these informants claim to make these sales soon after harvest (particularly in the last three years, due to the need for cash in the absence of bean income).

B. Animals

1. Cattle and camels

Of the 47 informants interviewed in the lakebed, 5 claim that marketing of cattle and camels constitutes an important part of their annual incomes. All are resident in the village of Gadira (on the Chadien border), which hosts an important animal market. None of these informants claims to own the animals in which he trades; all are middlemen. None claims to have traded for more than five years. All claim to have resorted to animal commerce since the loss of their own animals in the droughts of 1968-75 and/or 1980-85. Three of these informants are Toubou, former pure

pastoralists; two are Sougourti, former agro-pastoralists. All claim that commerce in cattle and camels is a year-round occupation. As concerns cattle, the species bought and sold is Kouri (raised by the Boudouma). It is often brought from the lakebed interior in Chad. There is no agreement on who most frequently buys these, whether traders from Nigeria or other Boudouma herders. Camels which are traded are said to come from the northern pastoral zones (Nigerien and Chadien) as well as the lakebed interior (Chadien). Most are allegedly bought by traders from the south. It is said that a significant percentage of animals sold in the market at Gadira had been stolen (and brought to market here because administrative authority in the area is virtually non-existent).

2. Small ruminants

Of the 47 informants from the lakebed, 36 claim to own small ruminants and to have commercialized them at some time during the preceding three years. Most of these transactions are said to have involved goats rather than sheep. The market in which these purchases or sales most often occurs depends on the location of the informant's home village. Informants from villages around the Mamouri area consistently cite the large Nigerian bordertown of Malam Fatori as the market in which small ruminant purchases or sales most often occurs. The market in Bosso (Niger) is of secondary importance (the animal market there reportedly shrinks in dry/cold and hot seasons). Informants from villages further east on the lakebed unanimously cite the market at Gadira as their choice for sales. All 19 of the women informants claim to be small ruminant owners (whereas less than 50% of the men interviewed claim likewise). Of these women, the 7 whom are widowed or divorced claim that the commercialization of their small ruminants constitutes their most important source of income after the sale of agricultural products. The incidence of small ruminant sales appears to follow the same general pattern as that for the Kadzell, increasing during the hot and rainy seasons (when food shortages are most common). It is mentioned that failure of the bean harvest during the three preceding years, occasioning the loss of an important source of income, has been responsible for an increased incidence of compulsory animal sales.

C. Other commerce

Among lakebed populations interviewed for this study, the incidence of trade in non-agricultural or animal products appears very limited. Trade in locally produced handicrafts and aliments also appears much more restrained than that on the nearby Kadzell. With regard to drygoods, the markets at Gadira and Malam Fatori appear to implicate a significant number of importers and traders, but time and security constraints did not permit adequate exploration of their activities.

5.

THIRD TRIMESTER OF STUDY (Zones III and IV)

The Manga

CLARIFICATIONS:

(a)

The Manga is the local name given to the zone covered in this third trimester of research. The name apparently originates from pre-recorded times, when the Kanouri sub-group Manga (the same covered in the first chapter of this report) inhabited the region. The Manga people have long since left this region which was named for them, however. Consequently, aside from a reputed historical connection, distinction should be made between the people Manga and the region herein called the Manga.

(b)

Clarification concerning use of the following terms connoting various ethnic, linguistic, and caste distinctions. For simplicity, this report will employ the plural form throughout, in compliance with the approach employed by other researchers. For example, correct reference to an individual of the group Daza would be "one Dazé," but in this report will appear "one Daza." This rule will be observed for all the terms listed below.

Plural:	Singular:
Ama megra	Mégré
Teda	Tedé
Daza	Dazé
Kara	Kéré
Azza	Azzé
Tiyana	Tiyéné
Agra	Egré
Washili	Washila
Mohedi	Mohira

(c)

Clarification concerning reference to dialects spoken in the area of study. According to Toubou informants in the area of study, there exists no single language which may be called "Toubou." Rather, there exist two different dialects, Tedaga and Dazaga. Because speakers of Dazaga have generally had more contact with outsiders, it is their dialect which has erroneously been credited with representing a single, universal language of all Toubous. In this report, the distinction will be made (Tedaga or

Dazaga) in the case that a word from one of these dialects is employed.

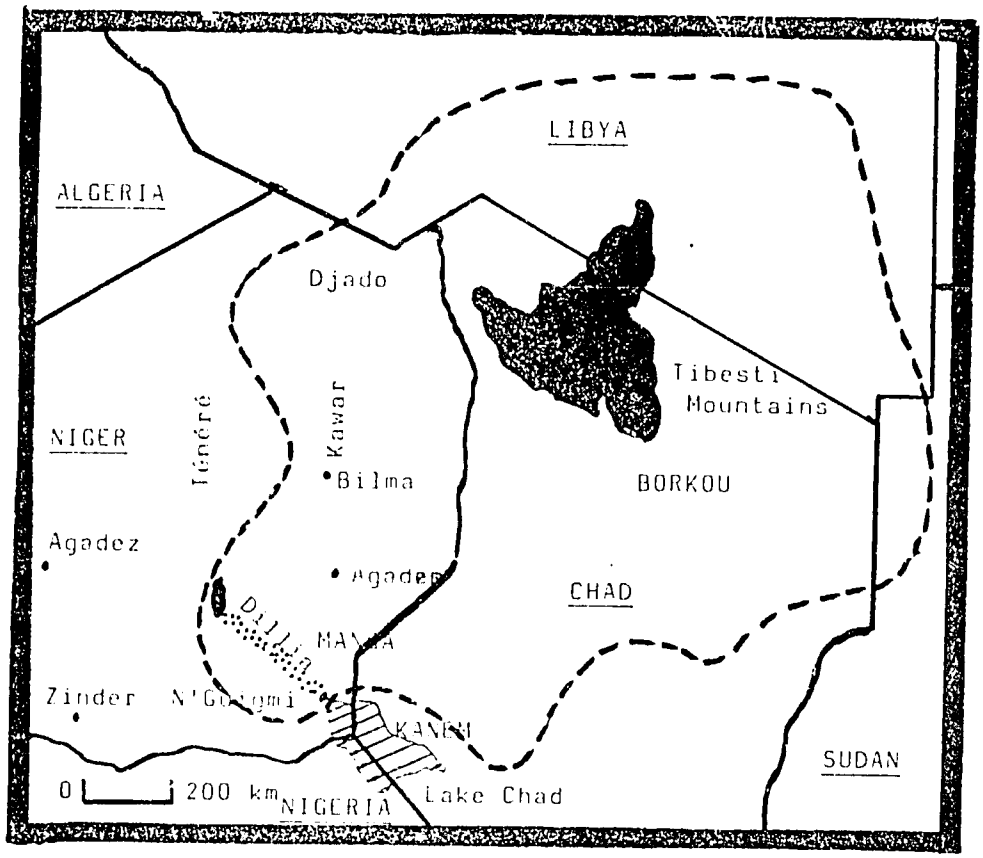
A. Physical Milieu

The Manga is circumscribed by the Dillia Valley and Lake Chad to the south, the Ténéré Desert to the west, and the parallel bisecting Agadem to the north. To the east, the Manga extends into Chad, where it abuts on the Kanem (see Map E). Administratively, most of the Nigerien Manga is contained within the Arrondissement of N'Guigmi, which comprises a total of 118,000 square kilometers.

Most of the southern part of the Manga (Zone III) may be described as steppe. Average annual rainfall is said to vary between 150 and 100 mm. Predominant tree species observed during the part of Zone III covered by this study include *Leptadenia pyrotechnica, Balinites aegyptiaca, Acacia raddiana, Commiphora africana,* and *Salvadora persica*. With the exception of the first, these tree species were observed to be concentrated in depression bottoms. Chronic drought during the past 25 years is said to have greatly reduced the number and size of these trees in the region. Pasture consists primarily of *Cenchrus biflorus* (cram cram, Fr.), which is said to have taken the place of many more preferred pasture species over the past 25 years. The contour of most of the area in Zone III is flat or gently undulating, punctuated by occasional small dunes and depressions. The number, size, and mobility of these dunes is said to have increased markedly over the past 25 years. Average well depths recorded during the course of this study varied between 20.4 and 7.0 meters (see Map E). The deepest well in the region--not visited during the course of this study--was reported to attain 36 meters.

In Zone IV, the characteristics which define the steppe give way to those of desert. Rainfall for this area is estimated to be inferior to 100 mm annually. Vegetation becomes generally more sparse. The predominant tree species observed in the part of Zone IV covered by this study included *Balanites aegyptiaca, Acacia raddiana, Maerua crassifolia, Leptadenia pyrotechnica,* and one which remains unclassified (koosuhm, Dazaga). With the exception of *Leptadenia pyrotechnica*, these trees were almost invariably located in the bottom of valleys and depressions. Pasture cover on many of the surrounding dunes, devoid of arboreal life, appeared to be limited primarily to *Cyperus conglomeratus* and *Panicum turgidum*. Informants commented that Zone IV has a lesser volume of pasture than the more southerly zone III, but that it hosts a larger variety of preferred species (during the rainy season). *Cenchrus biflorus*, which is said to have displaced many preferred pasture in the more southerly Zone III, is much less prevalent in Zone IV. The contour of zone IV changes markedly with respect to the relative flatness of zone III. Dunes attaining 100 meters in height, constitute the predominant geographic characteristic of

DOMAIN OF TOUBOUS MAP E



indicates supposed domain of Toubous

Source: Les Marques de Betail Chez les Daza et les Azza du Niger.

the region. In some areas, these dunes are aligned in ridges which run for dozens of kilometers, interspersed with valleys running equidistant. The average well depth recorded in the section of Zone III included in the course of this study was 10.4 meters. Exceptional locations such as Agadem and Dibella in the extreme north of the region possess natural springs (i.e. water at surface level).

TABLE 9

FLORA OF THE MANGA	
Name in Dazaga	Scientific name
Grasses:	
nohgoo	Cenchrus biflorus
téhré	Tribulus terrestris
digahr	Brachiaria distichophylla
geeshi	Paricum turgidum
onkursay/onkurshay	Cyperus conglomeratus
tower	?
grand boubou	?
Trees or bushes:	
zri	Cornulaca monocantha
oyoo	Salvadora persica
tehi/tefi	Acacia raddiana
tuéy	Acacia laeta
ohloo/ohlow	Balinites aegyptiaca
arkan	Maerua crassifolia
kezen/kuhzun	Leptadenia pyrotechnica
digi	Commiphora africana
koosuhm/kusum	?

B. Social Milieu

Most of the Nigerien Manga is estimated to contain 0.2 inhabitants per square kilometer. This figure should be regarded as hypothetical, as inhabitants of the Manga are agro-pastoralists or pure pastoralists whose places of residence and degree of concentration are determined by annual changes in grazing conditions.

Toubou represent the ethnic majority in the Manga. They were estimated to constitute approximately 9% of the departmental population in 1988. Arabs represent the second most important ethnic group, constituting approximately 3% of the departmental population. The third ethnic group found in the Manga are the Fulani (Fulbé and Wodaabbé). This population is generally found in the extreme southwestern portion of the Manga, having moved out of the south-central zone over the past 30 years in advance of Toubous and Arabs descending from the north and immigrating from the east. Due to recent strife between Toubou and Fulani, most of the latter have definitively withdrawn south of the Dillia Valley. Because of their absence in the area of study, they will not be included in this report.

1. Toubou

Toubou is a Kanouri appelation meaning *inhabitant of the mountains*, Tou indicating the Tibesti Mountains in northern Chad, bou meaning *people*. The Kanouri, as well as the French who adopted the term, applied it to all the populations residing in the Manga. Use of such a collective term is not accurate; in reality, the constituent groups comprising the ostensible Toubou "whole" distinguish among themselves based on both caste and geographic/linguistic differences. As concerns caste,[76] there exist three divisions among the Toubou, including warrior-raider-herders, artisans, and captives or the descendants thereof. Although the colonial government recognized all three of these strata as equal before the law and addressed them as one people (Toubou), none of the three groups concerned may be said to have adopted this conception. Birth establishes an individual's caste membership. Strong interdictions against marriage with members of another caste prevent individuals from changing their status. Due to the considerable influence which such caste divisions continue to exercise on the socio-economic norms of the region, this report will not adhere to the superfluous and potentially misleading idea that the population of the Manga may be addressed collectively under the single heading "Toubou." Rather, different groups will be addressed according to their caste or geo-linguistic affiliations.

Castes:

a. AMA MEGRA

Ama megra translates to *free people* (Dazaga). Socially and numerically, the Ama megra constitute the dominant caste. The Ama megra within the area of this study are divided into two groups, the Teda and the Daza, which are distinguished based on geographic

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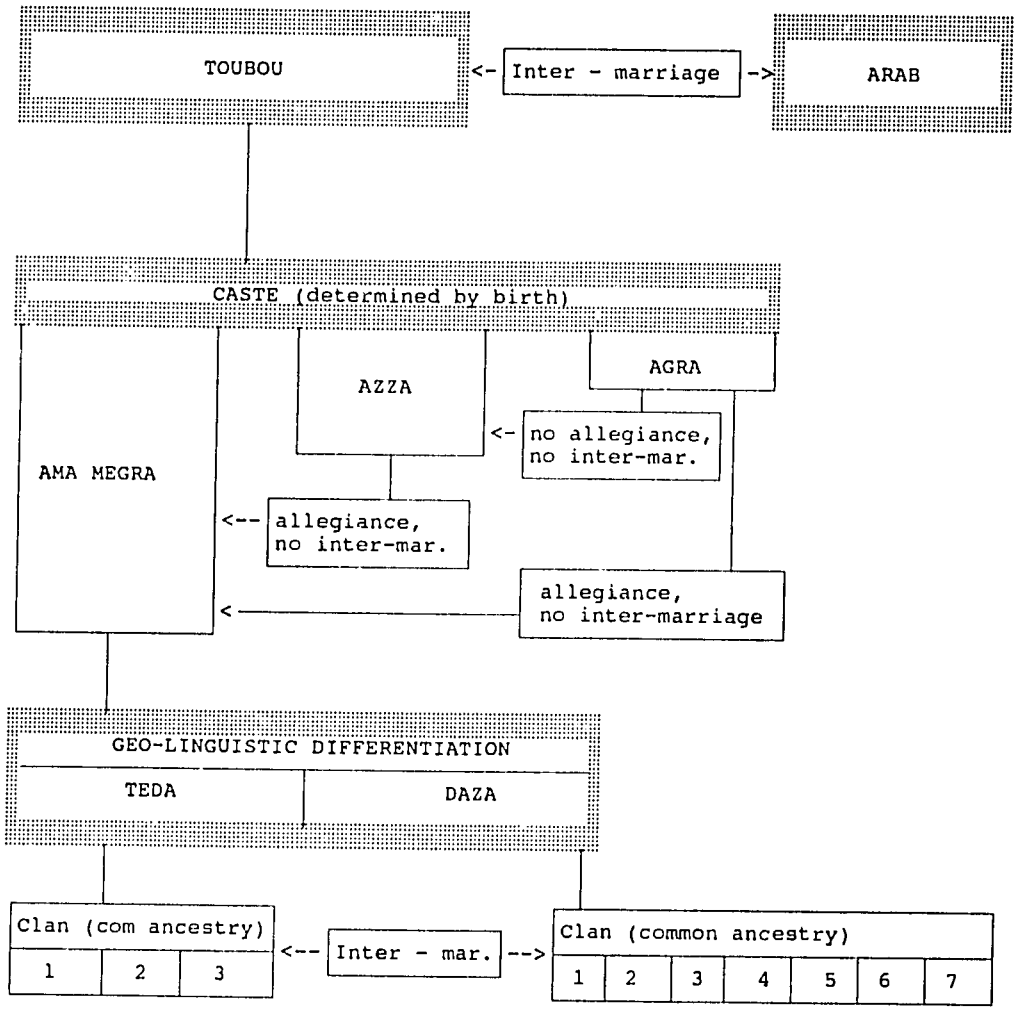
[76] "A division of society based on wealth, inherited rank, or occupation: a system of rigid social stratification:" Merriam-Webster, 1974

DIAGRAM A



and linguistic criteria. Very simplistically, the Teda may be classified as the people occupying the upper half of the Manga and northward to the borders of Libya and Algeria. Most are pure pastoralists (of camels). They generally inhabit the territory to the north of the parallel bisecting the Dillia Valley and running southeast of N'Gourti (see Maps F and G). The Teda of the Nigerien Manga are said to have quit the Tibesti Mountains (Chad) in the 18th Century, immigrating to the northeasternmost region of Niger

around the oases of the Kawar and Djado. During the 19th and 20th Centuries, some of these Teda descended to the northern Manga around Agadem.[77] The Daza reside to the south of the Teda. Unlike most Teda, some Daza are agro-pastoralists. The Daza are said to have quit the Kanem (Chad) early in the 19th Century, immigrating to the Nigerien Manga and the Kadzell.[78] In the early 1950s, the colonial administration compelled the Daza on the Kadzell to move north of N'Guigmi and the Dillia Valley (this action was allegedly incited by local Kanouri and Fulani). More recently, due to drought-induced degradation of pasture in the Manga, many of these Daza have returned to lands south of N'Guigmi and the Dillia Valley. The Teda and Daza speak dialects (Tedaga and Dazaga, respectively) which are mutually incomprehensible despite their common origins. The Teda and the Daza should not be confused with castes; they are differentiated by region and by speech, but socially they are equal.

In the course of this survey, several informants from the group Kara (or Kreda) were interviewed. The Kara are Ama megra. Their native zone of inhabitation is centered around the Bahr-al-Ghazal[79] to the northeast of the Lake Chad Basin, where they herd both cattle and camels. Their number in the Nigerien Manga is said to be very low, representing a few hundred individuals at most.

The social pre-eminence of the Ama megra is based on a history of warring, raiding, herding, and protection of certain client groups. Historically and presently, this protection consists of the assurance that the patron will search out and recover animals stolen from his client. The institutionalized nature of animal theft in the Manga continues to assure recourse to such patron-client relationships, as well as the fact that the Ama megra remain numerically and socially best suited for such activities. Caste distinctions are also re-enforced by continued segregation based on occupation. Herding is considered the most noble of occupations. Although herding was never the exclusive prerogative of the Ama megra, no other caste had or has to date herds of comparable size. Informants claimed that, even today, the involvement of the subservient castes in camel-herding activities (dating from the colonial era) is premised on the protection of a patron from the Ama megra; without such protection (often manifested by use of the patron's brand), it is said that animals would be quickly stolen and sold, the non-Ama megra owner lacking the relations necessary to intimidate potential thieves. Forbidden to the Ama megra is professional involvement (i.e. for

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[77] CHAPELLE, Jean, Nomades Noirs du Sahara, Paris, 1957, p. 47

[78] CHAPELLE, Jean, Nomades Noirs du Sahara, Paris, 1957, p. 47

[79] Lake of the Gazelles, in Chadien Arabic

remuneration) in artisanry, well-digging, and hunting. No similar onus attaches to engagement in agriculture or trade.

The elemental social and economic unit of the Ama megra is the nuclear family. "*...les rélations sociales...s'organisent en faisceaux de liens personnels dont chaque individu est à la fois le centre et le responsable. Ceci explique...l'absence d'unités discrête qu'il s'agisse de groupes politiques, claniques ou territoriaux.*"[90] A household's autonomy is established with a considerable gift of animals during the course of the marriage ceremony. While the autonomy of each nuclear family does not usually manifest itself in the actual pattern of settlement, it imparts a potentially important source of independance in the case of social or environmental crisis. Normally, the pattern of settlement is patrilocal, regrouping families of married sons around that of their father. Labor requirements of the herd as well as security considerations favor such grouping. That each family in principle possesses sufficient means to quit a group in the case of disaccord contributes to a fluid character of camp membership.

Beyond the circle of the nuclear family, the Ama megra are organized by affiliation to a clan. Clans impose an important array of informal checks where the institutional authority of the chefferie is weak. A clan may include many thousands of individuals who have nothing in common except their descent from a common ancestor (often mythic), a shared interdiction, and a distinct brand with which their animals are emblazoned. Socially, clans are all equal. A clan never manifests itself in a gathering of its members or its allegiance to a single individual. Nor does it retain the territorial and political relevance with which pre-colonial warring and raiding invested. Presently, clanic authority manifests itself most clearly in a latent sense of détente shared with fellow clan members. For example, individuals are prohibited from stealing animals from fellow clan members. Fellow-clan members also play a vital role in contributing the animals which are exchanged upon marriage and in offering aid in the case of conflict or hardship. Clan affiliation is traced through both paternal and maternal lines. Exercise of clanic authority should not be regarded as the function of a clan chief or other organized body, but rather a kind of moral imperative which influences interactions at the level of each individual; "*s'il existe des chefs de clan...leur autorité est très faible car chacun des membres du clan se considère comme libre d'agir comme bon lui semble.*"[91] This informal network of restraints and benefits posed

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[90] BAROIN, Catherine, "Organisation territoriale, Organisation sociale: La Logique du système Toubou, Journal des Africanistes, 1986, p. 26

[91] BAROIN, Catherine, Anarchie et Cohesion Sociale Chez les Toubou, Les Daza Kesserda (Niger), Paris, 1985, p. 16

by clan membership constitutes an important factor in the stability of the region, given the absence of respected institutional controls.

b. AZZA

Numerically and socially inferior to the Ama megra are the artisans of the caste Azza. With respect to the Ama megra, the Azza are free but unequal. Historically, they are said to have lived on the periphery of their Ama megra patrons' (Teda or Daza) settlements, performing various services in return for protection of their families and property. Azza informants claimed to have immigrated to the Manga at the same time as their patrons.

Historically, it is said that the most important factor in setting Azza apart from the Ama megra was their non-involvement in warring and raiding activities. Nor did they engage in camel-herding to the same extent as the Ama megra. They sought the protection from predation by allegiance to a warrior clan of the Ama megra. Their inferiority is attributed this perceived inability to protect themselves. In return for a warrior's assurance of intervention on behalf of his Azza adherents, the Azza rendered tribute in the form of goods and services. These included the products of their blacksmithing, leatherwork, weaving (palm fiber), hunting, well-digging, and griotage.[82] The Azza themselves are said to share the idea of their inferiority; *"ils sont fiers d'être adroits artisans, bon forgerons, et bon puisatiers, et ils participent au sentiment de réprobation qui frappe ces activités."*[83]

The economic position of the Azza appears to have improved since the colonial era, when repression of warring and raiding activities diminished the importance of Azza's allegiance to a seigneur from the Ama megra. The goods and services formerly rendered as tribute have acquired commercial value. Thus, Azza have advanced economically (sometimes surpassing their former patrons). That Azza are more amenable (than Ama megra) to both Koranic and secular education for their children is said to have aided in their economic advance.[84] Azza engage in agriculture and herding as well, although the latter remains generally on a much smaller scale than the Ama megra and is often based on small ruminants. Chronic insecurity in the Manga compels the Azza to maintain their relations with erstwhile patrons, emblazoning their animals with his brand, rendering him goods/services on favorable

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[82] singing/story-telling

[83] CHAPELLE, Jean, Nomades Noirs du Sahara, Paris, 1957, p. 343

[84] BAROIN, Catherine, "Dominant-Dominé: Complimentarité de Rôles et des Attitudes entre les Pasteurs Teda-Daza du Niger et leurs Forgerons," Provence, 1988, p. 233

terms, and ritually exchanging gifts.

Demographically, the pattern of Azza residence is not determined by the linguistic or clanic criteria which influence Ama megra residence. The linguistic differences between speech of Azza and Ama megra are not great; they consist more of tone and pronunciation than of content or structure. With regard to clans, it appears that the Azza of the Manga are not organized in such groups (in contrast to the Azza of Chad).

As with the Ama megra, Azza's fundamental unit of residence is the nuclear family. Unlike the Ama megra, however, Azza families tend to be much less mobile. This is attributed to their limited involvement in camel-herding, an activity which necessitates frequent movement according to pasture conditions. That most Azza derive an important part of their livelihoods from small ruminant husbandry and artisanry permits a degree of sedentarization denied camel herders. The Azza often remain for years in a single spot, guarding their goat and sheep herds closeby and selling the products of their handicraft locally or on the markets of N'Guigmi or N'Gourti.

c. AGRA

Captives and the descendants of captives comprise the third and smallest of the three castes constituting the misnomered "Toubou whole." Literally, the term *Agra* designates an *unliberated slave* (Dazaga). (Despite the existence of less pejorative terms for this caste, informants universally employed the term *Agra*. It may serve as an indicator of how little traditional caste distinctions have changed.)

Before the colonial era, most captives of the Ama megra were acquired by raiding agricultural peoples to the south (in Chad, Cameroon, Nigeria, and Niger). Although this institutionalized raiding was expunged by the French, covert kidnapping and trafficking of slaves continued.

Ex-captives and the descendants of captives may be distinguished on neither linguistic nor clanic bases. Agra speak Tedaga or Dazaga, whichever was the dialect of their erstwhile masters from the Ama megra. Agra have no clanic affiliations of their own, but rather adopted the clan of their masters.

