

UNCLASSIFIED

# Country Development Strategy Statement

**FY 1988**

## Niger

BEST AVAILABLE



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Agency for International Development  
Washington, D.C. 20523

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## GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ADF	AFRICAN DEVELOPMENT FUND
AFN	ASSOCIATION OF NIGERIAN WOMEN
AGRHYMET	SAHEL WATER DATA MANAGEMENT
APS	AGRICULTURAL PRODUCTION SUPPORT PROJECT
ASDG	AGRICULTURAL SECTOR DEVELOPMENT GRANT
CA	CENTRALE D'APPROVISIONNEMENT
CAISSE	FRENCH DEVELOPMENT LOAN AGENCY (CAISSE CENTRALE DE COOPERATION)
CFAF	CFA FRANC CURRENCY USED IN FRANCOPHONE WEST AND CENTRAL AFRICA (USD = 370 CFA)
CILSS	INTERSTATE COMMITTEE FOR STRUGGLE AGAINST THE DROUGHT
CNCA	NATIONAL COOPERATIVE CREDIT AGENCY
CND	NATIONAL DEVELOPMENT COUNCIL
CRSP	COLLABORATIVE RESEARCH SUPPORT PROGRAM
CVD	VILLAGE DEVELOPMENT COMMITTEE
DAFP	LITERACY SERVICE
EPI	EXPANDED PROGRAM OF IMMUNIZATION
ESF	ECONOMIC SUPPORT FUND
FAO	FOOD AND AGRICULTURE ORGANIZATION
FED	EUROPEAN DEVELOPMENT FUND
FEWS	FAMINE EARLY WARNING SYSTEM
FSN	FOREIGN SERVICE NATIONAL
FLUP	FORESTRY AND LAND USE PLANNING
GDP	GROSS DOMESTIC PRODUCT
GM	PRE-COOPERATIVE ("GROUPEMENT MUTUALISTE")
GON	GOVERNMENT OF NIGER
IBRD	INTERNATIONAL BANK FOR RECONSTITUTION AND DEVELOPMENT
ICRISAT	INTERNATIONAL CENTER FOR RESEARCH IN THE SEMI-ARID TROPICS
IEC	INFORMATION EDUCATION AND COMMUNICATION
IFDC	INTERNATIONAL FERTILIZER DEVT. CENTER
IITA	INTERNATIONAL INSTITUTE FOR TROPICAL AGRICULTURE
ILP	INTEGRATED LIVESTOCK PROJECT
IMF	INTERNATIONAL MONETARY FUND
INRAN	NATIONAL AGRICULTURAL RESEARCH INSTITUTE
ISNAR	INSTITUTE FOR NATIONAL AGRICULTURAL RESEARCH
INTSORMIL	INTERNATIONAL SORGHUM AND MILLET RESEARCH PROGRAM

KFW WEST GERMAN DEVELOPMENT LOAN AGENCY  
 MAR MINISTRY OF ANIMAL RESOURCES  
 MOH MINISTRY OF HEALTH  
 NCR NIGER CEREALS RESEARCH PROJECT  
 NDD NIAMEY DEPARTMENT DEVELOPMENT PROJECT  
 ONAHA NATIONAL IRRIGATION PARASTATAL  
 ONPPC NIGERIEN PHARMACEUTICAL PARASTATAL  
 OPVN NIGERIEN GRAIN MARKETING AGENCY  
 ORS ORAL REHYDRATION SOLUTION  
 ORT ORAL REHYDRATION THERAPY  
 PIC INTERIM CONSOLIDATION PROGRAM (DEVELOPMENT EXPENDITURE)  
 PRITECH U.S. HEALTH CONSULTING FIRM  
 PVO PRIVATE VOLUNTARY ORGANIZATION  
 RHIP RURAL HEALTH IMPROVEMENT PROJECT  
 RINI RICE PARASTATAL  
 RSDG RURAL SECTOR DEVELOPMENT GRANT  
 SAC STRUCTURAL ADJUSTMENT CREDIT  
 SMC SUPREME MILITARY COUNCIL  
 SND DEVELOPMENT SOCIETY  
 SOE STATE OWNED ENTERPRISE  
 SONARA PARASTATAL RESPONSIBLE FOR PEANUTS AND COWPEAS  
 TROPISOILS TROPICAL SOILS CRSP  
 UNC NATIONAL UNIONS OF COOPERATIVES  
 UNCC NATIONAL UNION OF CREDIT AND COOPERATION  
 UNFPA UNITED NATIONAS FAMILY PLANNING ASSOCIATION  
 VHT VILLAGE HEALTH TEAM  
 VHW VILLAGE HEALTH WORKER  
 WHO WORKED HEALTH ORGANIZATION

Niger Country Development

Strategy Statement

FY 1988

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USAID NIGER  
COUNTRY DEVELOPMENT STRATEGY SUMMARY  
FISCAL YEAR 1988

We are pleased to transmit the Country Development Strategy for Niger. It is the first CDSS in three years, and its setting records the recent praiseworthy efforts of the Government of the Republic of Niger to bring an acute financial crisis under control. Faced with a catastrophic debt, it is to the credit of the Nigeriens that they are dealing effectively with the economic policy reforms and the measures necessary to recover from the devastating drought 1984/85.

Niger has embarked on an ambitious structural adjustment program which will take several years. This CDSS presents a strategy designed to support Nigerien efforts in policy reform and structural adjustment, as well as key development activities in the crucial fields of agriculture/rural development and health/population.

We fully endorse this CDSS, in the preparation of which there has been widespread US Community participation.

Approved: Richard W. Bogosian  
Richard W. Bogosian  
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Mission Director

## EXECUTIVE SUMMARY

The FY 1988 Country Development Strategy Statement for Niger has a long-term strategy objective of increasing food production, leading toward food self-reliance and increased incomes. In the medium-term, USAID/Niger's strategy objectives focus upon helping Niger support policies and undertake actions necessary for structural readjustment. Using sector program grants, USAID is concentrating on policy changes, better resource management and increased efficiency of human and financial resource use in agriculture/rural development and health/family planning. In the case of agriculture, the program assistance is closely integrated with project assistance designed to assist in the development of self-sustaining local organizations as a mean of increasing Niger agricultural research activity. USAID will propose a second sector grant in agriculture in FY 1988 as well as the FY 1986 Health Sector Grant being presented at this time.

This Country Development Strategy Statement, prepared in December, 1985-January, 1986 reflects both the evolution of USAID's thinking on development strategies and the progress that Niger has made in controlling the financial and drought crises. In January 1983, it was clear that Niger had a short-term financial and liquidity crisis as a result of events mostly outside of direct Nigerien control. At that time, neither the Government of Niger nor USAID were fully aware of the depth of the crisis or the structural imbalances that would require more time and necessitate profound changes in the economy.

The approved CDSS submitted in January, 1983 and reconfirmed in June, 1984 listed three strategy objectives. Subject to sectoral analysis, it proposed a major initiative in human resources development and a smaller effort in irrigation. Under this strategy, USAID/Niger's long-term interest was increased food production leading toward food self-reliance. The three strategy objectives were:

- Economic stabilization. This included maintenance of existing investment activities, more effective use of available resources and reform in agricultural policies.
- Agricultural production. This objective concentrated on development of self-managed organizations and the private sector as a means of increasing food production, as well as agricultural research.
- Institutional and human resources development. This strategy objective included developing institutional and human resources in areas that contribute directly to increased agricultural production. Human resources development concentrated on participant training. Education activities concentrated upon literacy and numeracy in support of developing self-managed agricultural organizations. Institutional develop-

ment activities in land use planning also contributed to long-term agricultural programs. Health activities and agricultural production are inextricably combined because endemic malnutrition, parasitic and infectious diseases reduce the effectiveness of labor, especially at key points in the agricultural year.