The pattern of settlement of Agra is frequently based on the manner in which the individuals were liberated. The poste administratif of N'Gourti, for example, is composed largely of Agra who are said to have fled their masters' camps during and after the colonial era with military or civilian authorities who chanced to pass by. These individuals' fear of recapture is said to be responsible for their reluctance to reside far from the government authorities based in N'Gourti. By contrast, a

significant number of Agra whose masters freed them voluntarily remain in or near the locale of the Ama megra to whom they once belonged. They hire out their services as domestics or shepherds. This second pattern of residence is said to be on the decline for two reasons; fewer young Agra are willing to accept the semi-tutelage of their ex-masters as did their parents, and the drought-induced impoverishment of the Ama megra over the past 30 years has reduced the number of individuals who are economically capable of retaining servitors. Many of the Agra voluntarily freed but who did not remain to work for their masters regrouped around small cuvettes to the northeast of N'Guigmi. There, they herded cattle and small ruminants in addition to farming during the rainy season. As with the Azza, these individuals had very few camels and often lived year-round in one locale. Informants claimed that many of these agro-pastoralist Agra settlements close to N'Guigmi had moved en masse into town after the droughts decimated their herds. Unlike the Azza, the Agra do not have a history as artisans and are therefor economically less well-off.

Despite their more humble origins, the Agra are less despised and mistrusted by the Ama megra than are the Azza. This may be partly explained by their total assimilation by Ama megra culture. During the course of their servitude, they adopted entirely the language, customs, and clanic allegiance of their masters. It is not unusual that an individual from the Ama megra will call an Agra his "brother" and treat him thusly, albeit without forgetting his real origins, whereas this is impossible between the Ama megra and the Azza.

2. Arab

After the Teda/Daza, Arabs constitute the second most important group of herders in the Manga (one which population statistics appear to underestimate). With regard to the Teda and Daza, they are socially separate but equal. Marriages occur between Teda/Daza and Arabs, but actual relations are frequently characterized by mutual mistrust and the innate conviction that each group is in some manner superior to the other. Arabs of the Manga may be divided into three groups, the Washili, the Hassaouna, and the Mohedi.

a. WASHILI (or OULED SLIMAN)[85]

The presence of Washili Arabs in the Manga dates from two major periods of immigration, both originating in Libya and

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[85] [Informants for this study claimed that the appelation Washili was preferred to that of Ouled Sliman (the more commonly used reference). The former is a global term for those Arabs who emigrated to the Manga from the Maghreb during the past 150 years, specifically in the aftermath of the Turkish conquest. The Ouled Sliman are said to be but one of various families which participated in this exodus.]

transitting via Chad. The first was in the mid-19th Century, following the rout of the Washili by occupying Turkish forces. The second was in the decades between 1920 and 1940, when Washili fled occupying Italian forces. Present Washili settlement is concentrated in the area to the northeast and to the west of N'Gourti (see Maps F and G). The Washili of the Manga are camel-herders after the same fashion as their Teda and Daza neighbors. Some of these Washili maintain social and economic relations with their Maghrebian relatives, seeking employment or carrying on trans-Saharien commerce therewith. The majority of Washili interviewed claimed to subsist entirely from camel-herding rather than commercial activities, however. The pattern of settlement is patrilocal. Linguistically, Washili speak the Maghrebian Arabic of North Africa, considerably different from but not mutually incomprensible vis-à-vis the Chadien Arabic spoken by other Manga Arabs.

b. HASSAOUNA (or SHUWA)[86]

Unlike the Washili, the Hassaouna Arabs are long-time residents of the sub-Sahara. Before their arrival in Niger, they are said to have resided for at least several centuries in Sudan and Chad. The Hassaouna of the Manga constitute a mixture of old and new immigrants. The first of these families is said to have immigrated around the beginning of the Twentieth Century.[87] Some of the more recent arrivals have come only in the past ten years. The oldest area of Hassaouna settlement is around Agadi, about 100 kilometers to the northeast of N'Guigmi. During the course of this study, a considerable number of Hassaouna settlements was found to the southwest of N'Gourti and also in the 30-kilometer periphery around N'Guigmi. Settlement structure is patrilocal. All Hassaouna encountered claimed to have been predominantly cattle-herders until the droughts of the 1970s, after which they converted to camel-herding. A few of these individuals in the more southerly locations claimed to cultivate in the rainy season. The Hassaouna speak Chadien Arabic.

c. MOHEDI

The presence of the Mohedi Arabs is said to date from the drought of the mid-1980s. They reportedly arrived in response to poor pasture conditions and insecurity in their native Chad. A proportion of the Mohedi maintain long-range, year-round

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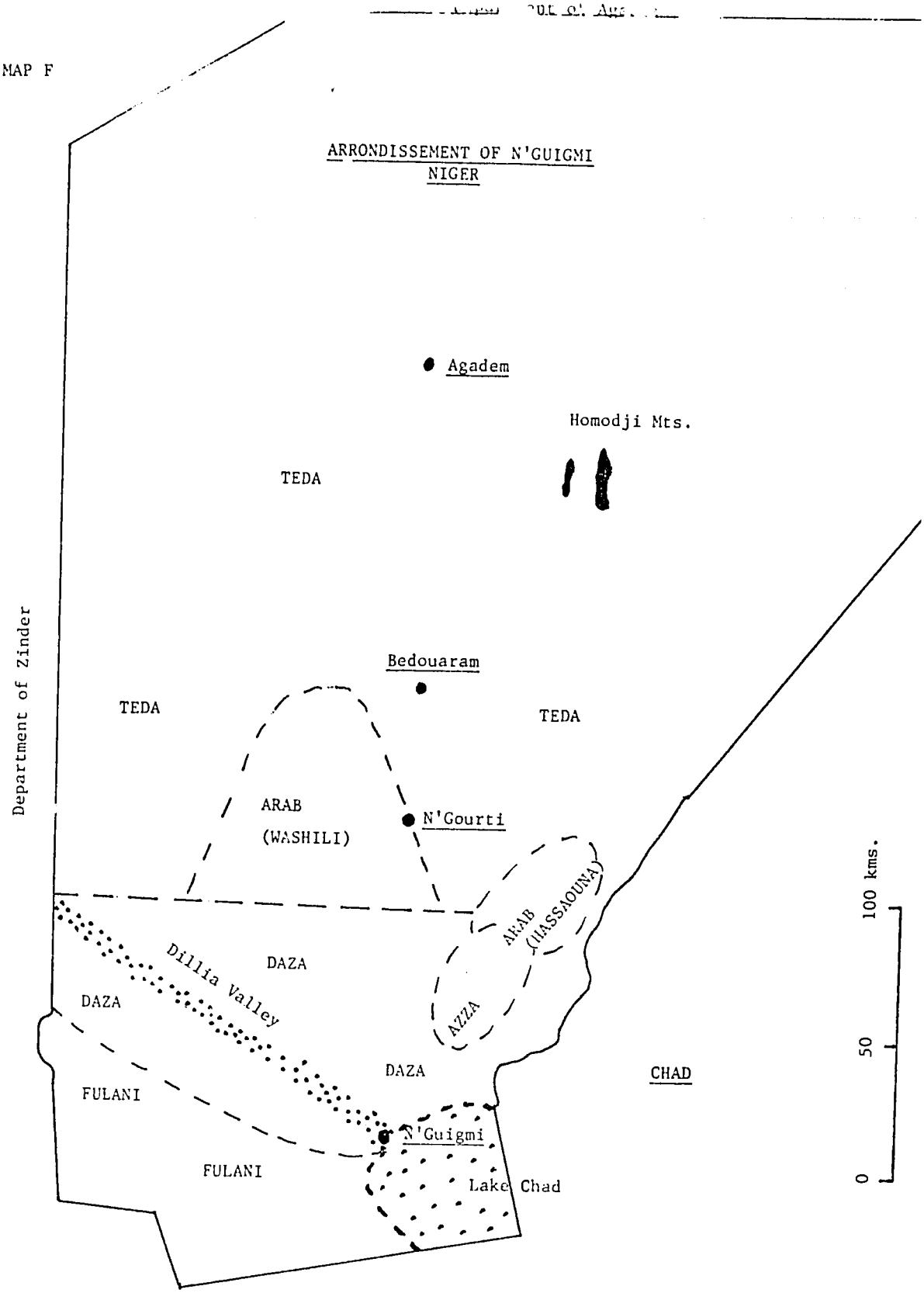
[86] (The appelation Shuwa is said to originate from the Kanouri word chawa, which means beautiful; the Kanouris called the Arabs beautiful because they were attracted by the Arabs' light skin color (and the French followed suit). Informants for this study claimed to prefer being called Hassaouna, denoting descent from a common ancestor named Hassan.]

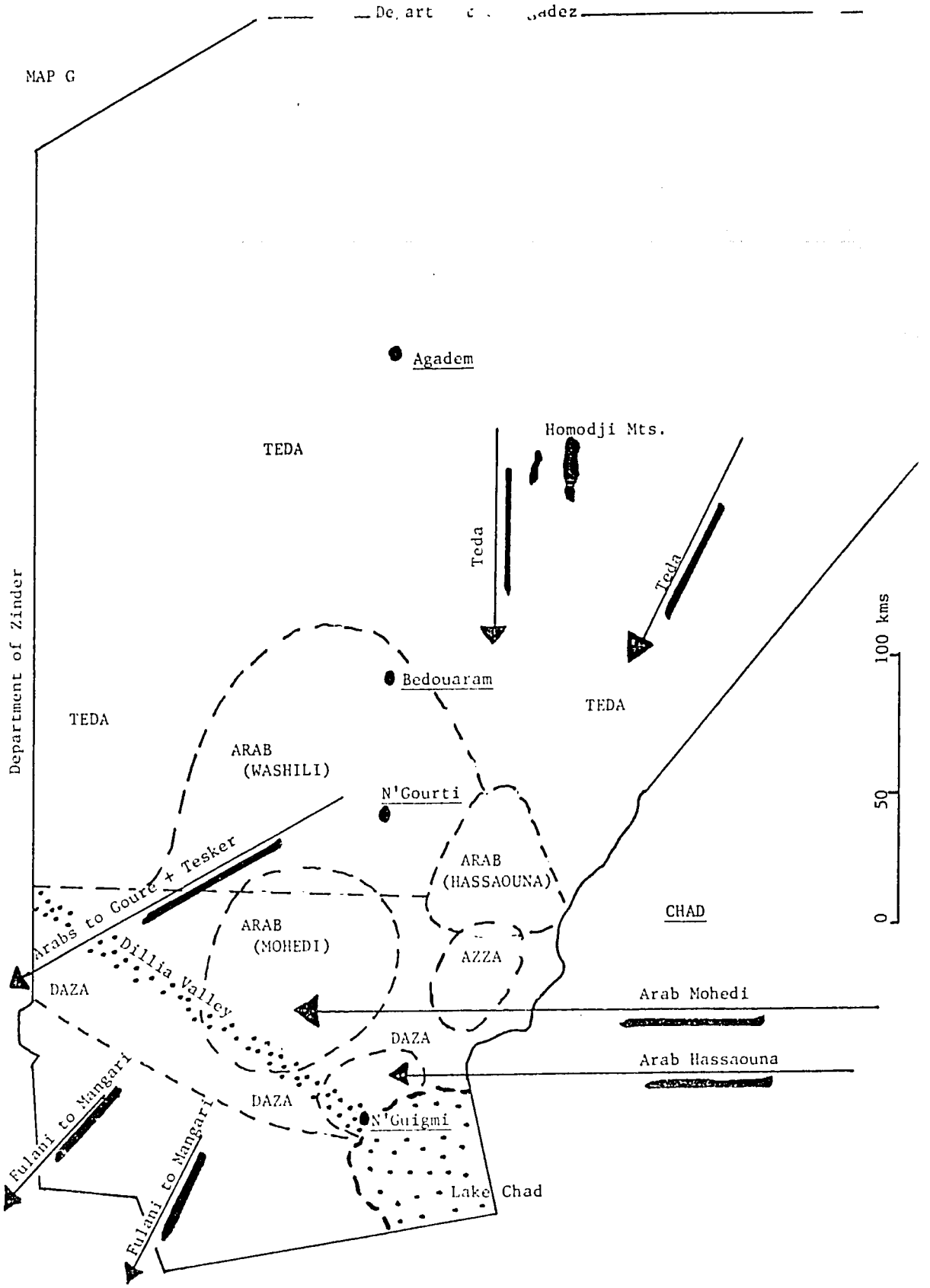
[87] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, 1987, pps 155

transhumance (like the Wodaabbé), simply passing through the Manga on a tour which may include Sudan, Chad, Nigeria, Cameroon, and C.A.R. An indeterminate proportion of these groups have become semi-permanent Manga residents, however, remaining year-round on Nigerien territory and grazing their animals after the fashion of Teda/Daza, Washili, and Hassaouna. During the course of this survey, their zone of residence included much of the central Manga (see Maps F and G). Long-time Manga residents claimed that this area had been gradually "taken over" by the Mohedi, whose numbers reportedly continue to rise. These informants claimed that the Mohedi Arabs' generally large herds, concentrated settlement patterns, and confrontational behavior at wellheads had compelled them to yield the disputed wells and pastureland and go elsewhere. Due to extreme distrust on the part of Mohedi encountered, this report is unable to furnish any information on the Mohedi except that acquired second-hand from their neighbors.

MAP F



Source: L'amenagement de l'Elevage dans le Departement de Diffa, 1987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(MOHEDI)
AZZA
CHAD
Dillia Valley
DAZA
Arab Mohedi
DAZA
Arab Hassaouna
DAZA
N'Guigmi
Fulani to Mangari
Fulani to Mangari
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I.

LAND USE AND NATURAL RESOURCE MANAGEMENT

Current patterns of land use and natural resource management have been shaped first by historical factors and more recently by environmental change which have reduced the notion of territoriality. In the colonial era, the identity of a clan as a distinct group presiding over a particular area and its resources was lost. The cessation of warring and raiding activities effectively ended clans' strategic importance as territorially unified entities. More recently, drought-induced displacement and transhumance outside traditional areas of residence decreased further the notion of certain fixed parameters' belonging to specific groups. It has been observed that the relatively strong territorial notions which once held sway "...*sont remplacées par la notion banale et peu précise de terrains de parcours traditionnels, qui ne se rapporte qu'à des habitudes et à des nécessités pastorales, parfois reconnues, parfois contestées par les voisins, et susceptible d'être modifiées à tout moment.*"[88]

A. Pasture

The grasses and trees which constitute pasture (for camels) in the Manga are considered non-appropriable. They represent the collective resource of any and all herders. Even in those cases in which informants complained bitterly about what they perceived as the over-exploitation of pasture resources by others, such informants averred that they were unable to assert proprietary claims over the pasture itself. Rather, it is by attempting to restrict water-rights that control over pasture is exercised.

B. Water

My informants stated unanimously that water is an inappropriable resource. This principle becomes rather academic, however, when it is noted the water must be pulled from a well which is, in most instances, the private property of one or more individuals. The norms governing the usage of these wells vary between traditional and cement wells.

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[88] CHAPELLE, Jean, Nomades Noirs du Sahara, Paris, 1957, p. 367

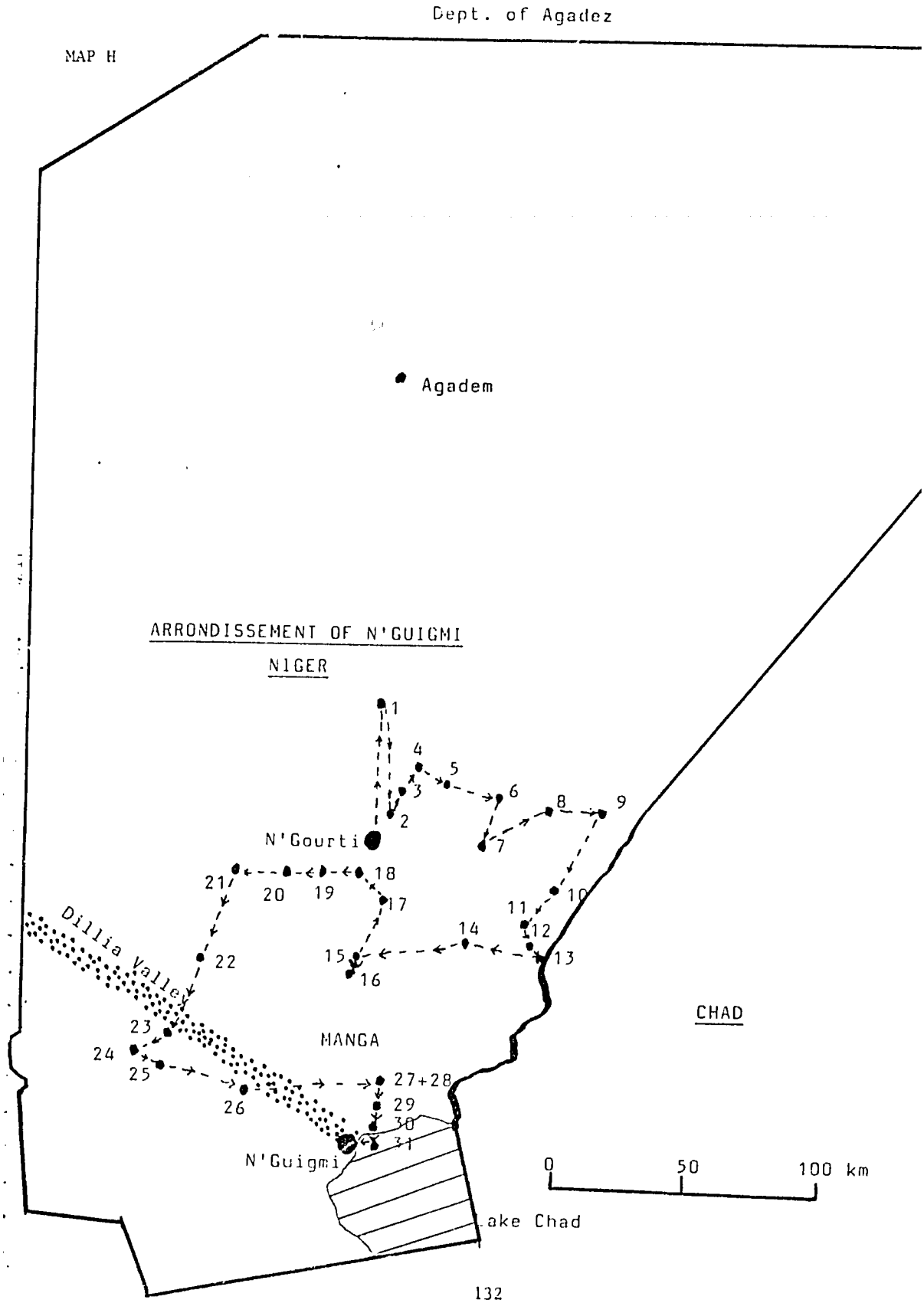
1. Traditional wells

The traditional well is located at the bottom of a depression. The average size of a well "mouth" does not usually surpass one square meter (its diameter may be inferior to that of the shaft). Depending on the soil composition of the various strata through which the well shaft descends, reinforcement of a part of or all the column is necessary. The shaft is square-shaped, formed by a "log-cabin-style" placement of inter-locking boughs. These boughs are generally 1,30 to 1,50 meters in length. Oral accounts cite that each two meters of depth require between 40 and 50 boughs. *Acacia raddiana, Commiphora africana,* and *Balinites aegyptiaca* are the species most commonly employed. In the gaps between the boughs, grass is stuffed to prevent sand from infiltrating the shaft. This grass (*Cyperus conglomeratus*) is resistant to rot and swells when it comes into contact with moisture, creating a tight seal. The mouth of the well is sometimes slightly elevated (vis-a-vis the surrounding terrain) to prevent flooding by the mud and polluted water which invariably collect in the course of normal well usage. See Table 10 for the average depth of traditional wells encountered during the course of this study and Map H for their location. The deepest traditional well in the Manga is reputed to attain 36 meters.

TABLE 10

SITES VISITED				
Camps/well sites	Type	Depth	Who dug well	Average
1 Beduouaram	cement	10 m	government	
2 Geni	trad.	8 m	users (Arab)	
3 Kiri Boule	trad.	8 m	users (Arab)	
4 Oremi	trad.	10 m	users (Arab+Teda)	
5 N'Jourianga	trad.	8 m	Azza	10.4 m
6 Tefi Boom Boom	trad.	12 m	Azza	
7 Abasnga	trad.	14 m	Azza	
8 Gori	cement	12 m	salvage (Arab)	
9 Digil	trad.	12 m	Azza	
10 Doqooinga	trad.	16 m	Azza	
11 Agadi	cement	12 m	users (Arab)	
12 Yogou	cement	12 m	n/a	13.0 m
13 Belka Tari	trad.	12 m	Azza	
14 Fizzem	trad.	18 m	Azza	
15 N'Guel Gué	trad.	21 m	Fulani	
16 Barkee	trad.	21 m	Azza + Fulani	19.5 m
17 Moul	cement	18 m	n/a	
18 Ouadi Nar	trad.	14 m	Fulani	
19 Tuey	trad.	14 m	Fulani	
20 Derba Wahad	trad.	14 m	Fulani	14.0 m
21 Foulatari	trad.	14 m	users (Arab+Daza)	
22 N'Guel Deree	trad.	20 m	Fulani	
23 Likani/Lagané	cement	18 m	n/a	
24 Djigael	trad.	24 m	users (Daza)	20.4 m
25 Chiraa	trad.	20 m	Fulani	
26 Kuhteray	cement	20 m	n/a	
27 Sedduiggué	trad.	8 m	users (Azza)	
28 Sedduiggué	trad.	8 m	Azza	
29 Mohéli	trad.	6 m	users (Azza)	7.0 m
30 N'Guel Lari	trad.	6 m	users (Arab+Azza)	
31 Tchi Tchilemi	trad.	7 m	users (Daza)	

MAP H


Dept. of Agadez
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ARRONDISSEMENT OF N'GUIGMI
NIGER
N'Gourti
Dillia Valley
MANGA
CHAD
N'Guigmi
Lake Chad
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27+28
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31

The lifespan of a traditional well depends on various factors, including the volume of water extracted (provoking subterranean invasion by sand), stability of the soils surrounding the shaft, and the rapidity with which soil chemistry and humidity provoke decay of the support-boughs. The average lifespan of a traditional well was said to be about one year. Rainy season occasions the highest incidence of cave-ins, even for soundly constructed wells, as the wells' location in the lowest point of the depression leaves them susceptible to flooding. Minor repairs are undertaken as needed by the users of the well (i.e. without recalling the professional who dug the well). The premature abandonment of wells is determined by pasture conditions. Such groups as the Arab Mohedi are said to abandon wells with greater frequency, due to their more selective grazing practices and large herds. In Table 11 are figures detailing the number of wells informants claimed to have dug and subsequently abandoned in the eight-month period from the end of the rains to the time of these interviews.

TABLE 11
Frequency of well abandonment.

			Number of traditional wells abandoned by informants during 1992-93							
Ethnic Group		Total*	0	1	2	3	4	5	6	7
TOUBOU	Teda	27	-	2	8	11	3	1	2	-
	Daza	36	2	3	7	14	7	2	1	-
	Azza	17	14	2	1	-	-	-	-	-
	Agra	10	10	-	-	-	-	-	-	-
ARAB	Washili	25	-	8	13	3	1	-	-	-
	Hassacuna	38	-	9	11	7	8	2	-	1
TOTAL		153**	26	24	40	35	19	5	3	1

* Male heads of households
** Figures include all wells abandoned even when head of household was separated from household itself (i.e. was at pasture with animals, having left women and children at base-camp).

Dynamics of well-digging:

The depression-bottom land on which traditional wells are situated is said to be an inappropriable commodity. The individual who digs a well in a depression may not assert proprietary claims to the land per se. The act of digging a well cannot be regarded as "staking a claim" to an area, as the following example illustrates.

EXAMPLE:

> The informants were representative of ten Arab Washili households. In total, they are estimated to possess about 400 camels. When they arrived in their current place of residence, (about three months ago), they found a group of Arab Mohedi had already dug a well in the depression which they wished to occupy themselves. The Mohedi wanted the Washili to move on to another locale, but they ceded temporary watering rights at their well, assuming that the newcomers would continue on. Contrary to the Mohedi expectation and hope, the Washili promptly dug two wells (both within 30 meters of the original) and had cohabited with the Mohedi for three months at the time this interview was conducted. The informants claimed to be aware that the Mohedi were hostile to their presence, but that any attempt to assert proprietary claims to the depression (i.e. refusal of well-digging rights) would have been untenable.

As concerns the chief in whose domain a depression is situated, I encountered no instances of individuals claiming that solicitation of land-use privileges from said chief was a necessary precondition for their having dug a well in a particular locale. This norm is said to be somewhat difference as concerns non-Nigeriens (i.e. Arab Mohedi). According to some informants, the local chefferie and/or administrative officials succeeded in at least one instance in levying a charge on land use privileges (e.g. well-digging). The informants criticized such transactions not only for having no precedent in traditional land-use norms. As voiced by one individual, "*the chief is selling something he doesn't own.*"

The trees which furnish the raw material for traditional wells are not regarded as an appropriable resource; they are cut according to need. No informant claimed ever to have secured a wood-cutting permit. Reasons for this include; lack of knowledge that such permits exist, conviction that the administration has no right to control wood-harvesting, and a complete absence of coverage by forestry agents. When asked about the environmental impact of indiscriminate wood-harvesting, informants parried with: "*what do you expect us to do? They're aren't enough cement wells and our animals need to drink.*"

The labor required for digging a traditional well is almost invariably furnished by a professional. These are usually Azza or Fulani. It appears that the incidence of Fulani-dug wells is highest in the southwestern portion of the Manga which abuts on the Fulani-occupied zones of the northern Mangari. In Table 12 is given the ethnicity of well-diggers at the various well sites visited during the course of this survey.

TABLE 12
Ethnicity of well-diggers.

Wells dug by:	
Fulani	6.5
Azza	8.5
Users	10
n/a (cement well)	6
TOTAL	31

The cost of a traditional well varies depending on the number of individuals who are engaged. The participation of the herder is also an important determinant of the well's total cost. The herder may aid the digger in removal of sand from the shaft, supplying the wood and grass necessary for reinforcement of the shaft, and by furnishing the water which is used to moisten the shaft walls during the digging (dry sand would cave in). Each of these four contributions of labor or material may be negotiated; although there was some variation, informants generally agreed that the price of these contribution had doubled during the past five to eight years. Presently, each is valued at about 8.000 to 10.000 CFA. Participation of the herder also significantly speeds up the digging process. Furnishing food, water, tea, sugar, and sometimes meat for the well-digger(s), the obligation of the herder, constitute incidental costs which must be likewise negotiated. Following are some examples of different well-digging arrangements:

EXAMPLE A:

Site: N'Guel Gué

Residents: Daza and Kara, 9 households

Residents contributing for well construction cost:

9 households

Well-digger(s): 1 Fulani

Well depth: 22 meters

Digging time: 17 days

Costs: 10.000 CFA wood
10.000 CFA sand
20.000 CFA labor
10.000 CFA incidentals (food, sugar)

50.000 CFA TOTAL

Costs defrayed by residents' contributions:

8.000 CFA grass
10.000 CFA water (for moistening well shaft)

18.000 CFA TOTAL

EXAMPLE B:

Site: N'Jourianga

Residents: Arab Washili, 6 households (father and married sons)

Residents contributing for well construction costs:

1 household

Well-digger(s): 1 Azza

Well depth: 8 meters

Digging time: 1 week

Costs: 35.000 CFA for labor and materials
15.000 CFA incidentals (tea, sugar, food)

50.000 CFA TOTAL

Costs defrayed by residents' contributions:

none

Comments: This example, of the Arab pater familia alone paying for the construction of a well appears a common phenomenon among the Washili and the Hassaouna

EXAMPLE C:

Site: Tefi Boom Boom

Residents: Teda, 15 households

Residents contributing for well construction cost:

6 households

Well-digger(s): 3 Azza

Well depth: 12 meters

Digging time: 10 days

Costs: 45.000 CFA labor and materials
15.000 CFA incidentals (sugar, tea, food)

60.000 CFA TOTAL

Costs defrayed by residents' contributions:

none

EXAMPLE D:

Site: Digil

Residents: Teda, 28 households

Residents contributing for well construction costs:

1 household (chef de tribu)

Well-digger(s): 2 Azza

Well depth: 12 meters

Digging time: 1 week

Costs: 30.000 CFA labor and materials
15.000 CFA incidentals (tea, sugar, food)

45.000 CFA TOTAL

Costs defrayed by residents' contributions:

15.000 grass and labor

Comments: In three other locations, this phenomenon of a chef de tribu alone paying for a well (to be used by his constituency) was encountered.

EXAMPLE E:

Site: Dogooinga

Residents: Daza, 7 households

Residents contributing for well construction costs:

5 households

Well-digger(s): 1 Azza

Well depth: 16 meters

Digging time: 10 days

Costs: 20.000 CFA materials and labor
10.000 CFA incidentals (tea, sugar, food)

30.000 CFA TOTAL

Costs defrayed by residents' contributions:

5.000 CFA wood
8.000 CFA grass
8.000 CFA labor

21.000 CFA TOTAL

Comments: Wood consumption was reduced because only 8 of the well's total 16 meters needed to be reinforced with boughs.

EXAMPLE F:

Site: Belka Taré

Residents: Azza, 9 households

Residents contributing for well construction costs:

9 households

Well-digger(s): 1 Azza

Well depth: 12 meters

Digging time: 5 days

Costs: 10.000 CFA labor and incidentals

10.000 CFA TOTAL

Costs defrayed by residents' contributions:

8.000 CFA wood
8.000 CFA grass
8.000 CFA water
8.000 CFA labor

32.000 CFA TOTAL

Comments: Apart from contributions of labor and materials, informants cited social solidarity among the Azza as an important factor in reducing the well's total cash price. It would have cost more for a non-Azza.

EXAMPLE F:

Site: Barkee

Residents: Arab Washili, 30 households

Residents contributing for well construction costs:

10 households

Well-digger(s): 1 Azza (overseer), 3 Fulani (laborers)

Well depth: 2 wells dug, each 21 meters

Digging time: 8 days for each well

Costs: 50.000 CFA blanket charge for Azza, included technical expertise, some labor, and incidentals (tea, sugar, food, meat)

65.000 CFA inclusive charge for 3 Fulani, included labor, materials, and incidentals (tea, sugar, food)

115.000 CFA TOTAL (for two wells)

Costs defrayed by residents' contributions:

none

Of the 147 heads of households interviewed, the average number of wells dug and subsequently abandoned in a year varied (see Table 11). Table 11 should not be regarded as an accurate indicator of the full extent of informants' movement, since approximately 60% of the informants claimed that not all the wells they had used were included (i.e. they had used a cement well or a traditional well belonging to acquaintances, neither of which can be said to have been "abandoned" upon their departure). Degradation of pasture conditions is said to be the primary factor responsible for the need to move more frequently and, consequently, to dig more wells. Some informants claimed that their incidence of well-digging had increased three-fold over the past 15 years.

Use of traditional wells:

Most traditional wells in the Manga are exploited using animal-traction (camels and donkeys). The animal is harnessed with a nylon cord which is attached to the puisette.[89] Situated at the well mouth are one or two Y-shaped forks, about a meter in height, between the prongs of which a pulley is situated. An adult is stationed at the mouth of the well, next to the pulley, to assure that the puisette enters and exits the well correctly. Another individual, usually a child, walks or rides the harnessed animal in a straight line away from the well to lift the water to the surface. When a full puisette reaches the mouth of the well, the attendant adult signals the child to turn the animal around, after which the puisette is disconnected from the pulley, taken a short distance from the well mouth, and emptied into a receptacle from which the animals will drink (usually third of a 220-liter oil drum, called a toukou in Dazaga). The amount of water lifted in a single puisette can attain 50 liters. For such large-volume puisettes, a camel or two donkeys (lashed together at the neck) are used; a single donkey is not strong enough. Puisettes are fabricated of either leather or rubber (the latter from old innertubes). Most of the traditional wells observed during the course of this study were of such small aperture or had such a limited rate of recharge that only one puisette at a time was able to be filled and lifted. Simultaneous usage necessitated each party's waiting its turn to lower, fill and retrieve its puisette. In most cases, the number of individuals observed to be using such wells simultaneously appeared to be about four or five (regardless of the number of fork-and-pulley devices at the mouth). At one such site, however, 12 different parties were using the well

[89] the receptacle in which water is lifted from a well

simultaneously, the result being that their watering tasks (normally of three hours' duration) took them from sunrise to sunset. In some cases, each party brings its own rope, puisette, and traction animal, while in other cases such items are shared.

Usage rights concerning traditional wells:

The party or parties which have paid for the construction of a well are the only ones entitled to dispense usage rights to others. Informants claimed that strangers passing through would always be given the right to water their animals and to move on; refusal of such a request was said to be unthinkable. Allocation of long-term usage rights is considerably more complex. With only a few exceptions, informants claimed that strangers would not be given permanent usage rights. This was said to be the case even in those instances in which strangers might be willing to pay a portion of the well's construction cost; the well's proprietor's professed to be less concerned with recuperating their money than with preserving local pasture resources. With regard to payment for usage rights, informants made the academic distinction that money was a contribution for construction costs of the well, not a sale of the water per se. Long-term usage by friends and family members is arranged individually, according to the merits of each case. Only in a few exceptional cases did informants claim that all the users of a given well had contributed equally to its construction cost; more typically, it is a very mixed group which constitutes the total user population, consisting of founding (paying) members, late-comers from whom a contribution has been solicited, and various non-paying individuals. Following are some example cases:

Example A:

> The informant is a Kara, 63 years old, who resides in the central Manga. His herd consists of about 45 camels and 20 sheep. In February, pasture around the cement well where he resided was exhausted. He proposed to dig a traditional well at a site about 25 kms to the southeast and propositioned 11 other households to participate in the effort. Six of the households accepted. The informant and the six households commissioned a Fulani to do the work and, upon completion thereof, moved to the new site in early March. Shortly thereafter, the five families which had declined to participate in the well-digging effort arrived and requested usage rights. The informant claimed to be irked by such blatant opportunism, and that he was unswayed by the applicants' arguments that friendship and prior cohabitation entitled them to leniency. Based on what he judged to be a fair percentage of the well's construction cost, the informant demanded 4.000 CFA for each puisette (e.g. household) which would be employed. He claimed that this charge was non-

negotiable, whether the families had five camels or thirty. Having received the sums demanded, the informant claimed that the usage rights of the late-comers were equal to those of the well's founders. The rule is said to be "first-come, first-serve."

Example B:

The informant is an Azza, about 45 years old, who resides in the central Manga. His herd consists of about seven camels and twenty small ruminants. He derives a cash income from his leather-working. He has resided with 12 other Azza households in the same spot for four years. Their present well is the fourth which has been dug during the course of their four-year sojourn. No money was spent on the well because a professional well-digger resides in the village. The villagers contributed equally in materials and labor to the construction efforts. Using the same well are 8 Arab Hassaouna households, which the informant claimed were allocated usage rights based on the long-enduring friendship between them. The informant claimed that the Azza need for water was not great, since they did not possess a large number of camels, and consequently the Arabs' presence did not impinge upon their own use of the well. It was added that the Arabs did not possess many camels themselves. In the interest of good relations and their long cohabitation of the region, the informant claimed that the Azza were content to allocate the Arabs free usage rights.

Example C:

The informant is a Daza, about 60 years old, with a herd of about 35 camels, who resides in the central Manga. In September of 1992 he moved north about 50 kilometers to an area of good pasture. A single family of Arab Hassaouna had preceded him and had dug a well. The informant applied for and was granted permanent usage rights, the Arab reasoning that "*with just the two households and plenty of pasture there is no reason to refuse.*" No payment was solicited for these rights. Within a month of the informant's arrival, other Arab Hassaouna arrived and settled. Since they were all related to the well's founder, they were all given free usage rights at the well. The number of these new arrivals reached about 30 households. Certain of the new arrivals resented the presence of the informant's family (non-Arab) using the well and physically sought to prevent such usage. The informant re-approached the founder of the well and the latter re-iterated his promises, but problems continued at the wellhead. The informant claimed that the free usage rights he'd been allocated ceased to be worth the problems

they were causing. Consequently, he found a well-digger, dug a well nearby, and relocated.

Example D:

The informant is an Azza, 32 years old, divorced and without children. He resides in the south-central Manga, shepherding about 30 small ruminants and 5 donkeys. He and seven other Azza households arrived here about two years ago, having before then resided for 24 years at a site about five kilometers away. Upon their arrival, they dug a well in the depression, which was uninhabited at the time. A year later, three families of Hassaouna Arab arrived and were granted free usage rights by the Azza. Four of the Azza households subsequently quit the camp, leaving only two. Thus, the Hassaouna became the primary beneficiaries of the well, in lieu of which the remaining Azza left them to redig the well after the last rains. The Azza limited their contribution to supplying the wood boughs. In accordance with their numerical minority and reduced contribution to the well-digging, the Azza presently use the well only during its "off-hours" (dawn and late afternoon).

Apart from the Azza/Hassaouna well, there are four wells belonging to the Mohedi Arabs. These Mohedi arrived only two months before this interview (mid-May of 1993) and the informant was convinced they would vacate the site en masse within one month (upon receiving news of rainy season pasture in Nigeria). These Mohedi were estimated to represent at least 30 households, possessing at least 1,500 camels. Because of the huge number of people and animals, the informant claimed there was never any question that they would be allowed to use the Azza/Hassaouna well; he said the first arrivals were allowed to take water for household needs, but only until their own wells were finished.

For further examples of the varied composition of individuals contributing to well-digging costs, see examples listed in preceding section.

Among the individuals who have paid for the construction of a well, there is said to be no priority of use; the rule was unanimously stated as "first-come, first-serve." Informants claimed to know of the system employed by neighboring Fulani, that of each individual's having a recognized "time slot" for watering, but claimed not to have adopted it. With regard to it, one of the more frank informants claimed, "*we have no such discipline*." Those individuals who have been allocated usage rights but have not contributed financially to the well's construction cost are generally said to wait until after the paying members have finished before they use the well. Women and children, whose daily task is

to furnish their households' drinking water, descend to the well at all hours. If male relatives are pulling water at the time, the guerbas[90] and bidons are filled simultaneous to the watering of the animals. In the absence of relatives, the receptacles are filled gradually by soliciting the donation of the last few liters of every puisette lifted by those watering animals. In the absence of men at the wellhead, women and/or children pull water themselves.

2. Cement wells

Usage rights concerning cement wells:

This survey did not amass enough information on the varied factors determining usage rights at cement wells to be able to make any generalizations. In lieu of such generalizations are some individual case examples with relevant comments:

Example A:

> The well is located on the southern rim of the Dillia Valley, in the southwestern Manga. It is said to have been dug more than ten years ago. At the time resident herders were interviewed (mid-May of 1993), 30 Daza households were using the well. This number is said to fluctuate (upward to 80 households), but that for the moment it will probably not change much until the rains and pasture growth stimulate dispersion or concentration of the population. There are two fork-and-pulley devices at the well-head and the rule of usership is first-cone, first-serve. The unofficial guardian of the well is an individual who has resided on the site for eight consecutive years (longer than anyone else). Informants claimed it has been by tacit consensus, based on their respect for this individual's long residence and self-made wealth, that this he is considered their representative.
>
> With regard to local denizens, the representative claimed to have had major problems. With Arab Mohedi, however, he claimed that he (and the community) steadfastly refused watering rights. He claimed that local Daza fear the installation of even a single family of Mohedi, ostensibly because "*the arrival of one leads to the invasion of a whole settlement, with hundreds of camels, and they don't respect our rules at the wellhead.*" Informants claimed to fear the kind of "take-over" they have witnessed as various cement wells in the region on their eastern and northeastern flank (and the Arabs' subsequent refusal of watering rights to locals). It was said that to date, the spurned Arabs had departed

[90] a sack in which water is carried and stored, made of animal hide or inner-tubes

without trouble. Apart from their personal enmity, informants claimed to feel rejection of the Mohedi was legitimized by the administration; the well is one of five cement wells in the domain of a chef de groupement whose stated policy is said to be the unilateral refusal usage rights to Mohedi. The representative of the well claimed to be prepared to convoke the administrative or military authority in the case of problems which could not be resolved in the camp (on one occasion he summoned an army patrol, but the problem was related to a theft rather than to the well).

Example B:

The well is located in the same region as that covered in Example A. It is said to be at least ten years old. The residents using the well at the time of this interview (mid-May, 1993) included 11 Daza households, 7 Arab Mohedi households, and 1 Fulani household. There was said to be no one individual responsible for the well and no one had resided at the site for more than 6 months. The majority population of Daza had arrived four months previous, at which time they came to an agreement with the already-installed Mohedi on how the single fork-and-pulley device at the wellhead would be used. Such an agreement was necessary, as opposed to simply installing more such devices at the wellhead, due to the well's feeble rate of recharge. Informants claimed that no more than two parties at a time would use the existing fork-and-pulley device. The Fulani, who arrived last, was allowed to install a separate, smaller fork-and-pulley device because his watering needs were limited exclusively to small ruminants. The arrangement was said to have been honored without problems because "*here, chaos doesn't benefit anyone--even if someone wants to break the established watering order by throwing his puisette in the well ahead of everyone else (as is the practice in taking over a well by force), there isn't enough water to make it worthwhile.*"

Example C:

The well is located in the central Manga. It is said to be more than 40 years old. Except during the rainy season, informants claimed that the cement well was generally left unused in favor of two traditional wells dug about 30 meters away (this was said to be because water such an old well was believed to contain fewer of the desirable minerals than were present in a new well). It was during the rainy season, when approximately 20 Daza households and 10 Azza households were using the cement well, that a problem arose with Mohedi Arabs. As

in Example A, unofficial responsibility for the well resided in an individual as a result of tacit consensus. Upon arrival of the Mohedi, this representative manifested his constituency's innate dislike of said strangers by refusing them watering rights. Despite the fact that there was enough room for the addition of fork-and-pulley devices at the wellhead, informants claimed to fear the kind of "take-over" for which the Mohedi are supposedly infamous. They added that they had been "victims" once before of such an action (see Example D). To support their stance, the well's representative summoned a gendarme[91] from N'Gourti (40 kilometers away). The gendarme agreed with the resident Daza/Azza community that the Mohedi, who were not Nigerien citizens, had no right to use the well.

Example D:

The well is said to be more than ten years old. It is located in the central Manga. Until two years ago, its users were Daza, some of them year-round residents if pasture conditions permitted. There was no individual in the community who assumed responsibility for the well. The informants claimed to know little about the Mohedi when the first few such families arrived. They claimed to have seen them during their first tentative migrations through the region (within the past decade), but that such passages had never included settling for any length of time in the Nigerien Manga. The limited Mohedi settlement at the informants' cement well was accepted. Informants claimed that the number of Mohedi households thereafter increased to about 40 within a period of two months. These new arrivals were said to possess at least 2000 camels (per capita many more than the local Daza) and to be present at the wellhead 24 hours per day. The Daza claimed that the great number of animals at the wellhead as well as the Mohedi disrespect for Daza-established watering procedures eventually compelled them to leave. The Mohedi reportedly remain at the well site and neither the informants nor any other non-Mohedi claimed to consider re-settling there.

Example E:

The well is said to be more than twenty years old. It is located in the north-central Manga. The residents using the well at the time of this interview (early April, 1993) include approximately 40 families of Arab Hassaouna. Most of the informants claimed that their households

[91] sheriff

remained at the site year-round for the past 20 years, even when constituent members took the camels to pasture elsewhere. Several years ago, the cement cracked and the well became unusable. The residents repaired the shaft, using wood boughs and stuffing grass in the chinks after the same fashion as in a traditional well. They claimed that this repair constituted their claim to outright ownership of the well. "*If the government had wanted the well, someone would have come and repaired the damage,*" they added, "*but now it belongs to us.*" (Whether or not the administration shares this conception is unconfirmed). In the exercise of their proprietary prerogatives, the informants claimed to act no differently than if their cement well was actually a traditional well; they refuse long-term usage rights to strangers (all non-Hassaouna), allowing them only to water once and move on.

Example F:

The well is said to be at least ten years old. It is located in the south-central Manga. In a scenario similar to that described in Example D, the former users (Daza) have abandoned the well to the Mohedi Arabs over the past three years. During the course of this study, an unfortunate personal experience at this site confirmed some of the ill repute with which the Mohedi are saddled. The wellhead was surrounded by several hundred camels being watered by at least ten different puisettes. There were at least ten more parties waiting to water in their turn. Despite these circumstances and the unequivocally bad rumors I'd heard about the Mohedi, I was unprepared for the refusal of my request that my three mounts be watered and two guerbas filled. The immediate furnishing of drinking water for animals and their riders passing a well is the most fundamental rule of courtesy and of survival among Manga residents. Since the Mohedi mistook me for a Washili Arab, no amount of discussion yielded the water that is the right of any traveler. Unfortunately, it was procured only the revelation of my true identity (and the simultaneous awakening of the Mohedi fear of repatriation with Chad). To some extent, this encounter seems to confirm Manga residents' reports that the Mohedi are "taking over" certain areas.

Maintenance of cement wells:

All of the informants residing near cement wells claimed that members of the user community attended to all minor repairs. The most common of these consists of cleaning out sand, whose infiltration (wind-borne from above or water-borne from below) reduces the recharge rate. In only one case did informants claim that a professional was hired to undertake such simple repairs:

Example:

> The well is said to be at least 15 years old. The water-table is at 8 meters' depth. The well is said to be used only during the rainy season, when nearby traditional wells cave-in. During the rainy season of 1992, 45 households are said to have used the well. The residents hired a local Azza to clean the sand out of the well at the beginning of the season. They paid him 500 CFA per puisette full of sand extracted from the well. All users contributed to the repair costs, regardless of the different size of their herds. Some individuals contributed millet, sugar, or tea in lieu of cash.

Whether simple cleaning out of sand or major repairs of the type described in Example E above, informants claimed to consider that their investment in the maintenance of a cement well gave them certain proprietary prerogatives concerning the well. In the case cited under Example E, residents bluntly claimed the well as their personal property because it had apparently been abandoned by the administration and, without the repairs effected by locals, would have become unusable. The well's salvage was said to be tantamount to appropriation. Even at sites where residents had effected no more than simple cleaning out of sand, it was stated that such maintenance gave said residents control over usage rights. The difference between appropriating a cement well and controlling usage rights to it appears academic.

C. Agricultural land

Land used for the rainy season cultivation of millet is said to be an inappropriable commodity. However, the 63 cultivators encountered during the course of this survey agreed that their usership rights (during the rainy season) were tantamount to ownership. This means that any newcomer wishing to cultivate an area which is evidently used by someone else must search out and consult with said user before planting. Informants agreed, however, that the distinction between a used area and an abandoned one was often hard to make. The cleared trees and thorn hedges which constitute the hallmark of an occupied area may convey the false impression that an area remains under annual cultivation when in fact it has been abandoned. Due to this apparent problem, it was reported that there are two regulations concerning a newcomer who plants in a seemingly abandoned area and is then confronted by the former user: if the millet has not sprouted, the former user will pay the newcomer for his seed and the latter departs; if the millet has sprouted, the newcomer remains to cultivate the crop (but the field does not remain his after the season is finished). Except around centers of concentrated populations (of non-herders),

such as N'Guigmi and N'Gourti, these regulations were said to be rather academic due to the scarcity of farmers and availability of land.

Concerning their acquisition of farming land, défrichage (clearing) was the near-unanimous response of the informants for this survey. Unused land is ostensibly free for clearing by anyone who wishes, without consulting with the local chief or population.

There appears no incentive to preserve the trees located on or near such areas, as their crowns are used to construct thorn-hedges. Informants added, "*leaving trees would only attract birds (millet-eaters), so we cut them all down.*" Only within a five-kilometer radius of N'Guigmi, where there is some coverage by forestry agents, did I observe some selective clearing and pruning.

D. Natron

Natron is used as an aliment for animals (mixed with water). It is credited with various (unconfirmed) properties, including anti-parasitic, proponent of fur growth, and fertility stimulant. Apart from certain Teda informants in the north and north-central Manga who attain their natron at Agadem (300 kms due north of N'Guigmi), all other informants for this survey claimed to harvest theirs in the depressions around Fanta Dané (approximately 25-30 kms northeast of N'Guigmi). Natron resources are said to be inappropriable. Herders harvest according to need. Informants reported that the administration attempted to tax natron harvested around Fanta Dané in the 1970s, but that the imposition met with such vocal opposition that it was quickly abandoned. As with water and pasture, informants claimed to consider natron a collective and inalienable resource.

II.

ADAPTIVE STRATEGIES AND FOOD SECURITY

According to the informants for this study, most of the varied modifications made in traditional herding, farming, and craft activities date to the drought of 1980-85, if not to that of 1968-75. As such, these changes should not be regarded as very recent. This section admittedly omits several activities (notably, Azza metal-smithing, leather-work, and hunting) which informants reported to be on the decline, in the interest of concentrating on those activities which have been more successfully adapted.

FOOD SECURITY

The perception of security in this zone is most commonly said to be based on two elements: possession of camels and a family labor force to ensure their upkeep. Camels constitute the productive assets whose milk provides the basis of daily alimentation and whose sale assures provision of cereals (no informant claimed to subsist exclusively on milk). For the symbiosis of people and animals to remain viable, the minimum ratio of camels-to-humans is cited as 5-7 reproductive females for each adult human being. For families whose herds are insufficient, trade activities appear to represent the only significant means by which food security is assured.