The program week held in June, 1985 analyzed a variety of concerns which led to a decision to prepare a new CDSS and modifies somewhat the direction of USAID/Niger's strategy. These were: (1) the impact of persistent drought upon the program; (2) the need to move toward medium-term structural adjustment rather than short-term economic stabilization; (3) the impact of staff reductions on USAID Niger's ability to carry out bilateral programs in the critical area of natural resources planning and rural adult literacy/numeracy; (4) how to take advantage of the major GON policy shift in population; and, (5) whether USAID could or should begin work in limited key areas of irrigated agriculture as part of a long-term food production strategy which incorporates drought proofing.

The CDSS strategy presented herein reflects USAID/Niger's analysis of the points listed above in shifts in strategy objectives. These take into account the evolution of Niger's economy and the very impressive efforts of the Nigeriens themselves to cope with problems which threaten the long-term economic and social viability of the country. The Government of Niger (GON) has made considerable progress in furthering the country's development. The strategy is not necessarily designed as an immutable long-term approach, because we found that our analysis raised increasing doubts concerning the appropriateness of a dryland agriculture approach to meet long-term food self sufficiency objectives in a country which has as limited a physical base as Niger.

The 1985 drought dramatically demonstrated Niger's very limited physical resource base for agriculture and the country's rapidly growing population. The long-term trend shows per capita crop production declining and the land's carrying capacity (both in terms of livestock and soil fertility) decreasing. Niger's social indicators are typical of the worst-off of the least developed countries.

Niger has successfully carried out IMF sponsored economic stabilization programs since 1983 under standby arrangements and debt reschedulings. Niger's present macro-economic policy environment is generally sound. The GON has adopted policies to reduce the budget deficit by reducing capital outlays

and restraining current expenditures. It has reduced the current account deficit in the balance of payments by more than half. It has initiated a policy of divesting a number of state-owned enterprises, and reforming those that remain, so that they can operate as profit-making concerns and encounter less interference from the state.

Because of the long-term effects of the collapse of the uranium boom and the periodic droughts, the average annual economic growth rate in real GDP could be less than 0.5 percent over the next three years. The key macro-economic constraints are:

1. A high level of debt/service obligations relative to the country's capacity to service the debt.

2. Structural economic problems which must be solved in order to improve economic management, address protracted payment imbalances, and mobilize resources in addition to the short-term economic stabilization effort which has been achieved principally through standby agreements and debt re-scheduling.

3. Low Foreign Exchange earnings which are dangerously dependent on a single commodity, uranium, which is highly susceptible to international boom and bust.

4. Very limited possibilities for increased public and private resource mobilization within Niger's minute modern sector economy.

In 1985, the Agriculture, Livestock, Forestry and Fishing sector provided 47.1 percent of GDP at current market prices. Both Livestock and Forestry/Fishing appear to be in a slow decline in their share of GDP. The Agriculture sector employs about 90 percent of the labor force. Agricultural production is primarily consumed on the farm, and rural incomes are very low.

Niger has made considerable progress in addressing a complex of inter-related institutional and policy constraints which must be resolved before the country can obtain a reasonable level of agricultural production and rural income. These constraints include those pertaining to input supply and subsidies, agricultural marketing policies, cross border trade and livestock marketing, agriculture credit, and the private and cooperative sector.

The major constraints to technology transfer and research in the agriculture sector include a limited knowledge of appropriate technologies and institutional weaknesses, characterized in part by a lack of effective research extension linkages and a national research strategy. In institutional

development, the GON's policy of implementing development activities through self-managed organizations underscores the need to strengthen the cooperatives' ability to select and manage their own economic affairs. Farm level credit is currently in limbo until a decision can be made regarding the financial soundness of the official credit agency. The GON is beginning to reorganize the entire input supply system. Increasing attention must be paid to marketing deficit areas, as well as locating livestock and crop markets outside the country.

The physical environment is afflicted by spreading desertification despite efforts to improve the situation since the early seventies. The period needed to restore range following severe droughts is increasing. Crop production has extended into the pastoral zone and other marginal areas, contributing to increased soil erosion and reduced carrying capacity. Soil productivity is decreasing due to shortened fallow periods. Wood is being used much faster than it is produced.

In the area of health, Niger has made commendable progress in developing and expanding a rural primary health care network using village health care teams. The system now covers about 45 percent of the population but it has grown so rapidly that attention needs to be paid to consolidation and management improvement. Among the constraints are the lack of specific National Health and Population policies and of an integrated national health plan; and the need for stronger institutional structure for planning, resource management, budget and manpower planning and allocation. The Budget allocations are distributed poorly, considering the need for broad-based public health system objectives. Insufficient attention is given to health financing policies related to areas such as cost recovery and user fees. Niger has just undergone a fundamental government policy shift in family planning and population, and consequently needs to develop a strategy and a legal framework within which to work.

USAID's long-term strategy continues to be based on increasing food production, leading toward food self-reliance and increased rural incomes. This should be interpreted broadly to allow Niger to take advantage of regional (north-south) complementarities to increase its export earnings. Major efforts to diversify rural incomes and increase purchasing power are needed, and these will not come about through concentration on rainfed cereals. In some respects, this CDSS is a transitional document, a step eventually leading

to the development of a broader strategy based on rural income diversification that might permit escape from the "subsistence trap". Neither USAID nor Niger are ready at this time for such a strategy, which first necessitates completing much of the current structural adjustment agenda.

This overall strategy permits an address of financial constraints imposed by debt service obligations and management constraints and USAID will concentrate on supporting policies which are conducive to structural changes necessary to alleviate the constraints mentioned above. In turn, USAID focus also will be placed on better resource management and increased efficiency in the use of resources in two development sectors, as well as expanding the opportunity for resource mobilization in the private sphere. USAID is concentrating on Agriculture/Rural Development and Health/Population. Agriculture's importance lies in its capacity for growth and the fact that most of Niger's population depends on agricultural production. Health is an important part of human capital accumulation and essentially underlies all other economic activities; and the nature of Niger's population policy has important implications for the country's limited and fragile resources. Policy reform and structural adjustment require institutions to develop policies, implement the reforms, monitor and evaluate their effects and modify them if necessary and AID is continuing strong support in this area.

USAID's agricultural strategy for the CDSS period stresses food production and diversification through community-based self-managed development, with emphasis on local management, private (and cooperative) sector participation and utilization of improved technical packages. USAID/Niger has given careful consideration to the appropriateness of a strategy based on rainfed agriculture because of the decline in agricultural productivity, the necessity to drought-proof the rural economy, the need to build in agro-forestry activities, and the development of mixed livestock-crop systems as part of anti-desertification measures, the need for the herder population to be able to provide a living for themselves, and the necessity to increase rural incomes and purchasing power. Our analysis shows that irrigated agriculture, despite its small area, contributes substantially to value added to GDP, and can contribute much more if existing technologies are used more efficiently. Most of the problems of the subsector compare with those found in the rest of agriculture plus those of water management. The evidence suggests that livestock production, which contributes substantially to the livelihood of 20 percent of

population, cannot increase much above the 1968 level without significant supplemental feeding, major range improvements or other technological breakthroughs.

The strategy components that will contribute to the transformation of the agriculture sector are:

(1) Implementation of the policy reforms under the ASDG and related activities. These reforms promote production by reducing policy constraints (listed above) to agriculture development while at the same time providing budgetary resources to support ongoing development activities.

(2) Development of Niger's agricultural research and extension linkage capacities (particularly in planning and managing research programs), establishing functional linkages at national and international level, and strengthening the National Agricultural Institute (INRAN) human resource base. Implementation of national foodcrop research programs would be implemented at the same time. The major innovation here is in broadening existing programs to include applied irrigation research beginning in FY 1987 in order to contribute eventually towards drought-proofing and diversification of income sources. Since a sustainable increase in agricultural production in Niger is only possible through increasing agricultural productivity, the aspect of USAID's strategy addresses the major constraints in agriculture research and technology transfer.