A. Herding

Accounts furnished by informants for this study largely corroborate those documented in the 1987 PDENCE study,[92] detailing Manga residents' wholesale coversion from cattle to camel and small ruminant husbandry over the past 25 years. Of the 147 heads of households interviewed for this study, 132 claimed to have herded cattle before the drought of 1968-75. Only 12 of these individuals claimed to have had a complement of camels more important than that of cattle in the pre-1968 era. Because the details of Manga residents' conversion to camel husbandry are well documented in the PDENCE study mentioned above, they will not be re-iterated herein. However, an important consequence of this conversion consists of a considerable increase in herders' investment of time and labor in the maintenance of their animals.

Informants for this study agreed that camel-herding requires more labor than cattle-herding. Cattle were said to need more

[92] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le départment de Diffa, PDENCE, 1987, pps. 164-66

water than camels, but camels require more supervision. Camels are selective browsers and tend to roam much farther than cattle. That they do not need to drink daily means that they are more likely than cattle to distance themselves from their owners' camp and water source. Informants claimed that when villages were less mobile, camels knew their owners' wells and returned to them for watering; contrarily, with the increased mobility of villages and the constant changing of well sites (due to meager pasture) which has characterized the past ten years, constant supervision and round-ups have become a necessity. These round-ups are conducted as frequently as twice a day during a two or three-month period at the end of the hot season and beginning of the rainy season, when animals scent new pasture to the south and invariably attempt to flee. Some or all of the animals' front legs are bound together (with entraves) as a means of slowing down their movement, but an animal thus constrained can still progress several kilometers per hour if it is so inclined. In place of these round-ups, some informants claimed to station a guardian with the animals (usually a child). This individual ensured that individual animals did not separate themselves from the herd, and at nightfall they would all be returned to the camp. The incidence of this kind of supervision appears markedly higher among Arabs (both Washili and Hassaouna) than among other groups. No apparently logical reason was given for the divergence in the various groups' preference.

Apart from the intrinsic far-ranging nature of camels and the various consequences of degraded pastureland, a heightened incidence of theft was also said to contribute to the increase in camel-herders' labor requirements. Fear of these thefts was one of the primary factors motivating individuals to supervise animals constantly. Camels whose owners claimed to have once let them roam for months unseen and unaccounted for reported that they no longer allowed animals to remain out of their sight for more than a few days. All of these thefts were said to take place when animals were unsupervised (as opposed to armed robbery in the owner's presence). Although informants claimed that theft could occur almost anywhere, the incidence was said to be highest in the southeastern, south-central, and southwestern parts of the Manga which were closest to markets. An important percentage of the animals stolen is said to be sold directly to butchers in these market centers, as opposed to selling them on the livestock market, where thieves run the risk that the animal's proprietor's brand will be recognized. Many of the thieves, as informants recognized, come from their own ranks; they are young, unmarried Daza, for whom animal theft represents a semi-institutionalized rite of passage and source of income. The imposition of colonial authority is said to have curtailed this practice; in the 30 years since Niger's independence (but most markedly in the past five), this kind of theft has experienced a resurgence. With few exceptions, informants asserted that they felt the administration incapable of changing this trend and thus took various measures of self-defense into their own hands.

Of the 147 total male heads of households interviewed, 141 claimed that they had possessed small ruminants since before the drought of 1968-75. At the time of this study, all 147 claimed to possess small ruminants. Some of these individuals (45 total) claimed to herd small ruminants exclusively, whereas the remaining 102 informants asserted that their small ruminants were herded in association with camels. For the former, the importance of these small ruminants is obvious (see Examples A, B, and C under Trade with N'Guigmi and Example B under Trade with N'Gourti). For the latter, the distinction is more subtle. Informants herding small ruminants in association with camels generally claimed that they began to sell said small ruminants over the past decade. Before that time, they reported that small ruminants were raised strictly for consumption by the herder's household. The reasons given for this change was the drought-induced losses (or slower reproduction) of camels. Sale of small ruminants was said to serve now as a means of avoiding the sale of their rarer large animals. As illustrated subsequently (see Example A under Trade with N'Gourti, Examples B, C, and D under Trade with Nigeria, and Example E under Trade with N'Guigmi), such individuals depend on the sale of goats and/or sheep to meet petty or unforeseen expenses. One informant commented, "*goats and sheep are the pants for the grand boubou,*" alluding to the importance of the collateral role played by small ruminant sales in the over-all economic livelihood of the household.

During the course of this study, no informant was encountered who claimed to be systematically raising small ruminants with the ultimate objective of selling them for camels. Such strategy was said to be employed by herders south of the Dillia Valley (i.e. in the northern Mangari), but in the Manga proper informants asserted that poorer pasture slowed down goat and sheep reproduction rates. In addition, many claimed that plagues frequently decimated these animals. This is not to imply that this strategy of reconstituting camel herds is entirely unused, but it appears that it is employed sporadically rather than systematically; more than half the total 102 mixed-herd proprietors claimed to have sold small ruminants at some time during the preceding three years so as to buy camels. But they emphasized that the excess of small ruminants which had permitted such transaction was not something they counted on to reconstitute their camel herds.

Of the 45 informants herding small ruminants exclusively, all claimed to have had some goats and/or sheep since before the drought of 1968-75. Before that time, however, they asserted that they had herded them collateral to cows. Most of them had lost their cattle in that first drought, the rest in that of the mid-1980s. None of these individuals claimed to consider selling his small ruminants to recommence cattle-herding. Only one individual claimed he planned to convert his goats and sheep to camels. Some insisted that prevailing circumstances had imposed this small ruminant-based existence, whereas others averred that

it was a matter of choice. The former claimed that their goats and sheep were not sufficiently numerous, did not reproduce fast enough, and did not fetch high enough prices on the market to permit them to consider buying camels with proceeds from these small ruminants. It was said that proceeds from these small ruminants frequently fell short even of assuring basic food, clothing, and other needs of the owner's household. Informants claiming that their herding of small ruminants exclusively was a matter of choice said they had no history as camel-herders and did not wish to take up the rigorous, mobile lifestyle of such individuals. Notably, all informants who gave this response were Azza or Agra.

B. Agriculture

Rainy season planting of millet constituted the only form of agriculture which informants for this study claimed to practice. Out of the total 271 informants, 63 reported that they had cultivated annually during the preceding five years. These figures include women, who are said to work in the fields. In Table J below is illustrated the ethnic and caste affinities of these cultivators.

Only 24 of the remaining 243 non-cultivators claimed to have once been cultivators but to have ceased planting during the preceding 15 years. Notably, most of these former cultivators appear to be wealthier, more mobile, and more northerly (i.e. camel-herders and/or individuals engaged in trade) than those continuing to cultivate. For the most part, present-day cultivators are semi-sedentary non-camel-owners residing in the southern portion of the Manga.

TABLE 13

INFORMANTS WHO CULTIVATE						
Ethnic Group	Caste and/or geo-linguistic group		M	W	TOTAL	
TOUBOU	Teda	0	-	-	60	63
	Daza	5	3	2		
	Azza	37	17	20		
	Agra	18	10	8		
ARAB	Washili	0	-	-	3	
	Hassaouna	3	2	1		

With a few exceptions (most around the village of N'Gourti), all of the informants resided in the southwestern, south-central, and southeastern Manga. Except for a cordon of about 10 or 15

kilometers around N'Guigmi, informants claimed to plant their fields in depression-bottoms. Some individuals reported that they would not plant until there was standing water pooled in such depressions. They alleged that the moisture-retentive character of the heavy soils in the depression-bottoms gave their crops a better chance of survival than on the surrounding dunes. By contrast, the informants cultivating in the cordon around N'Guigmi reported that they felt their crops had a better chance of maturing on the dunes than in the depression-bottoms. Neither group of informants claimed that these preferences were of recent date. The only recent change in farming habits was reportedly some individuals' leaving their settlements to plant where the first rains fell, as opposed to waiting for rains to fall in their immediate locale. Only a few individuals claimed to have thus modified their planting tactics.

The majority of the informants claimed to have planted millet every year for the past decade, reaping three harvests. These harvests reportedly took place in 1988, 1990, and 1992. Harvests for 1988 were said to be fair/good, for 1990 poor/mediocre, and for 1992 good/very good. The following tables reveal rainfall, surface area cultivated, and production/yield statistics for the Arrondissement of N'Guigmi.

TABLE 14

Five-year rainfall statistics for the Arrondissement of N'Guigmi

YEAR	1992		1991		1990		1989		1988		1987	
month	mm	days	mm	days	mm	days	mm	days	mm	days	mm	dys
May	-	-	7,1	2	-	-	9,2	3	15,0	1	1,3	1
June	0,9	1	0,1	1	11,8	3	2,6	3	1,0	2	28,8	5
July	101,2	9	35,2	7	21,7	4	12,0	4	94,0	8	10,3	2
Aug.	73,9	11	115,9	7	93,9	11	88,5	9	128,1	16	64,3	10
Sept.	33,8	3	9,5	3	7,9	4	-	-	8,7	2	10,6	3
Oct.	-	-	-	-	-	-	5,8	1	-	-	2,7	2
TOTAL	215,3	24	167,8	23	135,3	21	118,2	20,0	246,8	29	119,0	23

Source: Rapport Annuel d'Activités Agricoles d'Hivernage, Campagne 1992, Direction Départementale (Diffa)

None of the 63 informants who claimed to cultivate reported that the unreliability of harvests discouraged him or her from continuing to plant. To the contrary, these individuals pointed out that the successful harvests (such as 1992) so dramatically reduced their expenses/animal sales that they were encouraged to continue (see Examples A, B, and C under Trade with N'Guigmi).

TABLE 15

SURFACE AREA CULTIVATED IN THE ARRONDISSEMENT OF N'GUIGMI		
PERIOD / CULTURE	1992	1991
Millet	6.759	4.937
Sorghum	-	-
Bean	21	-
Total	6.780 ha	4.937 ha

Source: Rapport Annuel d'Activités Agricoles d'Hivernage, Campagne 1992, Direction Départementale (Diffa)

TABLE 16

CULTURES	Millet		Sorghum		Bean	
Year	Yield *	Production **	Yield	Production	Yield	Production
1992	1.398	9.449	-	-	-	-
1991	109	538	-	-	-	-
1990	246	1.354	-	-	-	-
1989	-	-	1.800	574,6	800	159
1988	825	2.872	-	-	-	-
1987	8,8	31	-	-	-	-

Source: Rapport Annuel d'Activités Agricoles d'Hivernage, Campagne 1992, Direction Départementale (Diffa)

* Kg/ha
** tons

C. Craft

With regard to handicraft, most items made by women are for household use. Systematic commercialization of such items (particularly mats and basketry) is limited to women from the Azza (artisan) caste.

Over the past 15 years, Azza womens' sale of handicrafts has reportedly assumed a greater importance in the economic livelihoods of their families. Azza informants, men and women alike, claimed that womens' weaving of nattes (palm-fiber mats) has acquired a more full-time, commercial aspect in response to failed

agricultural efforts, livestock losses (or slow reproduction), and less successful hunting over the past fifteen years. These nattes are not those of the variety woven by sedentary populations to the south (to unfurl on the ground), but rather the long nattes from which tents of Manga inhabitants are constructed. These nattes are measured by the length of the forearm of the weaver; informants claimed that the average natte is 15 to 16 forearms long (approximately 6.5 to 7.0 meters) and about 1.5 meters wide. It takes roughly four of these nattes to construct a tent. As the nattes age, women tend to replace them one by one, as opposed to changing all of them simultaneously (at considerable cost). Following are some examples which illustrate the dynamics of this activity.

EXAMPLE A:

The informant is a 30 year-old Azza woman. Her husband has a herd of about 25 small ruminants, participates in group-hunting activities, and cultivates during the rainy season (unsuccessfully for the past five years). The informant and her husband have four children, the oldest of whom is ten. It was this oldest son who went to harvest the palm fronds (*Hyphaena thebaica*) for his mother's natte-making activities. He took four donkeys and was accompanied by an adult, the husband of another natte-weaving woman who was likewise harvesting fronds. They left their village in the central Manga for Bol, Chad, a journey of approximately 120 kilometers, which took them about ten days. This journey was said to be an annual event, always taking place at the beginning of the cold season (around November). The time is takes to cut, dry, and bundle the fonds is said to be between 10 and 20 days. The informant claimed that Chadiens occasionally demand payment for the allocation of harvesting rights. The return trip takes another ten days. The informant claimed that each donkey carries two bundles, from each of which one natte can normally be woven. In this case, the informant said her son returned with eight under-sized bundles, from which she made only five nattes.

The informant claimed that the fastest conceivable weaving time for a natte is about 20 days, but added that such rapidity was uncharacteristic except in cases of her accepting a "rush-order" with an advance. One of these nattes she used for her own family's tent. The other four were sold for between 3.000 and 4.500 CFA. She claimed to have no regular customers, but rather that individuals search her out according to their needs. Sometimes she is given an order and accepts an advance, sometimes she stores the nattes in anticipation of customers' arrival. When no buyers come to her, her husband may take the nattes to N'Gourti or N'Guigmi to sell. The price in both

places is said to vary between 3.500 and 5.000 CFA, depending on whether or not the market is glutted. The medium of exchange is usually cash, but may be negotiated for tea, sugar, millet, and livestock. The informant claimed to weave nattes until the fronds were all used up, making basketry with the odd quantities left over. At the time of the interview (early May), her fronds were almost finished, but she claimed that because her son was needed at home he would not be asked to make another trip to Bol until November. Other families with more children (i.e. fewer time/labor constraints) reportedly make two or three trips annually to Bol.

EXAMPLE B:

The informant is a 34 year-old Azza woman with two children under ten years of age. Her husband is a crafter of wood and leather, participates in group-hunting activities, and farms during the rainy season. She inhabits the same village in the central Manga as the informant in Example A. In November of 1992, her husband departed for Bol with six donkeys and returned with 12 bundles of palm. He sold four of these bundles upon his return to the village. The price of the bundles was between 2.000 and 2.500 CFA apiece. The informant made 7 nattes with the remaining 8 bundles of palm. She retained one of these for her family's tent. The remainder were sold, three to customers who came to her in the village and three of which were taken to N'Gourti by her husband. The selling price for all six was between 3.500 and 4.500 CFA. The excess from the eighth bundle she was using to make basketry for household use at the time of this interview. With the exception of certain marriage articles (for which an advance order is placed), basketry is said to be a less profitable commercially than natte-weaving.

EXAMPLE C:

The informant is a 37 year-old Azza woman with two children, a daughter age 17 and a son age 19 (both from husband's former marriage). Her husband possesses seven camels and about 15 small ruminants, is a renown metalsmith, participates in group-hunting activities, and cultivates during the rainy season. The informant sent her son to Bol twice during the past year to harvest palm fronds. In November of 1992, he took three donkeys and returned with six bundles of palm, three of which were sold by the husband for about 2.500 CFA apiece. The informant used the remaining three to make nattes, all three of which were given as gifts to local Kara and Daza friends (asked about these gifts, she commented that "it

would have been shameful not to have given something for which I was asked by someone I know"). Her son went to Bol again in February of 1993, returning to the camp with 8 bundles of palm frond. At the time of this interview (early May), the informant and her daughter had woven a total of five nattes. Two of these had been sold to neighboring Daza families on advance order for 4.500 CFA apiece. One was used for her family's tent. The remaining two were on hand in anticipation of customers. The informant commented that the income from nattes is technically her own, but that it is usually dispensed for the collective needs of the family. She commented, "*I don't think of myself if there is something that the family needs.*"

It should be noted that in Examples A and B, the woman artisan often entrusted the sale of the finished product to her husband. This was typical of all Azza women interviewed. Also typical was the comment elicited from the informant in Example C, indicating that the income generated from her activities was often yielded to her husband for meeting the collective needs of the family. Thus, while the income generated by the Azza woman's handicraft activities appears to have acquired greater importance relative to that earned by the husband's activities, her social stature does not seem to have been altered accordingly.

Apart from Azza womens' sale of nattes and basketry, the only other incidence of womens' commercializing handicrafts involved the Arab Washili and Hassaouna. Women of these Arab communities claimed to weave grain-storage sacks from camel's fur. Although most of these sacks were said to be for household use, it was admitted that some were sold. The fabrication of said sacks is a labor-intensive activity. Camels' hair is trimmed at the beginning of the hot season. A half-oil drum (100 liter volume) of camel droppings is gathered and burned, the cinders from which are mixed with the camel hair. The hair and ash mixture is then beaten (with clubs) until the hair is deemed acceptably cleansed and pliable. The hair is then "twisted" into thread. When there is enough thread, it is placed on a loom and woven into the strips which will ultimately be sewn together to make the sack. The sack is said to have a capacity of between 100 and 110 kilograms of grain. Informants claimed that a woman working alone would take about one year to fabricate two such sacks. If she had help from others, she could complete two sacks in about half that time.

Camel-hair sacks were said to cost 10.000 CFA for a pair in a period when many were available. The price was said to double (20.000 CFA) in times of scarcity. As with the commercialization of nattes by Azza, sale of the sacks is said to be frequently confided to the husband. Several informants claimed that it was their husbands who had requested a sack or two from them to sell when they wished to avoid selling an animal. By contrast to the

very commercial, almost full-time aspect of Azza artisanry, sack-weaving by Arab women is much more discrete. This is attributed to the annual fluctuation in hair-growth on camels, the labor-intensive nature of the work, and the fact that most of the sacks are used in the household of the maker. Informants added that they abhorred acquiring the image of artisans (i.e. they pride themselves on being purely herders).

No informant was encountered who claimed to have woven sacks this year. This was attributed to insufficient hair growth on the camels, which was in turn said to be due to poor pasture. In such a situation, some informants claimed that women would acquire the necessary hair by trimming someone else's herd (often in exchange for one finished sack), although none of my informants claimed to have done so this year. Informants implied that their sack-weaving was more of a hobby than an activity on which they counted to help meet subsistence needs. By contrast to the increased production of Azza craftswomen over the past 15 years, Arab informants claimed that sack-weaving had, if anything, decreased during the same period (due to poor hair growth).

D. Womens' activities

Women of the Manga generally appear to have less independence than their counterparts in the agricultural zones to the south.

As discussed above, the Azza woman's increased importance as an income-earner does not appear to have given her greater authority to decide how such income will be spent. Most of what she earns remains at the disposition of her husband.

Teda/Daza and Arab women informants for this study claimed not to have engaged in any kind of remunerative activity similar to the craft-for-sale type of Azza women. The sale of milk, which constitutes a relatively new and important source of income for Fulani and Kanouri women of the south, is considered shameful for Teda/Daza or Arab women. Although there was evidence of such womens' participation in milk sales (notably around the centers of N'Guigmi and N'Gourti), the sales transactions themselves appeared to be confided to children (women refused to discuss the subject).

Womens' labors tend to be non-remunerative. They consist primarily of preparing meals, supplying drinking water, gathering firewood, attending to the small ruminants and donkeys, and taking care of the children. During the husband's absence, she attends to the camels as well. Of the informant families claiming to cultivate, women were said to participate in this activity as well, but this was not said to constitute a change of recent date.

Among those women (notably Daza) who claimed to have taken a sizeable gift of animals to her husband upon marriage, all averred

that most of the animals were destined for the children produced by the marriage. Even with regard to those animals which belong to her alone, it appears that it is only the exceptional woman who disputes her husband's right to sell such animals in the case of ostensible hardship. Except in the case of divorce, wherein women repossess their animals, it appears that a woman's animals i.e. her personal wealth) does not generally translate to greater autonomy (vis-à-vis men).

E. Animal exchange for marriage

Among all ethnic and caste groups in the Manga, marriage entails a gift of animals for the newly-married couple. In all cases, this gift comes from the bride's family, following a ritual exchange. For example, among Daza, the groom solicits his family and friends for a donation of camels (the number, usually five, having been fixed by his future in-laws); after the marriage is made, the bride's family returns the grooms gift, usually doubling the number of camels. It is with this herd that the new couple receives its independence. Informants claimed that this marriage gift is generally most substantial among the Daza and the Arab Hassaouna, whereas Teda and Arab Washili marriages necessitate smaller donations. Among Azza, the marriage gift is said to consist largely of small ruminants, although one or two camels may be included.

Most informants claimed that there had been no diminution in the size of marriage gifts over the past ten or twenty years (i.e. in response to difficult economic conditions). Individuals responding thusly were primarily Teda, Daza, and Arabs who asserted that maintenance of a high price for marriage gifts (in spite of a reduction in animal numbers) was crucial for social reasons. They implied that no such change could be effected without shaming the families involved. However, a minority among the Teda/Daza and Arab informants claimed that in fact reductions were made, without significant loss of prestige for the parties involved. Apart from the question of wealth, negotiation of a eduction in the marriage gift appears to depend on the tenor of relations between the groom and father-in-law.

Among the Azza, reductions in the marriage gift were said to be relatively common. This may be attributed to Azzas' possession of less wealth (than Teda/Daza and Arabs) and generally more modest characters.

F. Seasonal migration

1. To Libya

Due to the reticence with which many of the informants greeted inquiry on this subject, and therefore the potentially inaccurate

nature of the information furnished, only guarded conclusions should be drawn.

Libya is said to be the destination of choice for most Manga residents. Out of the total 147 male heads of households interviewed, 50 claimed to have been to Libya at least once (see table below) for the ethnic and caste affinities of these emigrants) and to have stayed for at least a six-month period. Out of these 50 individuals, 37 claimed to have been to Libya more than once. Although responses were not rapidly forthcoming on the subject, it appears that the employment secured by most of these individuals was unskilled and of temporary duration (primarily in construction). Those who were able to acquire Libyan nationality (more Arabs than others) claimed to have access to employment of more regular hours and longer duration (i.e. assembly lines). Some serve(d) in the military. Most of these informants were between the ages of 18 and 30 at the time of their sojourns in Libya.

With several exceptions among the Arabs, informants agreed that exodus to Libya had turned much less attractive over the past three to five years. Employment was said to be harder to find and less remunerative. Some informants commented that they knew of certain emigrants who were effectively trapped in Libya, not having found work and without enough money to return to Niger.

TABLE 17

INFORMANTS PARTICIPATING IN EXODUS TO LIBYA 1990 - 93						
Ethnic Group	Caste and/or geo-linguistic group		M	W	TOTAL	
TOUBOU	Teda	9	9	-	17	50
	Daza	7	7	-		
	Azza	1	1	-		
	Agra	0	-	-		
ARAB	Washili	14	14	-	33	
	Hassaouna	19	19	-		

It appears that "rite of passage"-style migration to Libya remains much-practiced by young men (especially Arab), but that the incidence of older or married men seeking employment of long duration has fallen off. Of the former, it is said that such form of migration is useful for acquiring clothing, blankets, tapestries, and other de rigeur articles in preparation for marriage, but that cash income derived is generally small. Of the latter, one individual joked, "*when all those people (who thought they were going to be rich) come back to the Manga without money, we're going to have a field-day hiring them for nothing to be our*

shepherds." Informants generally disagreed with the idea that Libyan incomes constituted an important factor in the reconstitution of camel herds in the Manga.

Aside from the abovementioned forms of migration, the kind of definitive exodus allegedly prevalent in the 1970s is said to have ceased. Factors contributing to this exodus were said to have been the catastrophic loss of animals in the 1968-75 drought and the coinciding economic boom in Libya. In this period, an indeterminate number of Manga residents is said to have sold its remaining animals and quit Niger, settling permanently in Libya. Libya is said to have favored immigration during the 1970s and 1980s, during which period there was reportedly strong demand for both skilled and unskilled labor.

Some informants claimed that some elderly Arabs who have acquired Libyan nationality seek to retire in Libya, taking advantage of social security payments. This form of permanent migration was said to involve a very small number of individuals.

2. To N'Guigmi

Individuals participating in seasonal migration to N'Guigmi appear to be mostly young, unmarried men from the castes Azza or Agra. They are said to seek short-term, unskilled labor, usually in brick-making or house-construction. Teda, Daza, and Arabs claimed to disdain such work (although they might do it in Libya, where no acquaintances would see them). Remuneration for these tasks is said to be minimal. Participants are generally those whose parents have few or no camels, their livelihood being based on small ruminants.

SECTION ON MIGRATION TO LAKEBED. Migration was high in drought of 1980s with camels. Was last-ditch strategy. Informants claimed will not go again due to high death toll attributed to bad water and shogolup (with latter stomachs grew big but no births/abortions and no milk). This reluctance to go again has yet to be tested by severe drought conditions. Most say will stay in north, where camels are thin but survive. Indications are that might go more toward Mangari.

III.

COMMERCE AND CROSS-BORDER TRADE

A. Trade with the Kawar and Libya

The Kawar is a string of oases running 80 kilometers from its northernmost extent at Aney to its southernmost at Bilma (see Map I). It is located approximately 500 kilometers north of N'Guigmi. It is flanked by the Ténéré Desert to the west, the Djado Plateau to the north, the Tibesti Mountains to the east, and the Manga to the south. Historically, the oases of the Kawar served as entrepôts for various items transitting the Sahara (i.e. not produced in the oases themselves as well as production centers for dates and salt. These dates and salt were sought by traders from both the Maghreb and the subsahara. As concerns traders from the Manga, the most important mediums of exchange consisted of millet, butter (from cow's milk), dried meat, and livestock. This trade is said to have been conducted for at least several centuries preceding the present one.