3) A.I.D. will help develop participatory self-managed organizations through cooperative development and restructuring, extension, seed multiplication and credit and input distribution. Several of these activities back up, with program execution, the policy level reforms which are part of the ASDG. The Niamey Department Development Project (NDD) and the Integrated Livestock Project (ILP) will phase out in 1988. The ILP evaluation and course of actions are undergoing review at the present time. It is USAID's intention to keep the viable components of that project in operation until the original completion date, paying particular attention to "drought-proofing" and integration of project components into the technical services.

USAID will take advantage of the progress made to date in institutionalizing land use planning and effective measures against desertification (including range management and agro-forestry) and integrating these activities into ongoing programs. Most of USAID's activities in the sector are regional projects, while forestry and land use planning is the only direct

bilateral project, and the only project among the donors actively involved in land use planning. Due to USAID staff constraints, all bilateral activities in forestry/land use planning will phase out in December 1987.

In Health, USAID has the eventual objective of improving the health status of the population at large by reducing mortality and morbidity particularly among children, improving overall nutritional status, and expanding access to family planning. The near and medium-term objective will be to support policies that are conducive to structural changes, particularly improved public resource management. Institutional reform and development are a part of the strategy, because of limited institutional capacity for planning and executing policy changes. The strategy also calls for restructuring both current and investment budgetary resources, and improving cost recovery/user fee mechanisms. USAID's strategy still includes some direct involvement in child survival program interventions, including family planning, through regional projects and local currency. The strategy integrates family planning services and demographic planning into the health strategy at all levels.

The emphasis on policy dialogue, structural adjustment and resource management reform in agriculture and health suggest that non-project sector assistance would be an appropriate assistance modality, with a portion of funds set aside for policy-related institutional strengthening. The case becomes stronger given the GON's financial constraints and its commitment to structural adjustment, policy change and economic development. The project assistance mode cannot easily adapt itself to the execution of policy reforms and budgetary resource allocation, although it can be very helpful in parallel development of institutions. In Agriculture, USAID has chosen sector assistance to tackle key policy reform areas which are not particularly amenable to project assistance, and combined it with project assistance for agricultural research and the development of self-managed local organizations. In health/population, bilateral resources are devoted to the Health Sector Grant, with local currency and regional projects providing some support directly to child survival program interventions including population.

Given the decline in U.S. Direct Hire ceilings and the constraints upon OE resources, USAID has had to make some difficult choices regarding continued involvement in sectors which are very important for Niger's economic development and the execution of the strategy. USAID has very reluctantly decided that it is forced to pull out of bilateral assistance in the key area of de-

sertification control and natural resource use planning. This seems contradictory in light of the effort to "drought-proof" the agriculture/rural sector, but it is necessary in light of ceiling and operating expense limitations. It has also indefinitely postponed the planning of a bilateral project to strengthen adult literacy and numeracy which is so important for the development of self-sustaining local organizations.

Some reorganization of the staffing "mix" will be necessary to continue the emphasis on structural adjustment and the addition of a health sector grant. Additional personnel cuts beyond those which are already planned will result in program cuts that will come at a critical period in Niger's development, and will be to the detriment of achieving the strategy objectives in structural adjustment, agricultural development and health.

## I. BACKGROUND AND ANALYSIS: CROSS SECTORAL CONTEXT

### A. PHYSICAL RESOURCES AND LIMITATIONS

#### 1. The physical resource base

Niger is affected by drought and desertification, as are the other Sahelian countries. While drought is primarily climatic, desertification results from overuse of land by humans and animals, with long term consequences. About 12 percent of the total land area in Niger has usually been considered useful for agriculture or livestock production. About 33,000 square kilometers (or 3 percent) is considered suitable for growing crops, mostly millet, as a transitional livestock/crops zone. The forested area has decreased by about 30 percent in the past twenty years due to pressure from farmers, herders, firewood cutters and drought. Trees and brush are being cut three times faster than they grow back.

Most of the cropland is found in a strip along the southern border which receives rainfall ranging from 350 to 900 mm. In the northern portion of this zone, rainfall is too erratic for consistent harvests. Production has increased by extending the cultivation zone at the rate of 2.5 percent per year, while population has been growing by at least 2.7 percent. Traditional shifting cultivation practices have been abandoned in many areas as population growth has necessitated decreasing or eliminating fallow periods from the crop rotation. Soils in the more fragile populated areas often become so depleted that even hardy weeds cannot survive. These soils are subject to severe wind and water erosion, forcing the farmer to move elsewhere or quit farming.

Although per capita food production is declining, in a normal non-drought year Niger can just about feed itself with domestic production and normal commercial imports. The 1984 drought reduced that year's crop production by about 50 percent. From 40 to 60 percent of the livestock was lost.

Fuelwood accounts for about 90 percent of wood consumption and supplies 80 percent of Niger's gross energy requirements. Niger relies on petroleum and hydro-electricity to meet the remainder. The GON follows a realistic pricing policy for petroleum which reflects world market prices. Prospects for substantial exploitation of Nigerien petroleum resources have been dimmed by the relatively small traces discovered to date and the probable high cost of transportation. Niger has sizable coal deposits in the desert which provide energy for the uranium mines, however coal is not yet used for domestic, artisanal or household use. More than half of Niger's electricity comes from the Kanji Dam in Nigeria. In the long term, Niger has proposed

building a dam for electricity and irrigation at Kandadji near the Mali border. The high cost of the dam with questionable returns has led donors to fund studies that are expected to demonstrate that the dam will not be needed to meet irrigation requirements for the next 20-25 years and that other smaller, down-stream sites are more feasible for electricity generation.

## 2. Regional Development: Sahelian and North/South Trade

Niger is a land-locked country without a railway. Niamey and other major towns are at least 1,400 to 1,500 kilometers from the nearest port. Cotonou and Lome ports have limited capacity, as do the road and railroad links from these ports. Despite the construction of excellent major road axes, many parts of the country are isolated and do not have road links to markets. The closure of the Nigerian border since early 1984 to all but relief food and petroleum products, is also a major constraint to Niger's development.

The Sahelian regional linkages and economic complementarities are slight. The north-south transportation routes and traditional trade linkages are much stronger and are based on complementarities and ethnic ties. Trade still follows primarily north-south lines, with livestock and cowpeas going south, and sorghum and consumer goods flow<sup>ing</sup> north in normal times. If the border is opened, the large urban Nigerian commercial markets offer considerable opportunity in dried vegetables, onions, potatoes and livestock.

Niger's internal market linkages remain weak due to low purchasing power, lack of regional complementarity of goods, and an underdeveloped secondary road network. East-west commerce has not yet really taken off. There are at least three separate markets in Niger based on north south trade complementarities despite a first class east-west highway.

## B. POPULATION, HEALTH, HUMAN RESOURCES

### 1. Population Structure and Health Indicators:

Niger's population is estimated at 6,330,000 in 1985, about 85 percent of which live in rural areas, mostly along the southern "useful fringe." About 14 percent of the population is usually classified as transhumant and semi-sedentary herders of cattle, camels and small ruminants. Among the changes occurring since the great drought of 1968-74 is the gradual sedentarization and urbanization of the nomads. Sedentary farm villages account for about 72 percent of the population. Population pressure has pushed sedentary farmers

into the transitional zone, some moving out of the most marginal land. Periodic droughts result in a temporary ballooning of the urban population as well as contributing to an accelerated increase in permanent urban residents at an annual rate of 7 to 10 percent.