According to the informants for this survey, trade with the Kawar continues but the number of participants (from the Manga) is reduced. The reasons attributed to this change were both environmental and social. Chronic drought over the past 30 years is said to have reduced the quantity of dates produced in the oases.[93] During the same period, this drought compelled many southern pastoralists to convert from cattle husbandry to that of camels, severely curtailing production of the butter which had constituted one of southerners' most important mediums of exchange in the oases.[94] In addition to these factors, informants for this study claimed that the drought has also had a negative effect on the pasture along the route. This factor, coupled with what is said to be a generally poorer state of health of pack animals (due to hunger), has allegedly reduced the number of Manga residents capable of reaching the Kawar. A resurgent incidence of banditry since the departure of colonial authorities is also said to have influenced this diminution of the number of traders with the north.

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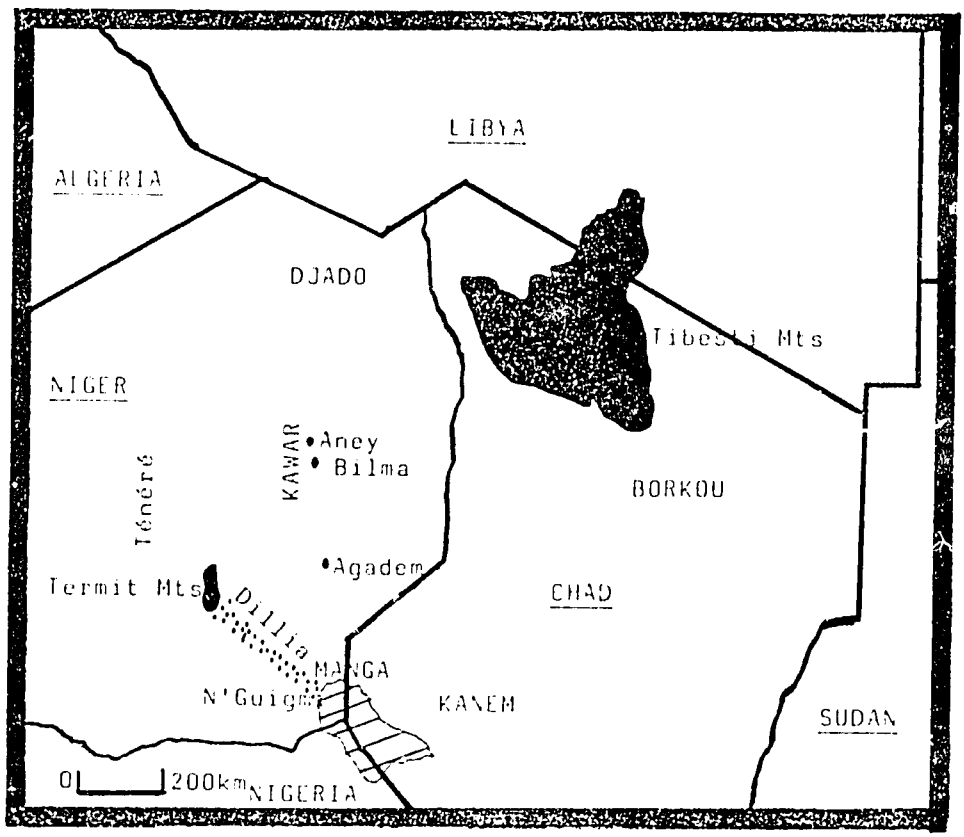
[93] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, 1987, pps. 166-7

[94] THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le département de Diffa, PDENCE, 1987, pps. 154-55 & 166

MAP I


LIBYA
ALGERIA
DJADO
Tibesti Mts
NIGER
Aney
Bilma
KAWAR
Ténéré
BORKOU
Agadem
Termit Mts
CHAD
Dilla
MANGA
N'Guigmi
KANEM
SUDAN
0
200km
NIGERIA

An important element of the Manga-Kawar trade as it exists presently is said to consist of various agricultural and manufactured goods of Libyan provenance. These goods include rice, wheat flour, macaroni, cooking oil, tea, tomato paste, blankets, tapestries, fabrics, and a variety of other manufactured items. Oasis villages of the Kawar are said to have served as points of transit for Maghrebian goods passing to the subsahara even before the industrialization of Libya, but informants averred that over the past two decades the oases' importance as trade entrepôt has increased and that of zone of production has decreased. Traders from the Manga reported that the quantity and variety of Libyan commodities available on the market in the oases has increased significantly over the past year. Nonetheless, the majority of Kawar-trading informants for this survey claimed to have dealt in the traditional cargo of dates, not manufactured items from Libya. Camels and small ruminants are said to constitute the most important commodities exported from the Manga. Some informants claimed simply to take cash for their purchases, as opposed to selling a commodity to raise funds. Although Bilma is not the only oasis village in the Kawar producing dates or reputed to host commerce, it was the only location in which informants for this study claimed to transact their business. Following is a table on the ethnic affinity of informants for this study who claimed to have been involved in the Kawar trade at some time during the past year, and some example cases.

TABLE 18

INFORMANTS PARTICIPATING IN THE KAWAR TRADE, 1992 - 93						
Ethnic Group	Caste and/or geo-linguistic group		M	W		
TOUBOU	Teda	15	12	3	18	25
	Daza	3	2	1		
	Azza	1	1	-		
	Agra	0	-	-		
ARAB	Washili	5	5	-	7	
	Hassaouna	2	2	-		

*note: Although a recent study cited that some of the wives of Teda date-palm proprietors made an annual trip (all-women) to the Kawar to harvest dates which were in turn sold on southerly markets,[95] none of the informants

[95] THEBAUD, Brigitte, NOHAO, Abdoulaye, L'aménagement de l'Elevage dans le départment de Diffa, PDENCE, 1987, pp. 155

encountered claimed to engage in this activity. Indeed, the four women engaging in trade sold dates in southern markets, but all claimed that they had neither gone to the Kawar themselves (their husbands had) nor were their families the proprietors of date palms.

EXAMPLE A:

The informant is a 28 year-old Teda residing in the north-central Manga. He is married and has three children, but the latter are too young to aid in herding. He possesses a herd of about 10 camels and ten small ruminants. He claims to trade between Bilma and N'Guigmi several times per year (during which his wife and relatives attend the herd). On his last trip to Bilma, in January-February of 1993, he departed with one male relative and several pack animals. They took camels and small ruminants (all on the hoof) to sell in Bilma. He claimed to have departed with "an open mind" about what he would buy in Bilma, as the selection and price of commodities there is said to change frequently. He ended up buying some flour and salt for consumption by his own household and dates for commercialization in N'Guigmi. He charged three camels with dates; the standard charge is 200 kilograms, and at the time cost him 6.000 CFA (thus 24.000 CFA total for three charges). He sold each charge in N'Guigmi for 24.000 CFA apiece (thus 72.000 CFA total). After buying millet, sugar, and some sauce items, the informant returned to his camp. The round-trip had taken 40 days.

The informant claimed that this trade was "vital" to his family's livelihood, stating "*we lost a lot of animals to disease and the ones which remain don't reproduce as fast as they used to (in times of better pasture)--if I didn't engage in trade, these few animals I have would all be sold to buy millet.*" The informant asserted that many young Teda in his situation (with undersize herds) were involved in the Kawar or Chadien trade. The informant's father observed that the number of Kawar traders is diminished since the end of the colonial era. He attributed this to pack animals' generally poorer state of health, increasingly meager pasture along the route, and fewer watering points (wells have not been maintained).

EXAMPLE B:

The informant is a 30 year-old Teda residing in the north-central Manga. Like the above informant, he is married and has children, but none of the latter is old enough to

contribute significantly to household or herding tasks. His wife and sister attend the herd of 12 camels and 10 small ruminants during his absence. He has engaged in both the Kawar and Chadien trade circuits several times a year for the past three years (before that, he spent seven years in Libya). The last time he went to Bilma was in January of 1993. He departed from his camp with cash (raised in previous trading activities). At Bilma, he charge three camels with dates, paying 5.000 CFA for each charge (total 15.000 CFA). He sold the three charges in bulk in N'Guigmi for 20.000 CFA apiece (total 60.000 CFA). He asserted that he would have liked to have entrusted the dates to his wife to sell piecemeal in N'Guigmi or Nigeria, which would have garnered two or three times the price for which they were sold in bulk, but that their children were too young to be left by themselves. With the proceeds of the sale, he bought millet, sugar, and various dry goods. With what remained, he bought a female camel, aged two years, for 20.000 CFA. Thereafter, he returned to his camp, 40 days having elapsed since his departure.

In common with the individual in Example A, the informant claimed that he was compelled to engage in some kind of commercial activity because his limited number of animals could not sustain his family. At the time of this interview (mid-April of 1993), he claimed to be preparing to depart on another trading mission, but this one to Chad. The heat, meager pasture, and duration of the voyage had decided him against Bilma.

EXAMPLE C:

The informant is a 40 year-old Daza who resides in the southwestern Manga. He and his two wives have five children, only one of which is old enough to contribute to household and herding labors. Two brothers and several cousins assist him in guarding a herd which consists of approximately 70 camels, 25 small ruminants, 10 donkeys, and several horses. The last time the informant went to Bilma was in November of 1992. He departed with several other Daza (unlike most non-Teda, he did not take the Teda "guide" which is now said to be standard practice for avoiding problems with the Teda populations along the route). He took sugar and oil (Nigerian imports) as well as six donkeys, 8 goats, and 7 sheep to sell in Bilma. One donkey he sold for 30.000 CFA, the remaining five for 22.000 CFA apiece (total 140.000 CFA). The 50-kilogram sack of sugar (bought in N'Guigmi for 8.000 CFA) he sold by the measure for 18.750 CFA. He sold the eight goats for 10.000 CFA apiece and the seven sheep for 20.000 CFA apiece (total 220.000 CFA). He could not recall for what price he sold the several bidons (4-liter) of cooking oil.

The total amount of cash raised from the abovementioned sales was 378.750 CFA.

With some of the cash, he charged six camels with dates and two with salt. Each charge of dates cost 4.500 CFA (total 27.000 CFA). Each charge of salt, consisting of two 50-kilogram sacks, cost 2.000 CFA apiece (total 4.000 CFA). He returned to his village and sold the salt by the measure to local herders (salt from the Kawar is preferred to local natron) for a total of 20.000 CFA each charge (total 40.000 CFA for two charges). Thereafter, he took his two wives to the Nigerian bordertown market of Gashagar, near Diffa, where they sold the dates by the measure. They sold each charge for a total of 60.000 CFA (15.000 CFA more than would have been garnered at the same moment in N'Guigmi). This piecemeal sale of dates is always a task confided to women (men sell in bulk, and usually do not go south into Nigeria). The sale of all six charges took three and a half months to complete. With proceeds from his sales in Bilma, his village, and Gashagar, the informant claimed to have bought millet, sugar, tea, and other necessities (all in Gashagar). With the rest of his profits, he asserted that he bought camels in N'Guigmi. The informant claimed that he had conducted trade in a similar manner for the last 15 years. He averred that this trade was chiefly responsible for his growing wealth (70 camels), and that he had begun on a small scale (see Examples A and B) which suited his once-modest means.

The informant commented that he knew of no other Daza from the central or south-central Manga who conducted trade as consistently or on as large a scale as he (this was corroborated by other informants). In addition to possessing an entrepreneurial spirit, the informant attributed his success to his having two wives to assist him in date sales and various relatives to take care of his herds during his absences. He claimed to have no intention of ceasing involvement in the Kawar trade.

Example D:

The informant is a Washili Arab of 25, residing in the north-central Manga (35 kilometers from N'Gourti). He is married and has one infant daughter. He resides in his father's camp, along with the families of four of his married brothers. He described his own herd of camels as "modest," but stated that his father's herd included over 100 heads. Many of the animals belonging to the father and sons were herded and watered communally. The family of the informant is said to be one of two oldest among the Washili in the Manga, having immigrated from Chad sometime around 1900. From the time of their arrival to the drought of 1968-75, the family's traditional zone of

residence was said to have been about 50 kilometers north of where this interview found them.

The informant claimed to have gone to Bilma for the first time this year. He said he had heard news of low prices for such Libyan exports as flour, rice, cooking oil, tea, and tomato paste. He departed in February of 1993 with cash (raised from in-camp sales of camels to Libya-bound camel-buyers). He was accompanied by two relatives and one Teda guide. In Bilma, he bought eight 50-kilogram sacks of rice for 5.000 CFA apiece. These were sold in N'Gourti for 10.000 CFA. In addition, he bought six cases of tea for 15.000 CFA apiece (these cases contain 20 individual, 1-kilogram cartons of tea; this is whole-leaf Sri Lankan/Ceylonion, different from the pulverized Chinese variety imported via Nigeria). These cases were sold at N'Gourti for double the purchase price (30.000 CFA apiece). The informant said that a certain quantity of these items were retained for his own and his family's consumption. He claimed that these items would have been sold for the same price if they had been taken south to N'Guigmi. Despite poor pasture conditions, the informant claimed to have the impression that the number of Kawar traders had increased somewhat this year.

Based on the findings of this survey, the majority of Manga residents involved in the drygood/date/salt with the Kawar are Teda. (From the region around Gouré and Tesker in the Department of Zinder, a significant number of Daza and Arab Washili are also said to be involved in this trade). The majority of the Teda interviewed for this survey claimed to have modest means, the likes of those for informants in Examples A and B; they claimed that their herds were so small as to be inviable for meeting their families' subsistence needs and that the Kawar trade consequently constituted an essential source of income. Their involvement in this trade generally dated from the time of the informants' maturity (i.e. their families' having been traders before them). A possible factor in this is the more modest marriage-exchange of camels between Teda families than is exhibited among the Daza; the newly married groom is obligated to seek a source of income independent from his herd, which is not large enough to permit his family a pure-pastoralist existence. Teda have reportedly suffered less from the post-colonial resurgence of armed banditry in the region which was said to be one of the factors deterring would-be Daza and Arab traders. Most of the region along the route is Teda-inhabited.

During the course of this study, no individuals were encountered who claimed to be involved in the exportation of camels to Libya. Manga residents who commented on this trade claimed that such individuals are few in number, wealthy, and resident in N'Guigmi (not covered by this study). These traders are said to be

of Nigerien, Chadien, and Libyan nationality, including Teda, Daza, and Arabs. All are said to possess a license from the Libyan government, without which sales cannot be made in that country. Some are said to possess a license for exportation (for Niger) as well. In the following table is given the known number of animals exported and the times of year at which they were exported.

TABLE 19

Camels exported to Libya	1990	1991	1992
	2832	6232	2351

1992	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Heads exported	-	30	100	-	680	160	-	-	337	100	260	684

Source: Service d'Elévage pour l'Arrondissement de N'Guigmi

Traders are said to buy animals both on the market at N'Guigmi and from herders camps in the Manga. The latter was claimed to constitute informants' only direct contact with this trade. It was reported that the traders almost invariably take animals on credit, paying cash only on their return from Libya after the sale. Traders said to have bought animals from informants in January had not yet returned at the time this interview was conducted (in May), but the seller claimed this lapse of time was normal. Informants who claimed to have sold to these traders cited that the prices paid were more than double those offered on the market at N'Guigmi; they quoted an average of 100.000 CFA offered for female camels aged 3 to 12 years (40.000-60.000 CFA was the supposed price at N'Guigmi). Informants who had thus sold animals claimed to have done so for the preceding five or six years.

When posed questions about this camel export to Libya, many informants claimed to be attracted by the prices offered but distrustful of the traders themselves. Accounts were numerous of sellers' deception at the hands of various traders. Very generally, it appears that Washili and Hassaouna Arabs (perhaps with Nigero-Libyan family and commercial ties) are the least afraid to sell to these traders.

Without having included investigation of this commerce as it is conducted in N'Guigmi and Bilma, this study cannot furnish the traders' aspect. Available information seems to indicate that said commerce is not open to large numbers of individuals or to those of average means. The nature of informants' participation in this trade appears to be primarily as producer/supplier.

B. Trade with Nigeria

Informants in the southwestern Manga claimed to buy millet, sugar, tea, and other necessities in Geidem, Nigeria. From the sites at which most of this individuals were interviewed, Geidem is between 250 and 300 kilometers. The low prices found on the Nigerian market were said to make the trip more worthwhile than going to N'Guigmi (about 100 kilometers away). All of the individuals interviewed claimed that the sale of animals furnished the cash with which they made their purchases. About half of these sales were made in enroute to Geidem, in the Nigerien Mangari at the market town of Tatakoutou (about 55 kilometers northwest of Diffa). The rest were made in Geidem. Between the Manga and these two livestock markets, all informants claimed to have transported their animals on the hoof. The round-trip for this circuit was said to take an average of one month. This trade route to Nigeria is said to have existed since the colonial era. Following is a table on the composition of informants involved in trade with Nigeria and, following that, several individual case examples.

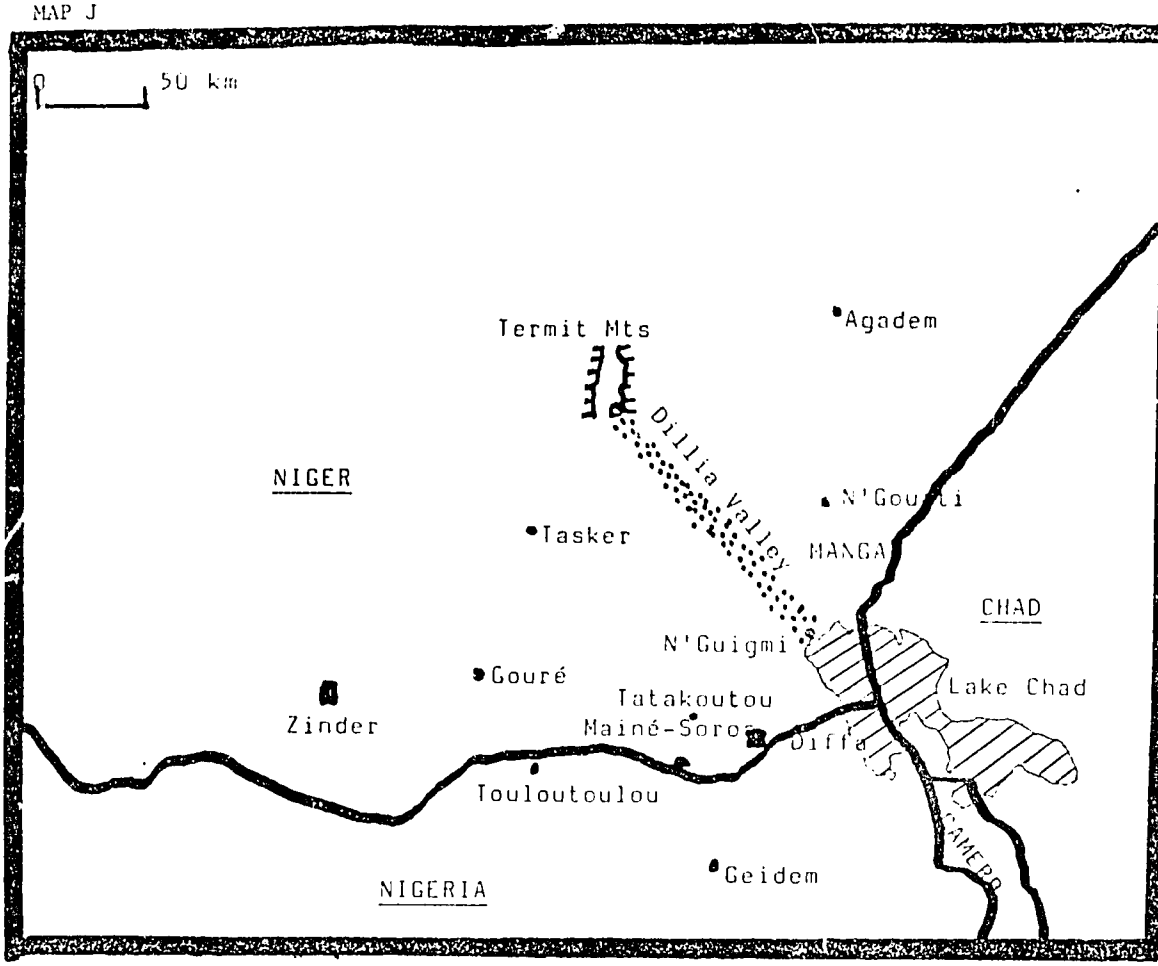
TABLE 20

INFORMANTS PARTICIPATING IN THE GEIDEM TRADE 1992 - 93						
Ethnic Group	Caste and/or geo-linguistic group		M	W	TOTAL	
TOUBOU	Teda	0	-	-	23	26
	Daza (+ 1 Kara)	21	21	-		
	Azza	2	2	-		
	Agra	0	-	-		
ARAB	Washili	1	1	-	3	
	Hassaouna	2	2	-		

Example A:

The informant is the same cited in Example C under Trade with the Kawar. He claims to have been to Geidem twice since the end of the rains, the first time in September of 1992 and the second in January of 1993. On the most recent trip, he took two camels to sell in order to raise

MAP J



Source: Les Marques de Betail Chez les Daza et les Azza du Niger

cash for his purchases. Enroute to Geidem, he sold one of the camels in Tatakoutou; it was a three year-old male, for which he received 40.000 CFA. He commented that the price for young, male camels is good in Tatakoutou because many Fulani in the zone buy them for training as saddle or pack-animals. Contrarily, sellers of young, female camels are generally said to prefer N'Guigmi, since the buyers tend to be herders seeking breeding stock (camel herders are less numerous in the Mangari around Tatakoutou). The remaining animal he took on to Geidem. He claimed that many individuals find a taxi at Tatakoutou and finish their journey to Geidem therein, confiding their pack and sale animals to shepherds. At the time of this interview (May of 1993), shepherding of one camel between Tatakoutou and Geidem was said to cost about 600 to 800 francs (half for the shepherd and half for border-crossing charges). At Geidem, the informant sold his remaining animal, a 19 year-old male camel, for 60.000 CFA. He claimed that the animals sold in Geidem tended to be beyond their prime (20 years for a male and 17 years for a female), the buyers being traders who would take the animals on to Lagos for sale to butchers. Many of these traders are said to be Daza from Niger.

The informant bought millet, sugar, tea, cloth, and other necessities with the money he raised from his animal sales. In this period (early February of 1993), he bought millet for 4.000 CFA per 100-kilogram sack. At the same moment, the same quantity of millet cost 6.250 CFA in N'Guigmi. He bought sugar for 5.000 CFA per 50-kilogram sack. At the same moment, the same quantity of sugar cost 8.750 CFA in N'Guigmi. The informant claimed that, even if the price differences had been only a few hundred francs, he would still have chosen to make the 25-day round-trip to Geidem. He claimed that the time spent and the distance covered did not count as part of the cost, adding "*these things don't matter to people like us* (herders)."

In response to questioning about whether or not he attempted to buy more millet when the price was low (for stocking), the informant claimed never to consider this. He claimed to sell the least number of animals possible, even though he knew that he would consequently be compelled to buy millet at higher prices.

Example B:

The informant is a 62 year-old Daza residing in the southwestern Manga. He has a herd of about 40 camels, added to which are another 40 belonging to three married sons living in the same camp. The informant also has a

herd of about 30 small ruminants and 5 donkeys. He has resupplied from Geidem three times since the end of the rains in 1992. The first time was in October of 1992, the second in March of 1993, and the last had just departed at the time of this interview (May, 1993). The informant sent his sons the first and third time, he himself going only on the second. On this second trip, in March of 1993, the informant took five goats, all of which he sold in Tatakoutou. He sold them for between 3.500 and 4.000 CFA apiece. The informant claimed to prefer selling small ruminants at Tatakoutou so as to avoid having to pay their transport costs to Geidem (whose slightly better prices were said not to justify the expense). He went on to Geidem (by camel), where he bought millet and other necessities. Upon crossing the border, he claimed to have paid Nigerien customs officials 300 CFA per 100-kilogram sack of millet and 500 CFA per 50-kilogram sack of sugar. He asserted that he did not mind paying customs fees, but added that many younger and poorer individuals considered them excessive (and so smuggled). When asked if he stocked millet when prices were lower, he responded, "*we don't think like that.*"

Example C:

The informant is the son of the individual cited in Example B. He is about 27 years old, is married, and has two children (both too young to aid in household or herding tasks). He possesses a herd of 13 camels and 10 small ruminants, which are herded communally with those of his father and two married brothers (also living at the site). He said that most people he knows in the area go to Geidem strictly to buy necessities for household consumption, as opposed to returning with things to sell. The last time he was in Geidem, in late April of 1993, he bought one sack of sugar to sell upon his return to the camp (in addition to millet, cloth, and other necessities). He claimed that the 50-kilogram sack of sugar cost 6.500 CFA plus 1.000 CFA for customs officials (total 7.500 CFA). Back at home, he sold the sugar by the measure from his tent for a total of 15.000 CFA. The sale was accomplished in two weeks. He claimed to be prepared to repeat the enterprise if his subsequent trip to Geidem found him with enough excess cash.