The population structure is typical of other less developed African countries, with 47 percent of the population being under the age of 15. Although Niger's health indicators have improved in the past 25 years, they still remain among the world's poorest. Life expectancy at birth is now 43 to 47 years (compared to 36 years in 1960). Infant mortality is given at 132 per 1000, although a country-wide sample in early 1985 during the drought showed an infant mortality rate of 158. The maternal mortality rate of 70 per 10,000 is one of the world's highest. The birth rate is 52 per 1000, the fertility rate is 7, and the crude mortality rate is 20 per 1000. The population growth rate is 2.7 to 3.2 percent and appears to be gradually accelerating as measures to reduce infant and child mortality take hold.

The major causes of mortality and morbidity in Niger are similar to neighboring countries, although reliable statistics are hard to find. The following causes of death are ranked according to the frequency reported in 1984: measles, diarrhea with dehydration, meningitis, malaria, pneumonia, and tetanus. Childhood diseases rank high because few children are vaccinated. The six most reported categories of illness were: "presumed" malaria, followed by diarrheal disease, bronchitis, conjunctivitis, rhinopharyngitis, and wounds. Other diseases reported included measles, gonorrhea, syphilis and schistosomiasis. There are about 13,000 known cases of leprosy, and about 4,000 new cases of tuberculosis a year and 2500 cases of polio. Malnutrition is a contributing factor to both morbidity and mortality. A study done by the Ministry of Health (MOH) in early 1985 on a sample of 1960 children in seven departments showed that 25.1 percent had chronic malnutrition (80-85 percent height/weight) and 16.8 had acute malnutrition (less than 80 percent height/weight).

## 2. Employment and job creation.

Niger's total workforce was estimated at 1,398,000 in 1980. Even if population growth rates change, the increase in labor force size will vary only slightly over the next 20 years. By the year 2000, Niger's workforce will be about 2,650,000. In 1980, 33,000 more jobs were needed to provide "full employment." The Nigerien economy would have to create 100,000 new jobs in 2000.

Approximately 90 percent of the workforce is employed at least part time in agriculture. At certain times in the crop year, acute labor shortages occur, especially for land preparation and weeding for dryland crops. During the rest of the year unemployment and underemployment are high since no work can be done in dryland agriculture. An additional 5.6 percent of the population engages in non-formal activities in commerce and services. In 1982, the remaining four percent of the labor force (about 60,000 people), were employed in the "modern" wage economy. Half of these are in the government sector. Slightly less than 13,000 new urban jobs were needed in 1980 for full employment. By 2000, over 42,000 new urban jobs must be created each year. As a result of the collapse of the uranium boom, poor harvests, and the closure of the border with Nigeria on top of drought, the private sector is not generating employment. The very small size of the non-public sector points out (1) the extremely limited private sector capabilities and (2) the difficulty of basing development solely on such a limited indigenous sector. It should be noted that in some parts of Niger, there is a very large annual exodus to find work closer to the coast during the dry season.

Between 1981 and 1983 public sector employment increased by slightly more than 4 percent per year, through absorbing large numbers of Lycée and University graduates. The economic crisis put the lid on government employment and it is probable that total government employment will remain relatively steady in the foreseeable future. Even in the period from 1981 to 1983, there was a decisive contraction of public sector employment opportunities available to those with less than full secondary school training. In the past year the GON has ceased automatically hiring all university graduates. Jobs will therefore become increasingly difficult to find for people in popular non-technical fields.

### 3. The Human Resource Base

Niger has one of the lowest literacy rates in the world. Depending on the definition, between 5.5 to 10 percent of the adult population is literate. The formal Nigerien education system is very limited in its coverage and is geared to producing government employees for a Francophone administrative system rather than the development of an agriculturally based economy with an indigenous private sector. Limited availability of funds for recurrent costs will prevent continued expansion of primary schools to provide facilities for more than about a fifth of that rapidly increasing age group. Only 3 percent

of the secondary school aged children are enrolled. With the exception of the primary level experimental schools, the medium of instruction in the formal education system is French. The result is a relatively privileged French speaking elite of about 5 percent of the population who have, or who are, getting diplomas and are apt to be Government employees.

The low rate of literacy (and numeracy) leaves 90 to 95 percent of the adult population in a position of not having the skills and access to information necessary to manage activities to diversify and expand rural household incomes which would bring them more fully into the national economy. This is especially true concerning the development of self-managed cooperative organizations which are supposed to be the engines of development. The GON recognizes that the illiterate population is handicapped both in terms of social communication and in its potential to absorb information necessary for development. Nevertheless, there is no national policy on literacy.

The literacy service (DAFP) has favored mass literacy campaigns rather than programs integrating literacy and numeracy into training for a specific task (e.g. using cooperative accounting and management documents). DAFP has grown enormously over the years. It may have produced 10,000 literate adults since 1962. About 15,000 adults (13,800 men) enroll in literacy classes each year. About five out of ten drop out (the rate is higher among women) and about 90 percent of those who stay are tested as illiterate (the passing students include repeaters). Without a national policy there is very little incentive to stay with the program as the students do not feel any particular need to become literate nor does the government provide any priorities to successful graduates when allocating funds. There are few opportunities for use of literacy skills, aside from newly created jobs in cooperatives and small projects. Numeracy is more important in people's minds than literacy, because it is essential for managing enterprises beyond a limited size. Mass literacy programs are not cost effective at present and the GON cannot maintain funding levels for non-formal programs. Mass media were used effectively as adjuncts in the 1973 campaign, but the 1980-82 campaign was not as well well planned and had less impact.

More success has been achieved with "Functional literacy" which combines practical skills and wider learning, especially when combined with numeracy. In the USAID portfolio, the Niamey Department Development and

Agricultural Production Support projects use in cooperative development projects, as do those of several other donors, since the practical end can be perceived more readily. Other technical agents are supposed to collaborate with DAFF in joint functional programs for adult literacy but the effectiveness of the programs is diminished by bureaucratic fragmentation, lack of coordination and the absence of a national policy.

In the civil service there is a lack of suitably trained civil servants and shortages in some technical fields. This is partially due to the limitations of the secondary schools, especially in sciences. Senior officials tend to be well educated in the sense that have high academic skills in their field, but have usually not had training to strengthen their managerial and administrative skills to plan, direct, and implement large scale development activities. The acute lack of well qualified mid-level personnel in key fields imposes a severe constraint on absorptive capacity. In agriculture, livestock and other rural development fields, personnel responsible for extension, research and cooperative development activities are often technically and administratively underqualified. Medium and lower level staff have not received appropriate training in communication and pedagogy to facilitate the technology transfer and exchange of ideas with the non-literate population. Since a great many government employees with secondary school training or higher are not literate in the national languages, gaps in comprehension and communication arise easily and can severely handicap development efforts.

Niger lacks an integrated comprehensive human resources development plan which takes into account meager financial resources for investment in training and meeting recurrent salary costs. A Commission on Educational Reform has existed for some time and the need to establish appropriate educational systems for development purposes and rational human resource planning, is recognized clearly in many quarters. Realization of this goal, however, has yet to be reached. The IBRD's study of human resources planning and financial consequences provides information which can be of use in developing a long-term human resources model. However, no significant policy changes have been promulgated nor have operational revisions within the educational structure been analyzed or discussed.

Although Niger receives considerable assistance in education and training fields from other donors, the GON has had to cut back its ambitious plan

targets for the formal education and training programs. In FY 1983, the recurrent expenditures for education was a fifth of the national recurrent budget of which a fifth went to the university. More than 95 percent of the education budget goes to perpetuating the formal system. Niger is now training (in-country and abroad) more graduates in certain fields such as law and economics than it has demand for. Conversely, the need for graduates in the sciences and technical studies is not being met, especially in agriculture and rural development. In addition, the lack of financial resources calls into question the appropriate extension/delivery systems in agriculture, health and social services over the long term.

C. Traditional and Modern Authority: Directive Centralization vs Self-Managed Organizations

1. Traditional authority

Niger's ethnic groups and rural population still have a conservative orientation, and at the local level, traditional social organization and structures are the rule among settled agriculturalists. These structures are hierarchical and segmented; among the Hausa and the Zarma, new villages often form as the result of disputes which finally grow so severe that a part of the population decides to move a short distance away and set up another village. Among the pastoralists however, the way of life and social structures are being shattered due to repeated droughts, and resulting livestock deaths which wipe out their capital.

Niger has five major language groups which account for 99 percent of the population. The figures are traditionally given as Hausa, 56 percent; Zarma, 22 percent; Fulfulde, 8.5 percent; Tamasheq, (Touareg) 8.0 percent; and, Kanuri, 4.3 percent. Arabic, Tubu and Gourmantche total 1.2 percent.

As it is misleading to assume that language implies ethnicity, it is also misleading to assume an unambiguous occupational or ecological commitment on the basis of language. In recent years, many of the smallest ethnic identity groups have combined as political interest groups on the national level. The ethnic groups are segmented by class and caste. A number of freeborn or aristocratic groups maintain relationships of dominance over others. Some terms are used occupationally and with "caste-like" implications: (fishermen, blacksmiths, weavers, butchers, etc.). Fulani and Touareg groups include pastoral specialists, semi-sedentary agro-pastoralists, and full-time

farmers. The "Hausa" is a large grouping of a number of localized emirates which, in effect, is a product of the modern political grouping. Almost all the large ethnic groups cross international borders. Village chiefs are traditional chiefs, the Chef de Canton (chief of group of villages) is a traditional chief as well.

## 2. Administrative structure

Niger's politico-administrative structures are highly centralized and hierarchical. There are at least three parallel lines of authority and a case can be made for a fourth. These are: Military/Interior, the line ministries (Agriculture, Health etc), and the Development Society. The fourth authority line is financial-economic and consists of the Prime Minister's office and the Ministries of Finance and Plan.

A scheme of the theoretical structure in sedentary areas follows:

Administrative Unit	Interior	Ministries	Development Society
National Department (7)	President (MOI) Prefet (military)	Minister Depart. Director	National Development Council
Arrondissements (36)	Sous Prefet (usually civilian)	Arrondissement Representative	
Administrative Post	Administrative Chief	Local Agent	Local Development Council
Canton	Canton Chief (trad)		
Village	Chief (trad.)		Village Development Council

This does not necessarily reflect reality. The Line Ministries, in particular those concerned with Rural Development, are reorganizing and the Development Society does not yet have a strong grass roots structure built from the bottom up. It exists at some levels and places, incorporating traditional leaders, notables, and organizations such as the cooperatives, but in local practice may lack clear identity.

Agricultural extension agents, literacy services representatives and rural development agents may be assigned to administrative posts at the arrondissement or departement level. The administrative structure, inherited from the

French, is highly centralized and directive, with a "top down", non-participatory approach. This style is the common operating mode of the technical services in development fields and leaves little room for village level participation.

Although the Prefet or head of a Departement has great authority in his own right, and the GON now appoints Departmental Secretary-Generals for Development to chair departmental development coordinating committees, final decision-making on almost all development investments and expenditures still goes back through the central ministries. Payments must go through the Ministries of Plan and Finance in Niamey. The GON has recently established a central "Office of Administrative Management" in the office of the Prime Minister to assist ministries to determine and establish more effective management of available resources. This office has very limited staff and capability at present, but the GON intends for it to increasingly provide assistance in implementing the government's structural adjustment process.

The line ministries are highly structured, and very compartmentalized. Even within the same ministry, there is relatively little interaction among working level personnel in different divisions of technical services, without going up to the top of a division and then back down. The inherited French system, combined with the traditional authority structure, has set up administrative procedures and attitudes which limit the informal horizontal interaction necessary for planning and administering development programs. This compartmentalized and directive approach discourages collegial participation in the decision-making process.

Such an approach partially explains the reluctance of institutions which implement agriculture, livestock and forestry projects in Niger from placing high priority on involvement of the rural population in planning and decision making. The usual procedure is for an extension agent to come to the village with a set of instructions, activities and technologies to pass on to the population. The drawbacks to this approach are amplified when the extension agent is young, inadequately trained and over-extended. There are too few of them and their operational means are so limited that the agents hardly have the time to interact with the local population to find out what they want as development activities or technologies.

In response to these problems as well as the desire to establish a participatory consultative framework, the GON has moved in two areas - decentrali-

zation of rural development and the establishment of the Development Society (SND), with its local and national level Development Committees and Councils. The November, 1982 Conference on Rural Development in Zinder laid the basis for a policy of decentralization of services and the development of self-sustaining institutions to carry out development.

### 3. The Development Society and its Components

The Development Society has a formal structure which starts at the Village Development Council and works up through the local and Regional Councils to the National Development Council (CND). This is a politico-economic structure which is designed to provide representation and decentralization. It has representation of various groups, such as the cooperatives, the Samariya (traditional youth groups), and women's organizations at the village, local, regional and national levels. In theory, village, local and regional councils are involved as well with the selection and implementation of small development and social-investment projects. In practice, many of the activities often do not originate from the grass roots, since control on higher level initiatives and administrative officials play a strong role.

At the national level, the CND is finishing work on a charter which could become, in effect, the nucleus for a national constitution. The former constitution was suspended, following the 1974 coup d'état which brought the military to power in Niger. The activity and participation in the Development Society varies considerably throughout the country, although some local and regional councils are quite active. One of the problems the CND faces in its role at the local level is that its leaders are usually people connected with traditional authority, and are often members of interlocking local directorates with the cooperatives. Both engage in economic development activities. Consequently, it is sometimes difficult to distinguish between the cooperatives and the village and local development committees in their economic role.

Given the very limited role of women in the overt direction of traditional village life, there is little participation by women in the Development Society at the village and local level. Although local chapters of the Association of Nigerien Women (AFN) are one of the constituent parts of the Village Development Committees (CVD), the AFN membership and leadership consists largely of educated women, and the AFN has relatively few activities which are truly oriented toward grass roots participation and initiative at the village level.

The Samariya or traditional youth groups seem to have revived in recent years. While they have a distinct social flavor in some of their undertakings, depending on their location they may have very widespread participation and carry out many roles in addition to extending their political relationships to the world outside their village. Their leaders are closely linked to traditional leadership and they can mobilize large numbers of people for community work in a rather directive, top down fashion. While very active in Zarma speaking territory and remoter parts of the Hausa area, there is widespread variation.

The conflicting tendencies of the hierarchical traditional/administrative approach, and the philosophy of the decentralized self-managed organizations become more apparent in the area of cooperative development. Until late 1984, the National Union of Credit and Cooperatives (UNCC) was the agency primarily concerned with cooperative development. It acquired a substantial superstructure, including food grain marketing and supplying farmers with inputs, as well as supervising credit administration at the local level. As a result of the liquidity crisis brought on by poor administration of the credit program, the GON decided that it would not bail out the National Cooperative Credit Agency (CNCA) nor any other official credit organization. Consequently short-term credit has not been available from official sources, and medium term credit has been limited except in some cases of donor-financed projects. In 1985, the GON abolished the UNCC, eliminated its superstructure and gave policy oversight to what became the Ministry of Agriculture. The cooperatives were then grouped into a private National Union of Cooperatives (UNC). We have noted, however, that at the regional and higher levels of the UNC, many of the representatives are merchants and notables, and that farmers and herders are under-represented.

The theoretical model for the cooperatives developed by the GON is sound. However, the Nigerien socio-political system in which they must work conflicts with the goal of widespread participation and with providing the necessary training in self-management. The Government defines the role, function and membership of the cooperatives and specifies rules and procedures. Cooperative membership is determined (on rainfed land) by place of dwelling rather than group affinity or common interest, i.e., all the inhabitants of a village are members of a pre-cooperative (GM). Several villages (usually a canton) form a cooperative which may contain traditionally antagonistic villages.