Once during the past year, the informant claimed to have sold goats and bought millet in Kabelawa (40 kilometers south of N'Guigmi), but that this had been compelled by logistical considerations. His household had been too low on grain to permit him the 25-day round-trip to Geidem. The round-trip to Kabelawa took only 5 days, but that the sack of millet was almost 2.000 CFA more

expensive than that available in Geidem decided him against returning to the former.

Example D:

The informant is a 55 year-old Kara residing in the southwestern Manga. He resides with his wife and five children; at the time of this interview, his two teenage sons were guarding the herd of camels at a temporary camp about 40 kilometers' distance and his teenage daughter was at the local well watering the small ruminants. He possesses a herd of about 40 camels and 30 sheep. He had no animals when he immigrated from Chad in the 1960s. He acquired some of them by working for the wealthy father of his Daza wife. Others he acquired because he is a marabout;[96] allegedly, Manga residents often gift marabouts with their yearly payment of zakat (see Annex IV).

Since the end of the rains in 1992, he claimed to have resupplied twice from Geidem. The first time, around October, he confided a 4 year-old male camel to Geidem-bound friends, asking that they sell it and buy millet, et al. Said friends sold the camel for 40.000 CFA at Tatakoutou and bought 100-kilogram sacks of millet for 4.000 CFA apiece at Geidem.

Simaltaneous to placing this order from Geidem, the informant sent a large goat and large ram with friends for sale on the market in N'Guigmi. He claimed that the goat sold for 5.000 CFA and the ram for 12.000 CFA. He added that he would have preferred selling them at Tatakoutou, where the price was supposedly higher, but that he did not have the time. The proceeds were used to buy millet (6.000 CFA per 100-kilogram sack) and items of first necessity, since his household's stock was too diminished to hold out until the items ordered from Geidem arrived.

More recently (late January of 1993), the informant went to Geidem himself. He took two donkeys and one old horse for sale. The horse went lame enroute (in the Mangari); he sold it for 20.000 CFA to a local village butcher. He sold the two donkeys in Geidem for 5.000 CFA apiece (claiming to be disappointed by the price). He bought millet for 4.000 CFA per 100-kilogram sack. When asked why he did sell several animals at one time and stock enough millet to last throughout the year, saving himself both the unnecessary travel and higher prices, he replied: "*I prefer keep as many animals as possible in my herd. I don't sell them until it's really necessary (i.e. when there is no millet left in the household). As for the time and distance spent traveling, it doesn't mean*

[96] Muslim priest

anything because my family takes care of the animals when I'm gone."

Most of the camels sold in Nigeria at Geidem are said to be taken on to Lagos for slaughter. This is said to be a highly lucrative trade, many of the participants in which are former Manga residents (chiefly Daza). These traders are said to reside year-round in Nigeria. None of the herders interviewed for this study claimed ever to have taken his camels to the terminal market in Lagos. Reasons given for this were lack of knowledge of the routes, fear of reportedly frequent armed robbery in Lagos, and not wanting to spend excessive periods away from their herds. Another important Nigerian market in this south-bound camel commerce is said to be Toulatoula, near the southwest corner of the Arrondissement of Mainé-Soroa. Although none of the informants for this survey claimed to frequent Toulatoula, they claimed that many Teda, Daza, and Arabs from the northern Mangari and Gouré-Tasker regions did so.

C. Trade with N'Guigmi

For residents of the central, north-central, and south-central Manga, the market at N'Guigmi is said to be the most important market for the sale of animals and the purchase of grain and other necessities. All of the informants contributing to this survey (except from the southwestern Manga) claimed that N'Guigmi had thus served as their commercial hub during their entire lifetimes. The only aspect of this trade which appears to have changed is herders' proximity to the market; most of the informants claimed to have moved closer to N'Guigmi within the past 25 years. Although some of them claimed this was because their pre-1970s zones of inhabitation had turned environmentally innospitable, 38 of the total 147 heads of households claimed that an important factor was also to be closer to market. More than half claimed that this proximity enabled them to sell their animals one by one to buy small quantities of grain and other necessities. They claimed to prefer this tactic to that of selling a number of animals at once and stocking grain enough for the year's needs when millet prices were lowest. They claimed to be aware that the piecemeal-sale tactic had several disadvantages, but insisted that their priority was to retain as many animals as possible in the herd, hoping for births. Acquisition of a new animal appears to be more highly valued than cash savings garnered by opportunely timed grain purchases (as one individual put it, "*sacks of millet don't reproduce, but animals do*"). Piecemeal animal sales necessitate more frequent trips to market, for which closer proximity is advantageous.

In addition to the abovementioned phenomena, informants generally claimed to sense themselves more dependent on the market for grain and other purchases than they had been two or three

decades before. This was said to be due primarily to insufficiency of the milk which once contributed importantly to their diets. This change was attributed to three different factors: reduced quantity of milk produced (occasioned by drastic cattle losses or sales provoked by the 1968-75 drought and subsequent "starting over" with smaller herds of camels); second, lower fat content[97] of camel's milk versus cow's milk; third, the subsequent, progressive degradation of pasture since 1975, said to have lowered camels' birthrate (and thus the percentage of lactating females).

For certain informants (namely Azza and Agra) who herd only small ruminants, remaining close to the market at N'Guigmi was said to have several advantages. The relatively quick reproduction rate of small ruminants allegedly favors the piecemeal-sale tactic; a goat which is retained for a year (as opposed to selling it to stock millet) reportedly stands a much greater chance of becoming pregnant and giving birth than a camel; the period of gestation is 145 days for a goat, 150 days for a ewe, and 365 days for a female camel.[98] For this reason, such small-ruminant herders claimed they made as many as 20 trips per year to market to sell animals (camel-herders residing farther north generally averaged between two and four trips annually).

Following are some example cases of Manga residents' trade with N'Guigmi as it has been conducted over the past year.

Example A:

> The informant is an Azza, 32 years old, divorced and without children. He resides in the south-central Manga (12 kilometers from N'Guigmi) and possesses a herd of about 30 small ruminants and 5 donkeys. He has lived in the same region for 25 years, herding cattle until the drought of the 1970s, afterwards herding small ruminants. He cultivates millet during the rainy season, claiming to have had three harvests over the past eight years.
>
> Since the end of the rains in 1992, the informant claims to have been to N'Guigmi five times to sell animals. He sold two goats each time (total of ten) to raise cash for the purchase of necessities. He asserted that prices for a healthy, reproductive-age goat (male or female) were as follows: 3.000 to 4.500 CFA at the end of the rains (September-October of 1992) through the cold season (to February-March of 1993); 2.500 to 3.500 CFA at

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97 THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de l'Elevage dans le Département de Diffa, 1987, pp. 166

98 Direction Départementale de l'Elevage, Diffa

the time of this interview (May of 1993). He commented that the downward trend in prices observed is a typical annual phenomenon which reflects the diminution in pasture. He added that prices have not fallen nearly as low this year as at the same moment in the preceding year, when disease and sparse pasture was said to compelled individuals to sell animals for as little as 250 to 1.000 CFA. He claimed that a millet harvest this year (four 100-kilogram sacks) had greatly reduced his need to sell animals.

The informant stated that he had remained at his present site because it was close to market. He claimed that his limited number of animals necessitated that he remain near N'Guigmi, as he preferred to sell the minimum number of animals at any given time (e.g. necessitating multiple trips to market). He admitted that another determinant included the presence to the northeast of N'Guigmi of dense groves of *Acacia raddiana and Salvadora persica* (both preferred by small ruminants).

Example B:

The informant is an Azza, about 58 years old, married but without children. He resides in the south-central Manga (25 kilometers from N'Guigmi), shepherding about 70 goats. He has been resident in the area for 17 years. Before his arrival at the present site, he had been a cattle-herder in the region 30 to 60 kilometers farther north (he had immigrated from Chad in 1967). Like the informant in Example B, this individual claimed to cultivate annually during the rainy season.

The informant claimed to have been to the market at N'Guigmi four times since the end of the rains in 1992 to sell animals. He or his wife took a total of 7 goats for sale. He stated that prices received for healthy, reproductive-age goats were as follow: 5.500 to 6.000 CFA at the end of the rainy season, 3.500 to 4.500 CFA during the cold season, and 1.500 to 2.000 CFA at present (hot season). He claimed that the price trend was normal and that, despite having to sell four goats to buy one sack of millet, he did consider stocking millet when the price was lower. "*I want to keep as many animals with me as possible because they might reproduce,*" he commented.

Also since the end of the rains, the informant claimed to have sold five goats to local Hassaouna Arabs (at poorer prices than were to be had at N'Guigmi). He claimed that this year's millet harvest (three 100-kilogram sacks) had almost cut in half the number of animals he had had to sell this year. Distinguishing between goats and sheep (confirming what many other Manga residents had said), the informant claimed to prefer goats because they returned daily to the household or the

well of their owner. Sheep are said to exhibit no such fidelity, straying frequently (especially when they scent new pasture to the south during rainy season). The consequent increase in labor demanded for herding sheep is said not to warrant the higher market prices for them compared with goats.

Example C:

The informant is a Hassaouna Arab, 24 years old, residing in the south-central Manga (7 kilometers from N'Guigmi). He lives with his mother and two young brothers (both of whom contribute to household and other chores). His father has worked in Libya for the past 15 years (in a candy factory), returning to visit his family at three to five-year intervals. The family immigrated from Chad in the early 1980s. The informant shepherds about 40 goats, in addition to cultivating millet during the rainy season.

The informant claims to have taken three goats to market since the end of the rains in 1992. In the month of October, he sold 1 two year-old female goat for 4.750 CFA. The second trip was in January, when he sold a less robust goat of the same age and sex as before, which garnered 3.500 CFA. The third and last time was during the month of April, at which he sold 1 two year-old goat for 3.000 CFA. He said that both a good millet harvest (seven 100-kilogram sacks) and money left by his father during a 1992 visit were responsible for the negligible number of goats sold. He claimed that proceeds from the goat sales were simply to buy small amounts of sugar, tea, and sauce ingredients. Clothes, shoes, jewelry, perfume, and other items were brought by his father during a visit in 1992.

Example D:

The informant is a Hassaouna Arab of about 40 years of age. He resides in the south-central Manga (25 kilometers from N'Guigmi) with his wife, five children (three of whom share household and herding chores), and two other dependents. He possesses a herd of about 48 camels and 10 sheep. Since the end of the rains, he has made seven trips to N'Guigmi to sell animals and buy necessities. Even considering the close proximity of the informant's village to N'Guigmi (about 20 kilometers), seven trips in less than a year is inordinate; questioned about this, the informant claimed, "*I know I go to N'Guigmi more often than I need to, but I like visiting friends and I like the busy atmosphere of the marketplace.*" Independent of the time spent in town, the round-trip takes only two days.

The first of these trips was at the beginning of the 1992 rainy season (July). The informant sold 1 one year-old female camel for 12.500 CFA and 1 two year-old female camel for 15.000 CFA. He bought millet, which at the time cost 6.000 CFA per 100-kilogram sack.

The second trip was only 20 days after his return from the first. He sold a 17 year-old female camel to a butcher for 30.000 CFA.

The third trip took place in October of 1992. He sold 1 four year-old male camel for 40.000 CFA. He claimed the price of millet was still about 6.000 CFA for a 100-kilogram sack.

The fourth trip occurred in December. He sold 1 five year-old female camel which had given birth once for 50.000 CFA.

The fifth trip was in late January of 1993. He sold 1 two year-old male camel for 20.000 CFA and 1 five year-old female camel for 50.000 CFA.

The sixth trip was in late February. He sold 1 ten year-old female camel and its newborn (male) for 40.000 CFA. He commented that this was a very poor price, especially for a lactating female, but that because Ramadan had begun "*no one had any money*." At the time of this sale, he claimed millet cost 6.500 CFA for a 100-kilogram sack.

The seventh and final trip before this interview took place in April of 1993. He sold 1 three year-old female camel for 30.000 CFA. He commented that this was a poor price for a healthy female which had attained reproductive age, but that it was characteristic of the hot season market trend. Diminished pasture was said to be responsible for this change. He stated that prices would not go lower than this, but also that they would not rise until the rains and new pasture was well established. He claimed that millet prices had fallen to 5.000 CFA per sack at that moment because the market had been flooded with imported Nigerian grain. The informant said he had always used the market at N'Guigmi for the sale of animals and purchase of necessities, although not with such frequency until his recent settlement at the present site. He claimed before arriving on said site five years previously, he claimed to have resided in the Lake Chad Basin (1982-88), and before that near Agadi, about 120 kilometers northeast of N'Guigmi (from around 1900-82). He claimed that he, like many of the Hassaouna Arab presently settled around N'Guigmi, went south to the lakebed during the drought of the 1980s and have not returned to their pre-drought locales. For himself, he attributed this phenomenon to two factors; reports that pasture at his pre-drought camp is poor and not having sufficiently reconstituted his herd to remain far from a market center.

Example E:

The informant is a Washili Arab of about 38 who resides in the central Manga (120 kilometers north of N'Guigmi) with his wife and five children (three of whom are old enough to share household tasks). He possesses about 65 camels and 15 small ruminants. He claimed to have inhabited the same region (within 20 to 80 kilometers west/southwest of N'Gourti) since the time of his birth. This included various long and short-term moves; several years in the Mangari (200 kilometers southwest) during the 1968-75 drought, three years in the Lake Chad Basin during the droughts of the 1980s, and numerous subsequent movements west of N'Guigmi and around the region in which this survey found them. Since the end of the rains in 1992, the informant claims to have made two trips to N'Guigmi to sell camels and three trips to N'Gourti (20 kilometers) to sell small ruminants.

The first trip took place at the end of the rains, at which time the informant sold a three year-old male camel for 40.000 CFA. With the proceeds, he claimed to have bought five 100-kilogram sacks of millet at 5.500 CFA (total 27.500 CFA), one 50-kilogram sacks of sugar for 8.000 CFA, and tea, cloth, and various other necessities with what remained.

The second trip is said to have taken place in January of 1993, at which time he sold two male camels, both four years of age. Each animal garnered 42.500 CFA (total 85.000 CFA). He bought millet (6.250 CFA per sack), sugar (8.500 CFA), and other necessities with the proceeds.

The informant added that he had made three trips to N'Gourti to sell sheep. These trips occurred in September, December, and March. He used the proceeds to buy sugar, tea, and to cover various expenses (baptisms, guests, etc.) which he had not anticipated during his trips to N'Guigmi. He alleged that the prices paid for his sheep in N'Gourti were higher than he would have received in N'Guigmi, but that the price of commodities bought in the former were likewise elevated; consequently, for large-quantity grain and other purchases (and camel sales), he preferred N'Guigmi. For the sale of goats or sheep and purchases of small quantity, however, he claimed that the proximity of N'Gourti was very convenient. He could make the round-trip in one day if pressed, whereas the round-trip to N'Guigmi took six days (marketing time not included). He claimed that this preference was shared by most of the individuals he knew in the area.

D. Trade with N'Gourti

Of the total 147 heads of households interviewed, 64 claimed to have conducted some kind of trade in N'Gourti during the year preceding this survey. The majority of these transactions consisted of the sale of small ruminants and the purchase of grain, sugar, tea, or other necessities. Among the 19 Azza included in the abovementioned figure, 9 claimed to have been in N'Gourti to sell nattes which their wives had made. There is also evidence that several Teda, Daza, and Arab families residing near N'Gourti sell milk there, but this study acquired no accurate information on this activity (in principle, milk should be given rather than sold; in reality, milk is in fact sold but the task is confided to children, the parents of whom appeared to be generally too ashamed to discuss the subject).

It is necessary to clarify that the volume of commercial transactions occurring in N'Gourti appears very limited by comparison with the vast scale of that manifested by a commercial hub such as N'Guigmi, which straddles the agricultural south and the pastoral north. Inferred from the reported nature of informants' transactions in N'Gourti, said village appears to serve as a conduit for resupply of grain and other imported items. Most of these items are from the south (millet, sugar, Chinese tea, sauce ingredients, etc.), but there appears to be some importation from the north as well (see Example D under Kawar Trade). The primary medium of exchange in this trade was said to be small ruminants and some butcher-quality camels. Demand is said to be primarily for meat (for local consumption), not animals for breeding or commercialization. Within a zone extending between 50 and 100 kilometers to the north, northwest, and northeast of N'Gourti, this village is said to be an appreciated source of small-scale resupply in grain, sugar, tea, sauce ingredients, and other necessities. Following are some examples of transactions carried out in N'Gourti.

Example A:

The informant is the same as that in Example E under Trade with N'Guigmi. He resides within 20 kilometers of N'Gourti and claimed to have conducted three transactions at N'Gourti during the year preceding this interview (May of 1993). He reported that these transactions consisted of the sale of sheep to raise cash for the purchase of small quantities of millet, tea, sugar, and other necessities. His visits to N'Gourti took place in September, December, and March, during which he sold six medium-size sheep for between 8.000 and 10.000 CFA apiece (two animals each trip). He claimed to have negotiated these sales with one of several butchers each time. He claimed that these prices were generally 30% to

50% better than what could be garnered in N'Guigmi, but that correspondingly higher prices for the commodities he sought to purchase eliminated the potential profit. He stressed that the much closer proximity was greatly appreciated in the case of needing to buy something which had been unanticipated during his trips to N'Guigmi. He alleged that the shortened travel time was also important for his pack-camels between April and July, when heat and diminished pasture reduced their endurance.

The informant claimed that N'Gourti could not conceivably replace N'Guigmi as his source of large-quantity resupply because the price and selection of goods on the market in N'Guigmi was superior, as was also the demand for the breeding and saddle-quality camels of the kind he sold.

Example B:

The informant is an unmarried Agra of about 70. He resides in the central Manga (40 kilometers southeast of N'Gourti) and possesses a herd consisting of 15 goats and one donkey. He resides in an Azza settlement. He reported that he has resided in the Manga for more than 60 years, since he was kidnapped from his native village in Nigeria, Cameroon, or Chad at the age of seven. He was brought to a site on the Nigero-Chadien border about 140 kilometers northeast of N'Guigmi, where his kidnappers sold him to a local Daza for one mature female cow. During the 50-odd years between his enslavement and retirement in 1985, he claimed to have worked at the wellhead of his master, watering cattle. He founded his small herd of goats during this period in a manner he claimed was typical for other slaves in the region; a local herder (without slaves of his own) secretly paid him one goat to water his cattle along with the cattle of his master. Continuance of this furtive activity left him with a small herd of animals (the donkey included) when his master released him in 1985. Of the late date of his release, the informant commented: "*I didn't know slavery was illegal. I was young when they brought me here and all I knew was what they told me. Even at my release (due to old age) in 1985, I thought about staying on with my master's family because they offered to take care of all my needs. I thought, <u>what is there to do and where is there to go with this freedom?</u> But I came here (to the Azza camp) because I've friends here.*"

The informant claims to have sold two goats in N'Gourti since the end of the rains in 1992. These he sent with an Azza friend who went to N'Gourti to sell the products of his metal-smithing and the nattes which his wife had fabricated. He reported that one medium size buck sold in October garnered him 5.500 CFA and that

another of the same size sold in March rendered 5.000 CFA. Having reaped a harvest of four 100-kilogram sacks of millet this year, he claimed that his goat sales had fallen 75% by comparison with the preceding year. The proceeds from the two goats sold this year were for clothing, tea, sugar, and various modest necessities. Although he claimed not visit N'Gourti himself (due to his age and lack of camel transport), he said that he knew small ruminant prices to be better there than on the market at N'Guigmi. Regarding his purchases, he claimed that by force of circumstance he bought all his necessities in N'Gourti (unless friends took a purchase order on a propitiously timed trip to N'Guigmi).

E. Trade with Chad

The export of sugar to Chad is the only form of east-west trade which informants for this survey claimed to participate in. This trade is said to date ten years or more. Sugar produced in Chad is said to cost about two or three times what the Nigerian product costs. The Chadien government forbids importation of the latter, however. Manga residents, both Nigerien and Chadien, buy Nigerian sugar in N'Guigmi and smuggle it across the border to the northeast. Livestock is said to be the commodity most commonly serving as the medium of exchange for this sugar. Following is a table on the composition of informants engaged in trade with Chad and, following that, two individual case examples.

TABLE 21

INFORMANTS PARTICIPATING IN THE CHADIEN TRADE 1992 - 93						
Ethnic Group	Caste and/or geo-linguistic group		M	W	TOTAL	
TOUBOU	Teda	18 *	18	-	38	46
	Daza	10	10	-		
	Azza	8	8	-		
	Agra	2	2	-		
ARAB	Washili	1	1	-	7	
	Hassaouna	7	7	-		

* 9 of whom alternate in the Kawar trade

Example A:

The informant is the same as cited in Example B for Trade with the Kawar. He is a 30 year-old Teda, residing with his wife and two young children in the north-central Manga. Their herd is modest, consisting of 10 camels and 12 small ruminants. The last time he conducted trade with Chad was in March of 1993, in the course of which he bought 6 sacks of sugar (50 kilograms each) for 8.000 CFA each at N'Guigmi (total 48.000 CFA). For two of the sacks, he used his own capital, for two others he borrowed from a relative, and the remaining two he took on credit from the seller (an acquaintance). He used three camels to transport the sugar across the border. He consulted villagers and in-coming traders carefully to ascertain the whereabouts of Chadien military and customs officials before finally crossing the border. The buyer was an acquaintance with whom he had done business before. He sold two of the sacks for cash (17.500 CFA each) and the remainder for camels (the sacks all likewise valued at 17.500 CFA). The informant claimed he received the camels for significantly less than they would be worth on the market at N'Guigmi, where he subsequently sold them. The proceeds were reportedly used to repay debts incurred and to buy necessities (millet, sugar, and tea). The informant commented that a distinct advantage of trade with Chad vis-a-vis that with the Kawar was that the round-trip for the former did not usually exceed 15 or 20 days, whereas the latter demanded at least twice that. A drawback of the Chadien trade was the risk of losing one's entire stock and pack animals if caught by Chadien officials. According to the informant, this risk did not deter a large number of young Teda from engaging in this trade, constantly weighing its profits and drawbacks with those of the Kawar trade.

Example B:

The informant is a 40 year-old Azza residing in the south-central Manga with his wife and five children (three of whom are old enough to contribute to household and herding tasks). They possess a herd of about 50 small ruminants and 10 donkeys, which the informant cited as his family's chief source of security. Although the informant cultivates annually (having reaped three harvests in the past ten years), he claimed never to count on such activity in meeting his family's subsistence needs. His chief source of cash income is said to come from the sugar trade with Chad. The last time he had engaged in this trade was in April of 1993, several weeks before this interview. On that trip, he had bought 8 sacks of sugar

in N'Guigmi for 7.750 CFA apiece (total 62.000 CFA), in cash. He transported the sacks on donkey-back northeast across the border to the village of an acquaintance (also Azza). He sold the sugar for 17.500 CFA per sack (total 140.000 CFA), taking donkeys in exchange. As with the informant in Example A, he claimed to have received the animals for considerably less than they would be worth on the market at N'Guigmi. He returned to N'Guigmi, where he sold all the animals, buying necessities (sugar and tea) and several goats, reserving some of the cash for a future trading trip.

The informant claimed to have been involved in the sugar trade with Chad for the past 8 years. He averred that the risks of losing his stock and animals would not deter him from continuing in this trade, as he felt confident in his knowledge of both the route and the savvy of his trade-partners. He stated no interest in the Kawar trade, due to logistic constraints (time/distance), worries about security, lack of knowledge of the trade, and the fact that he owned no camels for portage. He esteemed that his involvement in the sugar trade was essential for his family's subsistence needs, due to the inconsistency harvests and recurrent losses of small ruminants (to illness).

6.

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ZELTNER, J.C., Pages d'Histoire du Kanem, Pays Tchadien, l'Harmattan, Paris, 1980

ANNEX I

TOTAL OF INFORMANTS FOR ALL ZONES
771

Ethnic affinity of informants.

Zone(s)	Ethnic group	Number of informants
IA + II	Manga	139
IA + II + III	Fulbé	116
IB + IC	Mobeur	203
IB	Wodaabbé	34
IC	Boudouma	5
III + IVA + IVB	Toubou	167
III + IVA + IVB	Arab	107

Gender of informants according to trimester of study.

ZONE	Men	Women	Subtotal
1. Mangari (Zones IA + II)	146	109	255
2. Kadzell (IB) and Lake Chad Basin (IC)	137	108	245
3. Manga (Zones III + IVA + IVB)	153	118	271

Break-down of informants by trimester of study.

I. FIRST TRIMESTER OF STUDY

Total informants for the Mangari (Zones IA and II)
255

Ethnicity and gender of informants.

ethnicity	men	women	sub-total
Manga	75	64	139
Fulbé	71	45	116

Sites visited.