Irrigation cooperatives are irrigation subsections of geographic cooperatives, membership being determined by who has rights to irrigation plots in a perimeter. The normal basis of a nomad's cooperative is the administrative group.

Basing membership on geographic units undermines the social cohesiveness and group solidarity that a cooperative should have. Financial affairs become the responsibility of several villages which have been grouped somewhat artificially into a cooperative. Cooperative leaders are usually men of importance in the community with ties to the traditional power structure. With certain notable exceptions, cooperatives have little internal dynamism of their own, although the GON is trying to correct this.

Until farmer/herder groups are given more latitude in determining their own roles and procedures, there is considerable skepticism regarding long-term cooperative success. However, given human resource and financial constraints of the GON, and the limited size of the modern commercial sector, cooperative development is almost the only medium-term option for obtaining inputs and making certain that some services, at least, do get to the farmer.

#### 4. Niger's Domestic and Foreign Political Context

In April, 1974 the Nigerien military removed the civilian government and established a military government headed by General Seyni Kountché who rules through the Supreme Military Council (SMC). The coup d'état was justified on the grounds that the civilian government was unable to cope with aiding the population during the great drought. At that time, all political activities were abolished and civil liberties were restricted. These conditions still exist although the Development Society proposed by the SMC ideally will provide a mechanism for consultation. The administrative organization of the country has changed relatively little until recently; nevertheless, the centralized effectiveness of authority has improved under the military government. Decisions taken at Zinder in 1982 to decentralize development and concentrate on self-managed organizations to implement development programs have begun to remove some of the inefficiencies existing in the centralized system. By responding to local needs and lifting some of the burdens and costs from the central government sector, the development society provides a consultation and participation device for political and economic decision-making.

The present government has consistently stressed mobilization of the country's resources to achieve food self-sufficiency by the year 2000, and is

putting a great effort into economic recovery. Niger is very serious about economic stabilization and in increasing its management capacity to be able to deal with policy formulation and economic development. President Kountché has put a great deal of his personal authority behind these objectives and personally has been responsible for a major positive shift in population policy. His image and that of his government are seen as moderate, pragmatic and energetic in the pursuit of economic and political development goals. His personal interest and attention to achievement of objectives in development activities has kept the potentially lethargic hierarchical structure from becoming bogged down and has motivated resolution of problems.

President Kountche's economic development policy and management concerns are projected onto the stage of international relations. Niger commands respect in Africa for its moderation, and the mature way it approaches finance and development issues. In the Sahel, President Kountché just completed his term as chairman of CILSS and played an active role. His leadership was responsible for a major reorganization of CILSS and changes which the donors have long been recommending. Niger's foreign minister was elected to the office of Secretary General of the Organization for African Unity. In international bodies, Niger tends to take non-ideological positions and supports moderate courses of action.

Niger is a small state which has demonstrated itself as a model of responsible economic stabilization and development policies in a context of very limited resource availability. It is a role model to its less stable neighbors and others in the difficult process of economic development through intelligent application of policy reforms and accordingly deserves Economic Support Fund assistance so that it can continue to do so.

## II. BACKGROUND AND ANALYSIS: THE MACRO-ECONOMIC CONTEXT

### A. MACRO-ECONOMIC DEVELOPMENTS, TRENDS, ECONOMIC REFORM AND MEDIUM-TERM OUTLOOK

#### 1. Recent Macro-Economic Developments

##### a) Prior to 1983

Niger's economic performance has been uneven over the past decade. The country's growth rate fluctuated from an annual average of 9 percent during the late 1970s to a negative growth rate of 1 percent during 1981-83. In 1984, the severe drought reduced real Gross Domestic Product (GDP) by approximately 16 percent from the level of the previous year. Preliminary estimates of GDP for 1985 show a growth rate of almost 7 percent as agricultural production recovered from the drought.

The rapid growth during 1976-80 was fueled by the uranium boom that followed the 1973 oil crisis. Increased uranium demand and prices contributed to improved terms of trade. Uranium export earnings more than quadrupled, and, together with external borrowing and foreign assistance, allowed the expansion of public expenditure programs and investments. Adequate rainfall also contributed to a modest growth in the rural economy during the late 1970s. Livestock production increased, aided by government-supported herd reconstitution programs after the 1969-73 drought.

The rapid growth period ended with the uranium bust in the early 1980s. An economic crisis accompanied by financial imbalances and liquidity shortage developed during 1982 and 1983. The budget deficit reached 10.8 percent of GDP by the end of FY 1981.\* Increases in imports induced by past growth performance, together with the decline in export earnings and rising debt service, led to large current account deficits (8.4 percent of 1982 GDP). With declining net capital flows, the 1982 current account deficit was unsustainable; the overall balance of payments deficit reached 7.2 percent of GDP. Prior to 1983, the deficits were financed by drawdowns of official foreign reserves and external borrowing. By the end of 1982, gross official foreign reserves were reduced to the equivalent of less than three weeks of the country's imports and debt service payments were mounting.

##### b. Adjustment and Recovery Efforts: 1983 - Present

To cope with the liquidity shortage and debt crisis, the Nigerien

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\* Niger's fiscal year is identical to the U.S. fiscal year.

Government initiated an adjustment process and a stabilization program in 1983. Following the pursuit of austerity measures and efforts to raise government revenue, the budget deficit declined to 4.7 percent of GDP in FY 1985. The deficit reduction came from cuts in development expenditures and restraints on current spending growth. To date, the effect of revenue increasing measures has been relatively insignificant. Significant cuts in imports were due to reduced public spending. The current account deficit was narrowed to 3.4 percent of GDP in 1984. The 1984 drought increased the current account deficit to 4.8 percent of GDP in 1985. The overall balance of payments deficit declined to less than 1 percent of GDP in 1984, but increased to 3.7 percent in 1985.

During the past two years, three events affected the country's economic performance and complicated the adjustment and recovery efforts. These events were: the 1984 drought, the closure of the borders with Nigeria since April 1984, and the strong U.S. dollar and high interest rates through 1985.

Table 2 summarizes the effects of the 1984 drought on GDP, balance of payments, and public finance. Valued added in the rural sector was estimated to be 57 billion CFAF lower than it would have been in the absence of drought. The direct effect of the drought on the rural sector alone accounted for 11 of the 16 percent reduction of real GDP in 1984. The drought contributed to an increase of 8.5 billion CFAF in the balance of payments deficit, due to a combination of reduced exports (livestock and cowpeas) and increased cereal imports. The impact of the drought on the balance of payments would have been larger (an estimated 34 billion CFAF) if it had not been for much larger official transfers in the form of food aid.

The drought had a direct effect on local government revenues which represent only a small portion of total government revenue. The effect from the drought was insignificant on other components of government revenue because of the subsistence nature of the economy and relatively low tax rates. On the expenditure side (excluding donor-financed spending directly related to food aid distribution), the drought minimally increased government spending by about 0.7 billion CFAF. The drought however, contributed to a larger budget deficit of an estimated 1.5 billion CFAF, due to the inability of the Nigerian Grain Marketing Agency (OPVN) to make previously scheduled reimbursements to the Treasury which thus reduced government receipts.

The Nigerian border closure inconvenienced trade and officially fore-

closed the most important market for Nigerien agricultural and livestock exports. It appears, however, that the economic effect of the border closure is offset substantially by a strong incentive to trade due to serious exchange rate distortions between the Naira (Nigerian currency) and the CFA franc. The loss of customs receipts was estimated at 0.5-1 billion CFAF.

The strong U.S. dollar and high interest rates through 1985 raised interest payments on debt, since much of Niger's debt is denominated in U.S. dollars. As much as an estimated 1.4 billion CFAF of the larger FY 1985 budget deficit (3.5 billion CFAF larger than originally foreseen) may have been due to currency depreciation and high interest rates. The depreciation of the CFA franc also affected Niger's foreign exchange earnings because its uranium price is set in CFAF. The reduction of uranium earnings due to currency depreciation was estimated at approximately \$15-20 million in 1985.

## 2. Macro-Economic Policies and Reform Measures

Niger's adjustment and recovery efforts consist of an economic reform program in the areas of fiscal, monetary, balance of payments and external debt policies aimed at addressing the internal and external financial imbalances; combined with adjustment efforts incorporating measures designed to cause structural changes in the economy as well as improved economic management. The four major reform areas are: public resource allocation and management, the operations of state-owned enterprises and privatization effort, agricultural policy changes, and pricing and marketing policies.

a. Macro-Economic Policies. Niger has successfully completed two IMF-sponsored austerity programs since 1983 under the stand-by arrangements and a third IMF stand-by program is in operation. Normal demand-oriented fiscal and monetary policies and import reduction measures were adopted.

Fiscal Policy. The GON adopted policies to reduce the budget deficit through reduction in capital (development) outlays and restraint in current expenditures. Total government spending remained unchanged during FY 1984 and 1985 at about 14 percent below the 1983 level. There were reductions in current expenditures on scholarships, subsidies, and transfers to public enterprises or other entities. The FY 1986 budget shows an increase in total government spending by 4 percent, mostly reflecting an increase in anticipated development expenditures and a modest increase in personnel spending (6 percent). These measures are accompanied by efforts to improve tax collection and administration in order to expand the country's public revenue base.

Major tax reform areas include: strengthening the administration and collection capacity, reducing tax preferential on customs duties, increasing certain excise taxes, and introducing a value added tax in January 1986.

Monetary Policy. The GON has pursued restrictive monetary and credit policies and adhered to the quantitative target ceilings under the IMF standby programs since 1983. The money supply grew less than 10 percent in 1985 and is expected to grow less than 9 percent in 1986. The increases in net credit to the government during 1983-85 were within the limits of the IMF programs. A larger portion of credit growth was allocated to the private sector. The government is expected to continue the cautious monetary and credit policies under the 1985/86 IMF stand-by program. Projections of money supply growth in 1986 show a decrease from 9.5 percent to 8.6 percent. Credit growth will be limited to 11.4 percent, with a higher proportion going to the private sector.

Balance of Payments Policy. In the external sector, the current account deficit was reduced by more than half, primarily by import reduction. By 1984, Niger had largely accomplished the objective of balance of payments stabilization, when the overall balance of payments deficit was reduced to 4 billion CFAF (or 0.6 percent of GDP). The 1984 drought and the Nigerian border closure temporarily halted progress during 1985, but improvement is expected to resume again in 1986. Throughout this period, the authorities have maintained a liberal trade and payments regime: there were no new restrictions imposed on payments or transfers for international transactions.

External Debt Policy. In conformity with IMF conditionality, since mid-1983 Niger has refrained from contracting or guaranteeing new non-concessional loans with a maturity period of less than 12 years. The IMF programs, together with prudent fiscal, monetary, and balance of payments policies, have allowed the Nigerien authorities to obtain three consecutive debt reschedulings from the Paris Club and one from the London Club. The debt relief helped finance the budget and balance of payments deficits and brought economic and financial stability.

b. Public Resource Management

The Nigerien authorities initiated a program of public investment consolidation and restructuring under the 1984/85 Interim Consolidation Program (PIC). Under this program, the GON cut the level of spending by 20 percent, and placed emphasis on investment in the directly productive sectors (instead of infrastructure) and on coming to grips with recurrent cost implications of

development expenditures. The Nigerien authorities had to restructure the current expenditure outlays in addition to controlling their levels. In particular, with World Bank assistance, they are examining the civil service system in order to contain increases in the wage bill and allocate more spending to materials and maintenance. Cost-recovery efforts are also being undertaken in areas of irrigation, water supply, educational materials, and hospital services. Finally, the GON has increased its debt monitoring and management efforts in order to contain its debt service problem.

c. Privatization and Reform of State-Owned Enterprises

Following the IBRD-financed studies, the Nigerien authorities initiated a policy of divesting the GON of a number of state-owned enterprises (SOEs) and reforming those which will remain as public enterprises. Out of a total of 54 SOEs, 24 will remain as public enterprises, 22 will be partially or fully privatized or liquidated, five were absorbed by other government agencies (mostly into the Ministry of Animal Resources), and the status of the remaining three will be decided in 1986. The SOEs remaining in the public sectors have taken measures that include: cost savings (such as reduction of personnel); revisions in public utility pricing/tariff structure; the institution of cost recovery efforts in the irrigation and underground water supply agencies; improved accounting and financial systems; and rigorous enforcement of Nigerien Development Bank loan recovery. In addition to these policy measures for specific SOEs, the GON is developing a more flexible policy for the price regulatory system of price and profit margins. In October 1985, the GON abolished all import distribution monopolies, except for petroleum products. The authorities will also adopt clearer legal and contractual arrangements to delimit the responsibilities and relationships between the SOEs and the State. This should provide more autonomy to SOEs and allow them to operate as profit-making concerns and encounter less interference from the State.

d. Agricultural Policy Reform

The agricultural policy reform of the IBRD's Structural Adjustment Credit focuses on four areas: (a) grain pricing, marketing, and security stock, (b) agricultural input subsidies, (c) agricultural credit, and (d) agricultural research. Progress has already been made, particularly in the areas of cereals pricing and marketing and agricultural input subsidies.

In the area of agricultural credit, the GON has initiated a study of

informal credit with A.I.D. financing. The IBRD will also undertake an audit of the official credit institution (CNCA) in the near future as well as other credit studies being proposed. In agricultural research, the GON is reformulating its agricultural research priorities with more emphasis on applied research. (See Section III for details).

### 3. Medium-Term Outlook

#### a. Gross Domestic Product Projections

Table 3 of Annex A summarizes the projections of GDP for the next three years (1986-88). GDP at current market prices should grow at 6.5 percent per year. With the implicit GDP deflator growing at slightly above 6 percent, the average annual growth rate of real GDP would thus be less than 0.5 percent. This is a substantial recovery, in comparison with the 1981-85 results which show an average negative annual growth rate of 3.6 percent.

The value added contributions of all sectors (except mining, industry, and government) are expected to grow faster than they did in the immediate past. The rural sector, especially livestock which should recover somewhat from the drought, is projected to grow at a rate higher than 1.5 percent above its recent performance. The value added to construction and public works should recover from their negative trends to an annual average rate of 8 percent. The poor prospects of the mining sector at best reflect no increase in uranium production; the increase in value added will come from slight price rises. The industrial growth rate should be two percent below its previous trend. Although the sector is dominated by state-owned enterprises, some of which are being privatized, no significant increases in private investment and increased production are expected during 1986-88.

#### b. Balance of Payments Outlook

Table 6 in Annex A provides projections of Niger's balance of payments situation for 1986 through 1990, based on the assumption that present adjustment and reform efforts will continue. The balance of payments situation will be sensitive to a number of factors, particularly growth of exports and imports, uranium price and terms of trade, official assistance and international capital flows. To account for this sensitivity, the table shows two projections demonstrating two different sets of assumptions based on historical trends. These are called Scenario A and Scenario B.

Scenario A (based on 1975-1985 trends) reflects a slower adjustment and recovery process than Scenario B (based on 1982-1985 trends). Scenario A

assumes a lower growth of export earnings, higher import growth, a lower rate of increase in uranium price and thus less favorable terms of trade, and a lower growth of public capital inflows and a lower rate of decrease in private capital outflows. Both assume a trade pattern and capital flows of normal agricultural years, and therefore exclude substantial emergency food aid assistance. Under Scenario A, the overall balance of payments deficit will decrease at a modest average annual rate of 11 percent. The current account deficit will decline by an average of less than 2 percent per year. By 1990, there will still be a total deficit of \$36 million and a current account deficit of \$60 million.