Manga	Manga/Fulbé	Fulbé
N'Garéo	Kelakam	Wadji N'Gela
Karagou	Issari	Foulatari
Kojimiri	Karga	Kournoua
Cheri	Djadjiri	Furdi
N'Jereréa		Tangaroua
Faya Koséri		Raka
Talbari		Qwana N'Gow
Farga		N'Guel Beyli
Malam Aridi		Romori
Kardjoum Tilo		N'Gababambo
Tchikatkadoa		Gazourmadzé
Adébur		
Koséri		
Wakadji		
Kelelcboa		

II. SECOND TRIMESTER OF STUDY

Ethnicity/gender of informants and sites visited.

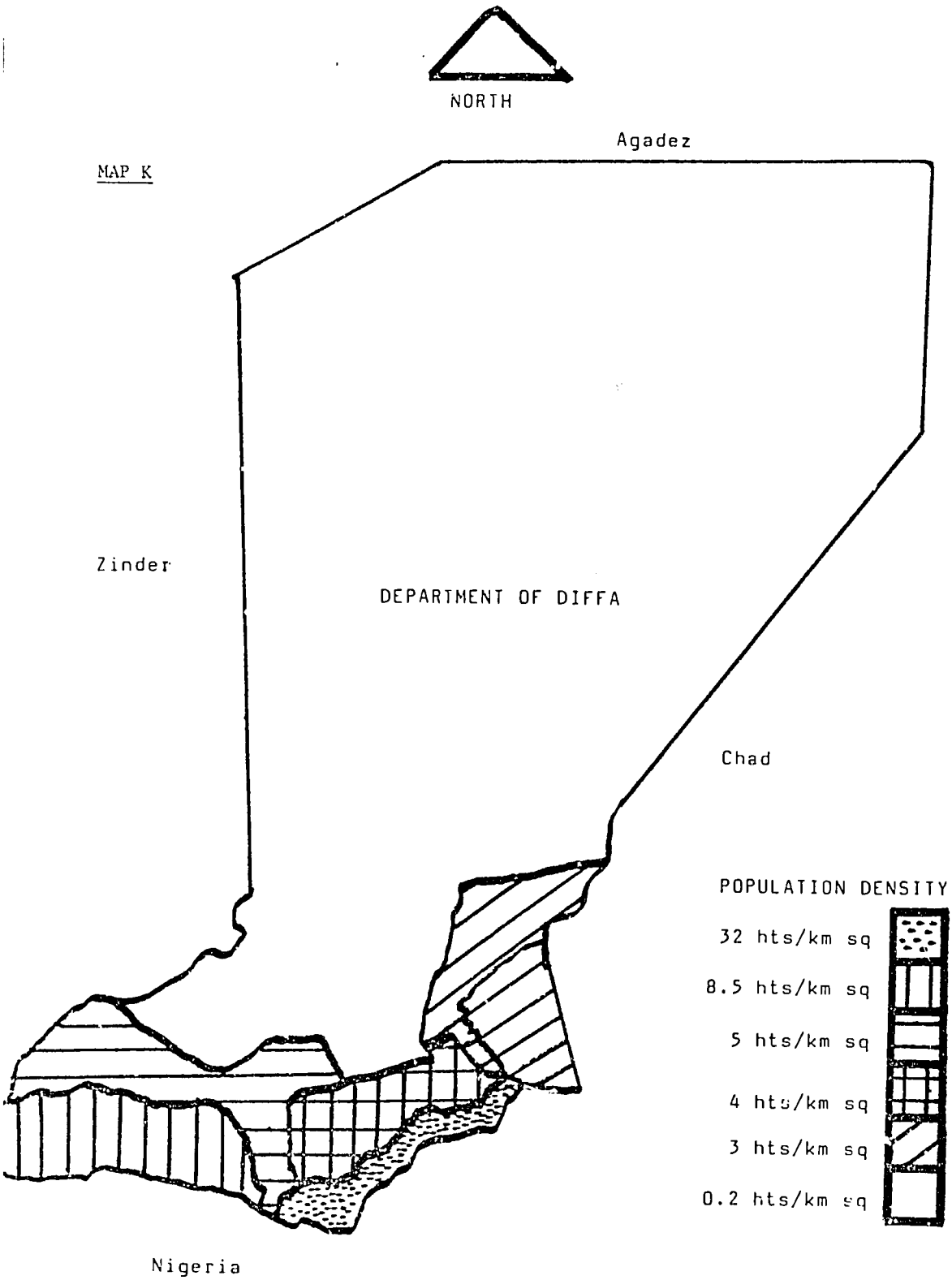
INDIVIDUALS INTERVIEWED	MEN	WOMEN	ETHNICITY	TOTAL
K A D Z E L I.				
Boudoum	11*	10	Mobeur	21
Zaouraram	17*	11	Mobeur	28
Turbangida	17*	8	Mobeur	25
Gueskerou	13*	16	Mobeur	29
Abadam	16*	15	Mobeur	31
Bosso	15*	14	Mobeur	29
* Worso * (annual Wodaabbe gathering)	19	15	Wodaabbe	34
Subtotal	109	89		198
L A K E B E D				
Mamouri	21	14	Mobeur	35
Gadira	7	5	Mobeur, Boudouma, Toubou.	12
Subtotal	28	19		47
TOTAL	137	108		245

* PEPPER CULTIVATORS/TRADERS: TOTAL 89

III. THIRD TRIMESTER OF STUDY

TOTAL INFORMANTS						
Ethnic Group	Caste and/or geo-linguistic group		M	W	TOTAL	
TOUBOU	Teda	44	27	17	164	271
	Daza	65	36	29		
	Azza	37	17	20		
	Agra	18	10	8		
ARAB	Washili	42	25	17	107	
	Hassaouna	65	38	27		

MAP K



Source: Reactualisation carte C1A23, PADADD

ANNEX II

Seasonal migration among Fulbé (182 families interviewed)

occupation >> village	% of cases influenced	agriculture	artisan	ag. labor	apprent.	unemployed
Furdi and N'Ga Gorse	25	-	20	40	40	-
N'Guel Beyli	52	62	4	19	11	4
Foulatari	33	50	-	20	-	30
Boutti	42	80	-	20	-	-
Dinkari and Laktuaram	6	100	-	-	-	-
Amburam	10	66	-	-	-	34

Source: THEBAUD, Brigitte, NOMAO, Abdoulaye, L'aménagement de L'Elevage dans le Département de Diffa, PDENCE, octobre, 1987

ANNEX III

ARRONDISSEMENT DE DIFFA

MAP L

CANTONS ET COOPERATIVES

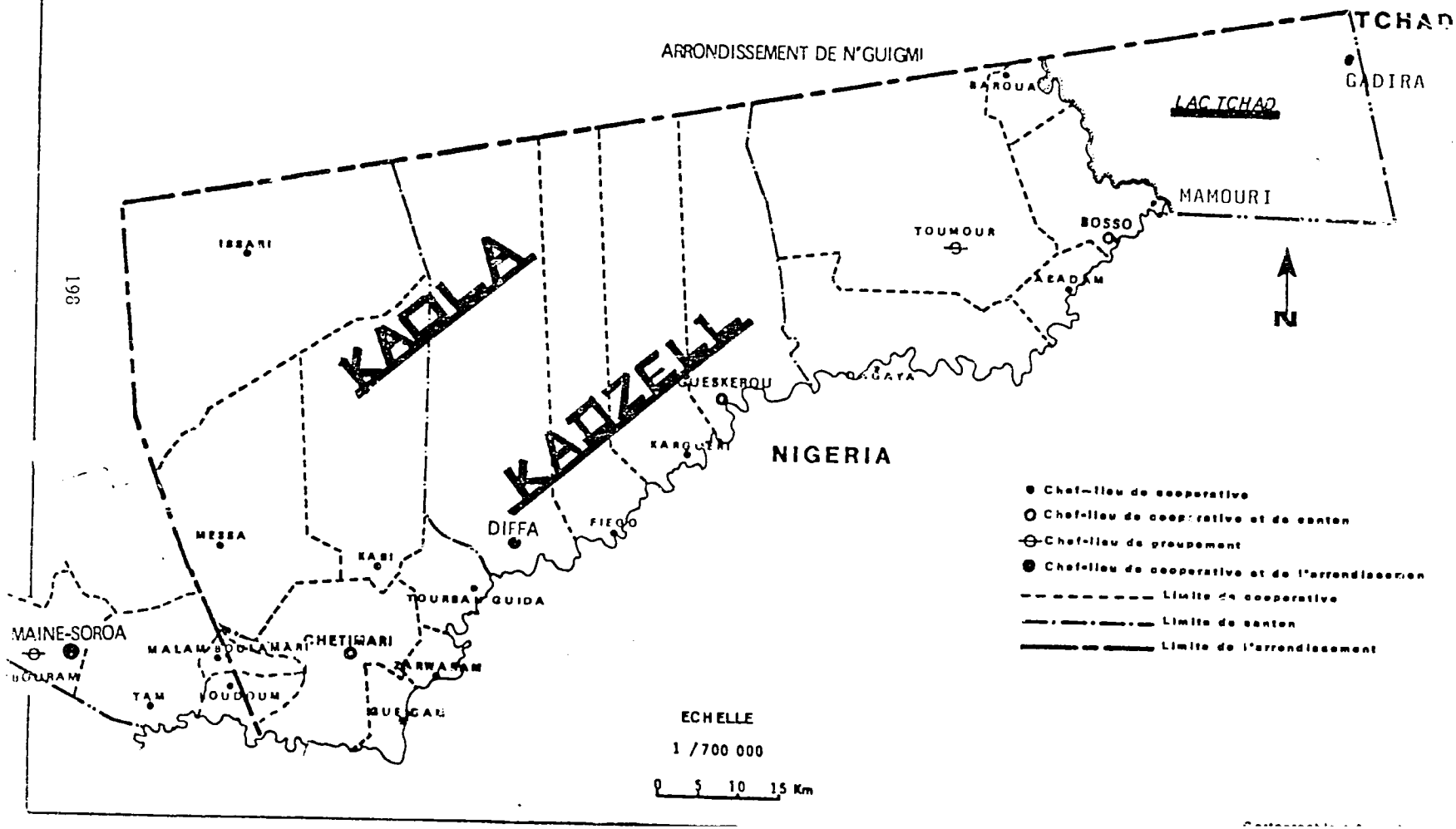
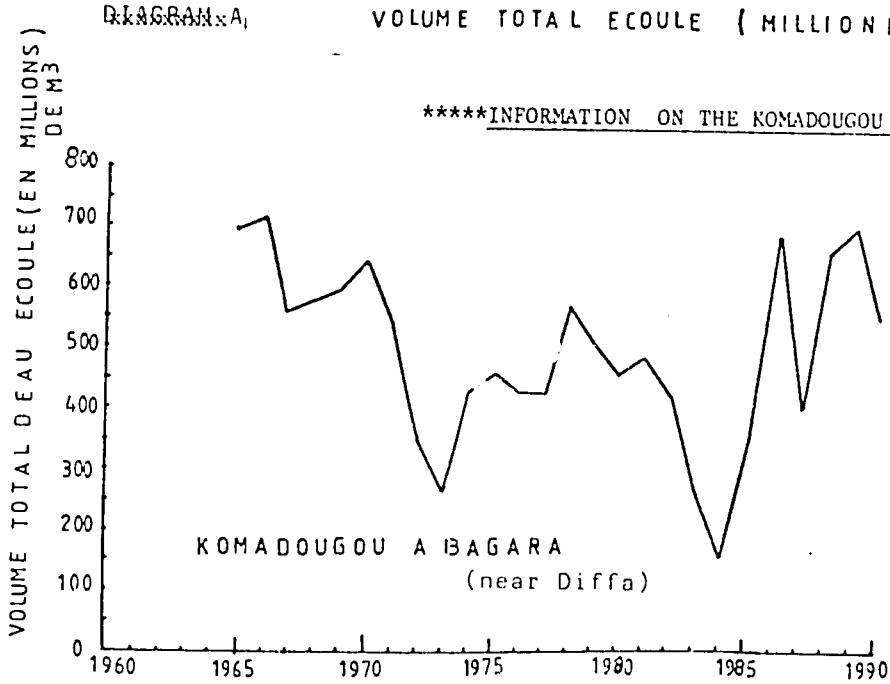


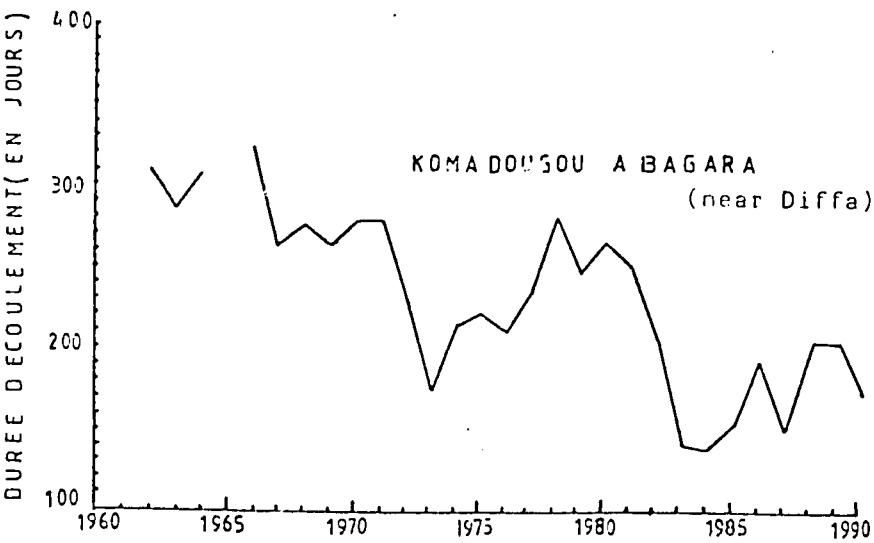
DIAGRAM A VOLUME TOTAL ECOULE (MILLION DE M3)

*****INFORMATION ON THE KOMADOUGOU RIVER*****



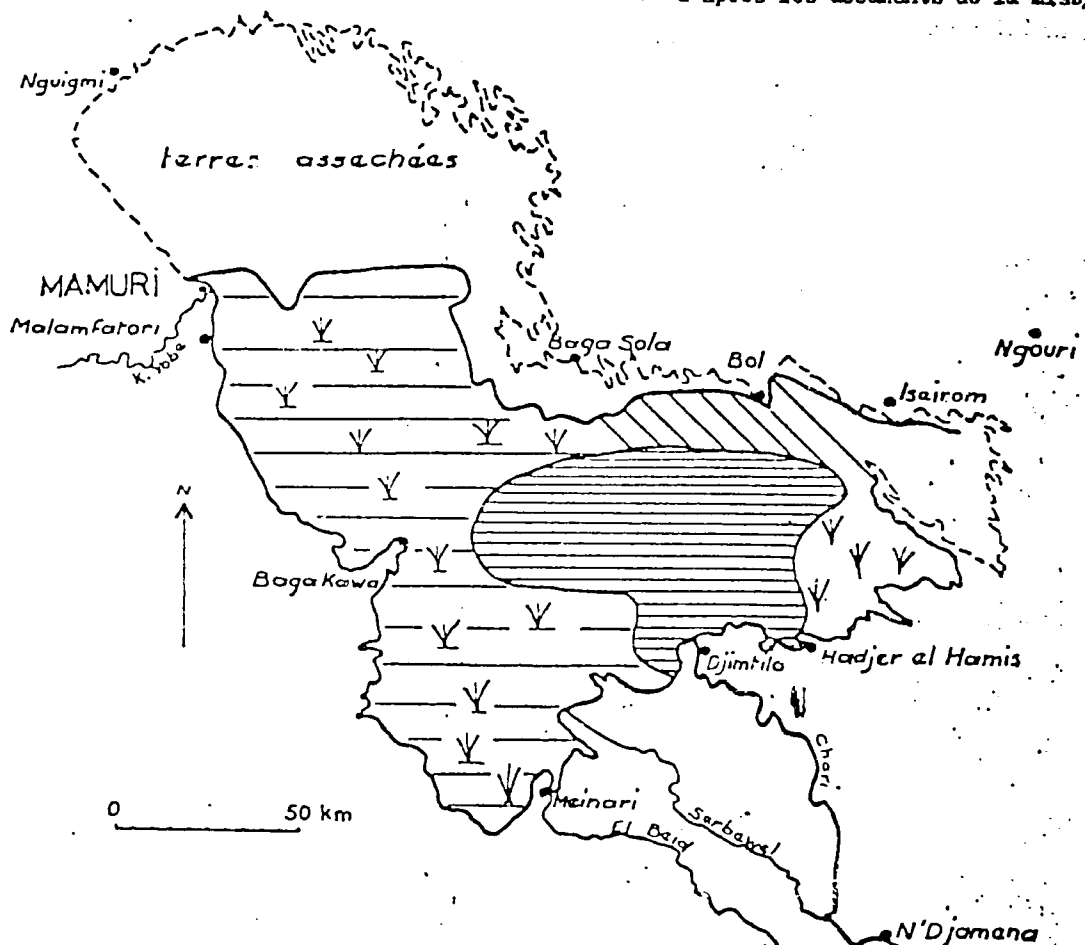
source Ministere de l hydraulique et de l environnement
PNUD DCTD projet NER 86001

DIAGRAM B DUREE D'ECOULEMENT(EN JOURS)



MAP M

: le lac Tchad au début 1908
d'après les documents de la mission Tilho



Zones exondées avec végétation

Eaux libres

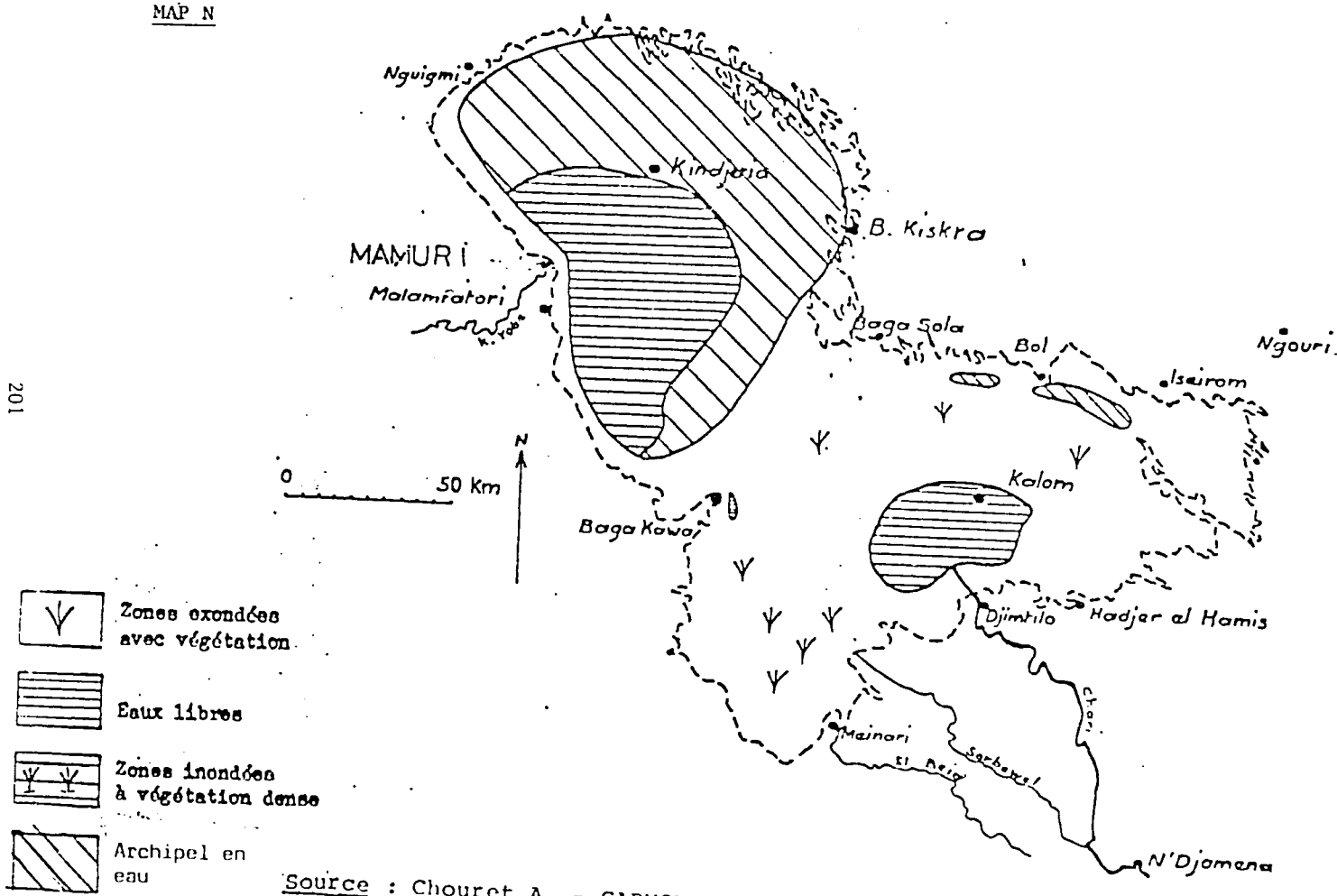
Zones inondées à végétation dense

Archipel en eau

Source : Chouret A.- GARMOUZE J.P. : Contribution à la connaissance du bassin Tchadi étiage du Lac en 1973 asséchement de la cuvette Sud - Paris 1976.

MAP N

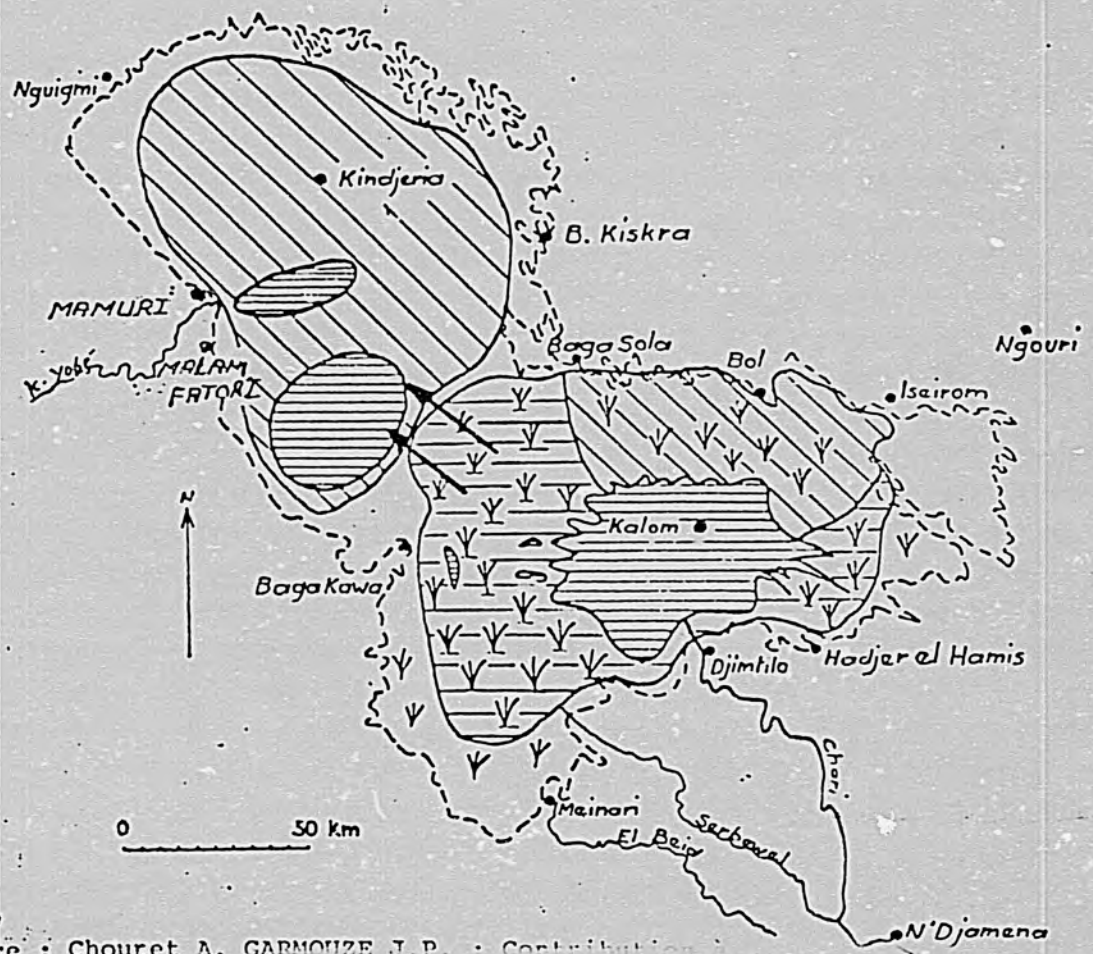
Carte schématique du lac au début juillet 1973



Source : Chouret A. - GARMOUZE J.P. : Contribution à la connaissance du Bassin Tchadie. étiage du Lac en 1973 assèchement de la cuvette sud : Paris 1976.

MAP O

: Carte schématique du lac en Décembre 1973



Zones exondées avec végétation

Eaux libres

Zones inondées à végétation dense

Archipel en

Source : Chouret A. GARMOUZE J.P. : Contribution à la connaissance [illegible] étiage du Lac en 1973 assèchement de la cuvette Sud - Paris [illegible]

All of the following informants were interviewed for their work during the 1991-92 season.

1991-92 pepper season	1,000 FCFA = between 53 and 56 Naira

EXAMPLE A:

Village: Bosso

Ethnic majority: Mobeur

Informant: Mobeur, male, married (one dependant), approximately 27 years old

Land tenure of informant: proprietor of field in which he works

Motor-pump status of informant: renter (see details below)

Expenses: 6 sacks (50 kg) of fertilizer @ 90 Naira.....540

1 barrel (220-liter) of fuel @ 450 Naira.....450

5 bidons (4-liter) of motoroil @ 55 Naira.....275

25 burlap sacks @ 17 Naira.....425

13 days' labor @ 30 Naira.....400

pump rental (7 sacks of pepper).....

TOTAL EXPENSES 2090

Rental terms: The pump-owner is an acquaintance who assumes responsibility for all of the abovelisted expenses until the time of harvest, at which time he is reimbursed with 50% of the harvest.

Production: 14 sacks of dried pepper (7 for the farmer, 7 for the pump proprietor)

Income: 7 sacks sold @ 900 Naira.....6300

TOTAL INCOME 6300

Incidental: The informant stocked his pepper and sold at the beginning of the rainy season at Malam Fatori (local Nigerian market). He avoided both Nigerien and Nigerian customs officials.

The informant worked a millet field but reaped no harvest.

The informant worked a rice paddy and harvested 8 sacks (50 kg), which he retained for household consumption.

The informant has no animals.

The informant engages in small-scale commerce, selling items of "first necessity" from a table.

The informant's wife aids him in pepper, rice, and millet farming. She sows okra in the pepper field. She owns approximately ten goats.

EXAMPLE B

Village: Abadam

Ethnic majority: Mobeur

Informant: Mobeur, male, married (dependants include wife, 6 young children, and 1 sibling), approximately 45 years old

Land tenure: Proprietor of the one field which he works

Motor-pump status: Owner

Expenses: 7 sacks (50 kg) of fertiizer @ 90 Naira.....630

2 barrels (220-liter) of fuel @ 450 Naira.....900

4 bidons (4-liter) of motoroil @ 55 Naira.....220

7 spark plugs @ 20 Naira.....140

35 burlap sacks @ 17 Naira.....595

TOTAL EXPENSES 2485

Production: 35 sacks of dried pepper

2.5 sacks (50 kg) of wheat

Income: 35 sacks of dried pepper sold according to need at between 500 and 900 Naira apiece

Incidental: The informant sold his harvest gradually, stocking as much as was possible. The majority was sold in

the Nigerian town of Abadam, 3 kilometers away. Nominal payments were made to border officials.

A significant portion of this income was used to purchase corn and millet for household consumption. This was bought in Abadam. Informant did not cultivate a millet field because good lands are distant and he expressed little hope that his efforts would be rewarded with a harvest.

The water source was exhausted before his wheat field matured (he anticipated a harvest of more than the 2.5 sacks realized).

The informant harvested 4 sacks (50 kg) of rice, which were retained for household consumption.

Informant garners off-season income from work as a mason.

Informant is aided in the field by one young son.

Informant owns four goats.

Informant's wife cultivate "gorko," okra, and lettuce in the pepper field. She sells the majority of her harvests in Abadam (Nigeria). She invests in gold and silver (she expressed that she does not want the problems incurred by animals). She weaves nattes and basketry in the hot season.

EXAMPLE C

Village: Gueskerou

Ethnic majority: Mobeur

Informant: Mobeur, male, married (dependants include wife and widowed mother), approximately 28 years old.

Land tenure: Cultivates two fields, of both of which he is proprietor.

Motor-pump status: half-owner with an older brother (used Yamaha approximately 7 year old bought at the end of the 1990-91 season).

Expenses: engine repairs (his half of a total 1030 Naira bill.....515

4 sacks (50 kg) fertilizer @ 90 Naira.....360

1 barrel (220-liter) of fuel @ 600 Naira.....600

3 bidons (4-liter) of motoroil @ 55 Naira.....165

10 sparkplugs @ 25 Naira.....250

23 burlap sacks @ 18 Naira.....414

TOTAL EXPENSES 2304

Production: 23 sacks of dried pepper

unspecified quantity of okra for wife

Income: (4 sacks saved until rainy season, when sold at 600 Naira apiece).....2400

(2 sacks at 360 Naira apiece).....720

(7 sacks sold at 500 Naira apiece at bordertown 15 kms away, entailing 70 N transport charge).3430

(10 sacks sold at 500 Naira apiece in Gueskerou to pay debts).....5000

TOTAL INCOME 11550

Incidental: Engine repairs costing 515 Naira, as well as a large percentage of the fuel costs, were defrayed by taking cash loans from friends and repaying them with pepper at the end of the season.

The barrel of fuel was bought by 4-liter bidon, making it more expensive than if it had been bought at once; informant claimed to know this but did nothing about it.

Informant sowed millet but reaped no harvest.

Informant harvested 2 sacks (50 kg) of sorghum.

Informant owns five goats.

Informant's wife assists him in cultivation of all his fields. She sows okra for herself in the pepper field. She weaves nattes in her free time.

QUALIFICATION: The informant's older brother farms more systematically and on a larger scale than the informant himself. Appears that he may have

underwritten many of the informant's ostensibly shared costs.

EXAMPLE D

Village: Zaouraram

Ethnic majority: Mobeur

Informant: Mobeur, male, married (five dependants), approximately 40 years old.

Land tenure: Informant works two irrigated fields, of one of which he is proprietor and the a borrower (from his wife).

Motor-pump status: Owner

Expenses: 16 sacks (50 kg) of fertilizer @ 80 Naira.....1280

2 barrels (220-liter) of fuel @ 450 Naira.....900

10 bidons (4-liter) of motoroil @ 40 Naira.....400

insecticide for 270 Naira.....270

200 burlap sacks @ 16 Naira.....3200

TOTAL EXPENSES 6050

Production: 150 sacks of fresh pepper

50 sacks of dried pepper

unspecified amount of okra, yallo, and gorko (wife's work)

Income: 150 sacks of fresh pepper sold for 140 Naira apiece.....21000

50 sacks of dried pepper sold for between 500 and 900 Naira apiece.....

Incidental: Informant sold his fresh pepper to Nigerians who came to his field to buy.

Informant claimed that most of the income from fresh pepper sales was used to buy millet (some for consumption and some for resale). The purchase of millet was made with several other villagers who

had likewise sold their fresh peppers; a six-wheel truck was rented in Nigeria and the millet purchase made in bulk.

Informant stocked his dried peppers, eventually selling them to both collection stations in Niger, in a local Nigerian bordertown market (5 kms away from the informant's village), and Maiduguri (a city of the Nigerian interior).

Informant claimed that more than one-third of the income from dried pepper sales were used to buy cattle. He owns a herd of about 35 bovines. Theseare confided to a local Fulani on a year-round basis.

Dried pepper income also used to buy some small ruminants (but not as much invested here as in bovines).

Informant is proprietor of rice paddies but chooses not to cultivate them because (a) it would pose a time/labor conflict with pepper cultivation, (b) he prefers to let the marsh grasses grow and graze his cattle thereon, and (c) he remarked that rice labors entail spending hours standing in the water to which he attributes various health problems observed locally.

Informant's wife possesses 25 small ruminants. She assists her husband in agricultural activities. She derives her income from sowing okra and weaving nattes and basketry.

Informant is aided by one son.

Informant classified himself as a medium-to-large-quantity producer of pepper (vis-a-vis other villagers).

EXAMPLE E

Village: Zaouraram

Ethnic majority: Mobeur

Informant: Mobeur, male, married (seven dependants), approximately 52 years old.

Land tenure of informant: Informant works three fields, of one

of which he is proprietor, the two others being borrowed from male relatives (nominal reimbursement of zakat).

Motor-pump status: Informant uses two pumps, of one of which he is owner, the other being rented (see terms below).

Expenses: 12 sacks (50 kg) of fertlizer @ 60 Naira.....720

1.5 barrels (220-liter) fuel.....750

3 bidons (4-liter) of motoroil @ 50 Naira.....150

insecticide 130

200 burlap sacks @ 10 Naira.....2000

animal traction plowing of field.....60

motor-pump rental.....

TOTAL EXPENSES 3810

Rental terms: The harvest is divided by three; one-third for informant, one-third for the married son with whom he works, and one-third for the pump-owner.

* Unlike the example for Bosso (see above), the pump-owner does not assume responsibility for all the expenses until harvest-time. In this case, the informant had sufficient liquidity to pay all of these himself. Thus, reimbursement is strictly for the pump rental.

Production: 150 sacks of fresh pepper

50 sacks of dried pepper

unspecified amount of okra, yallo, and "gorko" (by wife)

Income: 150 sacks fresh pepper sold @ 140 Naira.....21000

50 sacks dried pepper sold according to need at between 500 and 900 Naira.....

Incidental: Informant claimed to sell all fresh pepper in same manner as preceding informant, to Nigerians who came to the village to purchase.

Income from fresh pepper sales was used to buy millet for (consumption and resale), fuel, and fertilizer (to be stocked for the subsequent season).

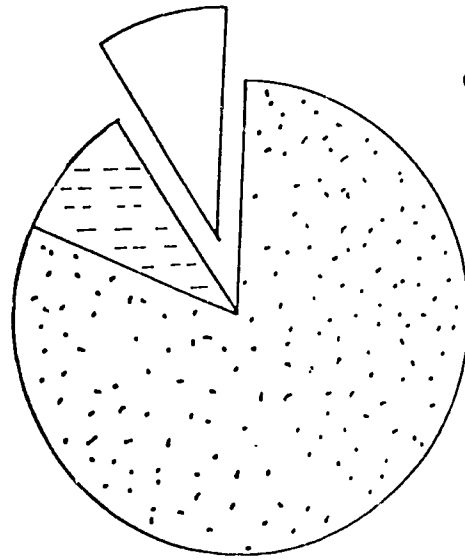
Dried pepper was stocked and sold gradually over a six-month period (according to household needs). Informant claimed to have sold the greater part of his 50 sacks at a collection station (in Niger) 5 kilometers from the village. Prices were said to be consistently several hundred francs better than prices paid in the Nigerian bordertown market 3 kilometers away. He did sell some of his harvest in this bordertown, however.

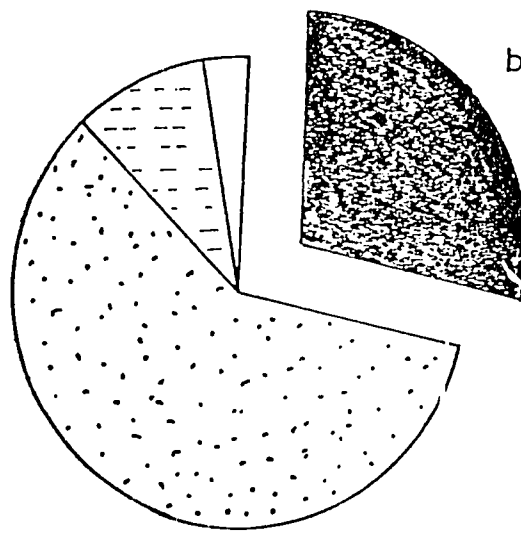
Income from dried pepper was applied to various household needs (ceremonies, clothing) and purchase of small ruminants.

EVOLUTION OF THE PEPPER TRADE WITHIN NIGER:

According to the 1992 FIDA study mentioned, the system of pepper commerce for the Nigerien market developed in three different stages. At the outset, in the period between 1980 and 1984, it was based on a system of personal relations (and credit) between large-scale traders (grossistes) from Niamey, Maradi, and Zinder. These individuals went to Diffa themselves, where they bought pepper on credit from local commerçants. In this system, the fact that pepper was sold on credit meant that the local commerçants accepted the risk for products which were lost, spoiled, or left unbought. There was also waiting period of between one and three months from the time the local commerçant relinquished his pepper and when the grossiste returned to him with the cash promised. In the period between 1985 and 1988, local traders from the zone of production began to transport and sell their peppers directly on the markets of consumption. This, in addition to a tax of 500 CFA per sack levied at the collection stations and in local markets, is said to have discouraged many grossistes from continuing to buy in Diffa. Some of these grossistes are said to have taken on an intermediary role, remaining in Niamey, Maradi, or Zinder to aid in-coming Diffa commerçants contact urban buyers. Since 1988, it is said that the Diffa traders had taken control of the market; they rent vehicles and sell directly to the grossistes in the urban centers (marginalizing the intermediaries). In these transactions, there is said to be a marked preference for cash rather than credit.

une exp[illegible]ation [illegible] dele





LEGENDE

maïs

niebe

ble orge

autres =

● = niébé, gombo, oseille, tomate

Source: IBRAHIM, Amadou, Etude Socio-Economique des Espaces Riverains de Lac Tchad: [illegible] = gombo, oseille, tomate

REVENU DU POIVRON CHEZ LE JARDINIER PROPRIETAIRE *

*term "proprietaire" applies to motor-pump

RUBRIQUES	MONTANT
. PRODUIT BRUT GLOBAL	392 687
.CHARGES VARIALES	
. Semences	125
. Plants	1 113
. Engrais	26 810
. Produits phyto-sanitaires	74
. Main d'oeuvre salariée	
. labour parcellement	2 987
. sarclage	868
. récolte	2 623
. Carburat lubrifiant	63 213
. Transport	860
. MARGE BRUTE GLOBALE	294 014
. CHARGES FIXES	
. Entretien Motopompe	17 596
. Amortissement Motopompe)	21 428
. Frais Financiers ( )	
REVENU AGRICOLE	254 990
SUPERFICIE MOYENNE (ha)	0,92
REVENU AGRICOLE / ha	277 163
TEMPS DE TRAVAUX (H.J)	330
REVENU AGRICOLE/ H.J.	773

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa FIDA, Niamey, Aout, 1992

REVENU DU POIVRON CHEZ LE JARDINIR LOCATAIRE *(F C F A)

* term "locataire" applies to motor-pump

RUBRIQUES	MONTANT
. Produit Brut Global	175 100
. CHARGES VARIABLES	
. Semences	112
. Plants	775
. Engrais	24 727
. Produits Phyto-Sanitaires	18
. Main d'oeuvre salariée	
. labour parcellement	1 857
. sarclage	464
. Récolte	1 434
. Carburant lubrifiant	35 729
. Transport	2 437
. MARGE BRUT GLOBALE	107 547
CHARGES FIXES	
. Location motopompe	25 625
. REVENU AGRICOLE	81 922
. SUPERFICIE MOYENNE (ha)	0,52
. REVENU AGRICOLE / ha	157 542
. TEMPS DE TRAVAUX (H.J)	313
. REVENU AGRICOLE / H.J.	503,3

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

REVENU DU POIVRON CHEZ L'EXPLOITANT MOYEN DES A.H.A.*

(F C F A)

* initials A.H.A. signify "amenegement hydro-agricole"

RUBRIQUES	MONTANT
. Produit Brut Global	252 715
. CHARGES VARIABLES	
. Plants	107
. Engrais	22.596
. Produits Phytosanitaires	18
. Main d'oeuvre salariée	
. labour - parcellement	3.250
. sarclage	571
. récolte	1.250
. Transport	404
. MARGE BRUTE GLOBAL	- 224.519
. CHARGES FIXES	
. Redevances ONAHA	55.332
. REVENU AGRICOLE	169.187
. SUPERFICIE MOYENNE (ha)	0,51
. REVENU AGRICOLE / ha	331 739, 2
. TEMPS DE TRAVAUX (H.J)	296
. REVENU AGRICOLE / H.J.	1120,7

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

VARIATION DES PRIX DE DETAIL DU POIVRON SUR LE MARCHE DE DIFFA (F CFA/KG)

PERIODES	1990	1986
JANVIER - MARS	434,8	506
AVRIL - JUIN	669	674,6
JUILLET - SEPTEMBRE	944	715,3
OCTOBRE - DECEMBRE	778	460

SOURCE : D.D.P - DIFFA

TABLEAU N° 21 : VARIATION DES PRIX AU STADE GROS DU POIVRON EN 1991 (F CFA/SAC)

PERIODES	MARCHE DE DIFFA	MARCHE DE DAMASSAK
JANVIER - MARS	4.000	4.000
JUILLET - SEPTEMBRE	9.000	10.500

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

STRUCTURE DES PRIX DU POIVRON SUR LES CIRCUITS DE L'INTERIEUR DU NIGER (F CFA/SAC)

RUBRIQUES	Circuit Diffa - Zinder	Circuit Diffa - Niame
Prix d'achat	3.500	3.500
Frais de collecte	250	250
Taxe municipale	250	250
Frais de transport	500	1.000
Manutention	50	50
Services des intermédiaires	100	100
Taxe sur marché urbain	100	100
TOTAL	4.750	5.250
Prix de vente (période de récolte)	5.000	6.000
Marge commerciale	250	750
Prix de vente (période de pénurie)	8.250	9.000
Marge commerciale	3.500	3.750

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

STRUCTURE DES PRIX DE POIVRON SUR LES CIRCUITS D'EXPORTATION VERS LE NIGERIA (F CFA/SAC)

RUBRIQUES	CIRCUITS DURO-MAIDUGURI	CIRCUIT DURO - KANO
Prix d'achat	4.000	4.000
Frais de collecte	200	200
Frais de transport	475	550
Taxe d'arrondissement	100	100
Manutention	50	50
Taxe au Nigéria	25	25
TOTAL	4.850	4.925
Prix de vente (période de récolte)	5.250	5.000
Marge commerciale	400	75
Prix de vente (période de pénurie)	11.000	10.500
Marge commerciale	6.150	5.575

N.B. : Les frais de l'intermédiaire (Dilali) sont payés par l'acheteur soit environ 250 F CFA par sac.

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

/FREQUENCE DES SOURCES DE REVENU MONETAIRE/

CATEGORIE DE PRODUCTEUR

ACTIVITES ECONOMIQUES	Exploitant AHA		Jardinier locataire		Jardinier propri taire	
	Nbre	%	Nbre	%	Nbre	%
Vente de poivron	23	47	32	53,3	41	47,7
Vente de produits agricoles	17	34,7	8	13,3	21	24,4
Pêche et Elevage	-	-	7	11,7	7	8,1
Commerce et artisanat	6	12,2	10	16,7	8	9,3
Prestations de service	3	6,1	3	5	9	10,5
TOTAL	49	100	60	100	86	100

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

FREQUENCE DES PRINCIPALES DEPENSES NON ALIMENTAIRES FINANCEES PAR LA CULTURE DU POIVRON

RUBRIQUES	Propriétaire M P*		Locataire M P		Exploitant AHA	
	Nombre	%	Nombre	%	Nombre	%
- Mariage et autres cérémonies religieuses	49	30,3	31	37,4	16	27,6
- Achat des animaux	28	17,3	18	21,7	11	19
- Achat des matériels agricoles	24	14,8	1	1,2	7	12
- Achat d'intrants agricoles	6	3,7	1	1,2	3	5,2
- Construction maison	13	8	4	4,8	8	13,8
- Payement des redevances	0	0	0	0	2	3,4
- Achat habits	33	20,4	28	33,7	11	19
- Equipement ménager	2	1,2	0	0	0	0
- Entretien matériels	4	2,5	0	0	0	0
- Achat matériel non agricole	2	1,2	0	0	0	0
- Impôts	1	0,6	0	0	0	0
TOTAL	162	100	83	100	58	100

HAROUNA, Kore, ABDOULHADI, Hamit, Etude de la Filiere du Poivron de Diffa, FIDA, Niamey, Aout, 1992

* M.P. = moto-pompe.

ANNEX IV

Zakat is an annual tithe imposed by Islam. It is based on an individual's combined assets (total wealth).

In certain agro-pastoral communities in the Diffa Department, zakat (sometimes called sadaka) frequently appears to be based on the amount which individuals harvest (i.e. annual income rather than cumulative wealth). In such cases, zakat is said to be evaluated at 10% of the harvest.

In other communities, notably those of pastoralists, zakat is evaluated based on an individual's total animal wealth. All such payments were said to be made in-kind (i.e. with livestock). The gradations of zakat payments are detailed in the table below.

FOR A HERD OF :	ZAKAT PAYMENT IS:
5-9 camels	1 goat or 1 sheep (male or female)
10-14 camels	2 goats or 2 sheep (males or females)
15-19 camels	3 goats or 3 sheep (males or females)
20-24 camels	4 goats or 4 sheep (males or females)
25-35 camels	1 female camel aged 15-16 months or 1 male camel aged 2 years
36-45 camels	1 female camel aged 2 years
46-55 camels	1 female camel aged 3 years
56-74 camels	1 female camel aged 4 years
75-99 camels	1 female camel which has given birth once
100-199 camels	1 female camel with female offspring aged 2-3 years
0-39 goats/sheep	0
40-99 goats/sheep*	1 female goat or ewe (reproductive age)
100-200 goats/sheep**	2 female goats or ewes
201-300 goats/sheep	3 female goats or ewes

* Goats and sheep are counted collectively. For example, the proprietor of 20 goats and 30 sheep must pay zakat on 50 animals; he/she may not eschew payment by claiming two separate herds of goats and sheep.

** Regarding herders unversed in the technical niceties of zakat, a reported form of trickery involving individuals with 80 or more small ruminants entails making them pay for each increment of 40 animals rather than by increments of 100 (as indicated in table above). For example, the owner of 200 small ruminants is made to pay 5 animals (1 for each unit of 40) rather than the 2 which are correct.

ANIMAL POPULATION FOR THE ARRONDS. OF N'GUIGMI			
	1990	1991	1992
Camels	184.648	184.649	188.157
Sheep	299.288	299.288	314.252
Goats	308.798	308.797	323.928
Donkeys	27.456	27.456	28.554
Horses	12.807	12.807	13.191
Cows	120.080	120.080	125.603

Source: Service d'Elévage pour l'Arrondissement de N'Guigmi

Following are some findings furnished by the Danish project (Projet Danois) in the N'Guigmi Arrondissement. The study was conducted in the period March-May of 1992. Findings are given according to two different zones; N Guigmi and N'Guigmi North.

N'Guigmi = total of 35 villages in perimeter surrounding town of N'Guigmi.
N'Guigmi North = total of 9 villages to the northwest of town of N'Guigmi: Yalema, Issa Gonteynga, Youloukiya, Oromou, Boulmay, Kossoteri, Matamjana, Sassey, and Dougouley.

Water consumption.

zone	no. infs.	liter/pers/day	system	ethnicity	period
N'Guigmi North	310	15.28	past+ag/past	Toubou/Arab	April-May 92
N'Guigmi	609	15.70	past+ag/past	Toubou/Arab/Ful	Mar-April 92

Agro-pastoral systems.

zone	no. infs.	domnt species	system	ethnicity	period
N'Guigmi North	379.2	camels/goats	pastoral	Toubou/Arab	April-May 92
N'Guigmi	834.6	caml/goat/dnkey	ag/past	Toubou/Arab/Ful	Mar-April 92

Revenue.

zone	no.infs.	system	CFA rev/yr/pers	% ag rev	% animal rev	eth.	period
N'Guigmi North	379.2	past+ag/past	38,513	0	100	T/A	A-M 92
N'Guigmi	834.6	past+ag/past	16,728	0,63	99,37	T/A/F	M-A 92

Cereal purchases.

zone	no. infs.	cereal purchase person/yr	system	ethnicity	period
N'Guigmi North	322	11,364 CFA	past+ag/past	Toubou/Arab	April-May 92
N'Guigmi	413	9,221 CFA	past+ag/past	Toubou/Arab/Ful	Mar-May 92

UBT for pastoralists and agro-pastoralists.

zone	no.infs.	system	UBT* total	UBT/pers.	ethnicity	period
N'Guigmi North	314	past+ag/past	2416,72	7,69	Toubou/Arab	April-May 92
N'Guigmi	634	past+ag/past	1584,48	2,5	Toubou/Arab/Ful	Mar-May 92

UBT for pastoralists.

zone	no.infs.	system	UBT* total	UBT/pers.	ethnicity	period
N'Guigmi North	139	pastoral	368,16	2,64	Toubou/Arab	April-May 92
N'Guigmi	322	pastoral	786,8	2 44	Toubou/Arab/Ful	Mar-May 92

* UBT = Unité de Betail Tropicale (animal of 250 kilograms)
1 camelin = 1 UBT
1 bovin = 0,8 UBT
1 ovin/caprin = 0,15 UBT

With reference to six tables on preceding page:

Studies in Kenya, Somalia, and Ethiopia put the UBT requirement of a single individual at: 5,71 camels, 13,06 cows, 20,4 small ruminants (Thebaud, PDENCE, 1987, p 90).

Niger Range and Livestock Project estimates that 3 UBT per person is more accurate, counting individual's consumption of cereal, milk, etc (Thebaud, PDENCE, 1987, p 90).