Under Scenario B, a modest overall balance of payments surplus is projected for 1990, while the current account deficit will be eliminated by 1990. It should fall below \$60 million in 1987--a level which Scenario A predicts for 1990. Scenario B is clearly more optimistic and probably less realistic than Scenario A.

c. Public Finance Outlook

Table 4 projects government revenues, expenditures and budget deficits for 1986-88. Over the period, government revenues are expected to grow at an average annual rate of 6 percent--slightly above the 1978-85 historical trend of 5.7 percent. Total government spending is expected to grow at 4.6 percent per year, substantially below this trend.

On current expenditures, the growth rate of the government wage bill will be cut from more than 12 percent during 1978-85 to about 6.6 percent. Subsidies and transfers payments should decline by an average of 4.6 percent per year; a modest decline of 2.2 percent in interest payments should occur, assuming debt rescheduling will continue over the next three years. Spending on materials and maintenance will increase 7.6 percent--in order to improve the ratio of recurrent spending between materials and usages. The growth of materials and maintenance spending is, however, below the historical trend of 9.1 percent which reflected the uranium boom.

The recent decline in development expenditures should be reversed during the 1986-88 period; a renewed development effort will begin, accompanied by attempts to improve investment planning, budgeting, and project selection. Public investment outlays are expected to grow by 8.6 percent. The Treasury funded portion of the investment budget should show a modest 3.2 percent increase per year. This assumes that non-project donor assistance

(which falls under Treasury financing) will also increase. Table 5 summarizes the 1986-88 public investment program by major sectors. The GON should complete a detailed program in early 1986.

d. Public Debt Service Projections

Table 6 presents data based on the most recently available debt service profile for public and publicly guaranteed debt. Data on debt service payments for 1975 to 1985 are actual principal and interest payments. The 1983-85 figures reflect debt relief obtained in 1983 and 1984. The projections of debt service payments beginning in 1986 are estimates based on scheduled payments on outstanding and disbursed debt as of the end of 1985. The 1986 debt service payments do not take into account the effect of the debt relief obtained in November, 1985 and the debt negotiation with London Club creditors scheduled for early 1986.

The future debt service levels remain as high as the 1982 crisis level for the next three years (above \$100 million). They are projected to fall to the 1985 level by 1993. Between a quarter and a third of the debt service payments from 1989 consists of debts that were rescheduled earlier.

B. Key macro-economic constraints

The analysis made above suggests that there are four major constraints afflicting the macro-economic aspects of Niger's development:

1. Debt Servicing and Economic Management Capacities

Niger has a high level of debt service obligations relative to the country's debt servicing capacity. Niger also has a weak economic and public administration management capacity, together with an excessive demand on public sector resources, especially from several public enterprises. These constraints demand immediate attention. It is almost certain that Niger will restructure its debt during the next two or three years. Debt rescheduling provides a short term solution to the liquidity problem and it permits the country to pursue adjustment efforts more smoothly while avoiding an internal and external crisis of confidence. An appropriate macro-economic policy framework must exist to do so. Niger has made and is continuing to make considerable progress in addressing these constraints during the past two years.

2. Structural Adjustment

The short term economic stabilization objective, set forth in the January, 1983 CDSS, was achieved mainly through IMF standby arrangements and

subsequent debt rescheduling. The AID contribution to short-term stabilization takes the form of agriculture policy reforms and resources made available under the Agriculture Sector Development Grant that began in 1984 and its predecessor in 1983, the Rural Sector Development Grant. These programs have not only helped the GON to rethink the direction of agricultural policies but have also provided needed resources while the stabilization efforts proceeded. Niger has thus been able to continue some development activities under a climate of strenuous budgetary constraints. Demand management alone, however, is not enough to improve economic management, address protracted payments imbalances and mobilize resources. The economy also requires some structural changes which will take longer to achieve. The World Bank is the leading donor agency in addressing these constraints through its recently concluded Structural Adjustment Credit (SAC) Program. The SAC addresses three priority areas for structural changes: (1) public resource management, (2) reform of state owned enterprises, and (3) agricultural policy changes and re-orientation of agricultural expenditures to foster increases in rural income and wealth. The privatization and state enterprise reform, combined with IBRD-IMF technical assistance for fiscal and debt management is a positive step in addressing the economic management constraint. Niger's present macro-economic policy environment is generally sound.

### 3. Overdependence on a single export

Niger's foreign exchange earnings are dependent on a single commodity, uranium, that is highly susceptible to international commodity boom and bust as well as the uncertainty of the nuclear energy industry. Niger has limited opportunities for export diversification and increased mobilization, and must be addressed in a long-term perspective. Uranium exports will continue to be the most important source of export earnings, followed by livestock, cowpeas, onions and some vegetables. It is necessary to increase agricultural exports, in order to reduce the dependence on uranium for foreign exchange earnings revenue. It is desirable to re-orient investment towards crop and livestock in order to diversify exports and viable import substitution in foodstuffs.

A prerequisite to export diversification is the assumption that the long-term food sufficiency goal be interpreted more broadly. This goal grew out of the great Sahelian drought and, if interpreted narrowly, it implies that the country must follow an autarchic policy of domestic food production in order to meet the country's entire consumption requirement, thus ignoring

both costs and comparative advantage. It is clearly more efficient, and would make more use of economic growth opportunities for a dynamic agricultural sector with maximum overall production from a combination of products. A dynamic agriculture sector would also generate marketable surpluses which is a necessary condition for sustainable increased production and participation of the private sector and cooperatives.

4. Limited possibilities for increased private resource mobilization

With an economy based on subsistence agriculture and a large informal sector, the opportunities are limited for expanding the tax base and resource mobilization. Despite an energetic effort to strengthen tax administration and introduce new fiscal measures, any near term increases in GON revenues will be modest. The impact of the privatization initiatives on resource mobilization remains to be seen. In order to mobilize additional resources from the rural economy, it will be essential to increase productivity through diversification, and to introduce better technology since Niger simply does not have the resource base to extend agricultural production. Increased productivity is required to generate the surplus necessary for the long-term transformation of the subsistence economy into a more market-oriented economy in which the private and cooperative sectors can play a larger role.

C. Selection of the Dominant Strategy for the CDSS Period

As an overall strategy during the CDSS period to address the financial constraints imposed by debt service obligations and management limitations, AID will concentrate on supporting policies which are conducive to the structural changes necessary to alleviate the constraints listed above. According to most observers, Niger is one of a few African countries where serious and sustained policy dialogue has been productive (witness the Agriculture Sector Development Grant). AID will concentrate on addressing sectoral policies and adjustments with the objectives of better resource management and increased efficiency in use of resources in selected sectors, as well as expanding the opportunity for resource mobilization from the private sector. This implies restructuring recurrent budget expenditures, improved investment planning and project selection. Mobilization of private sector resources means fewer government regulations and controls, and improved incentives.

USAID/Niger will concentrate on agriculture/rural sector and health/population in pursuit of a policy reform cum structural adjustment strategy.

Agriculture was selected because of its importance for growth and the fact that most of the population depends on agricultural production. Health was chosen because it is an important part of human capital accumulation that is essential for other economic activities; and population because it has important implications for the country's limited and fragile resources.

Policy reform and structural adjustment require institutions to develop policies, implement the reforms, monitor and evaluate their effects, and modify them if necessary. The analytic capacity necessary for policy reform will also contribute to better resource planning and management. Strengthening the institutional capacity for policy analysis and resource planning/management is an important part of the strategy.

The emphasis on policy factors leads USAID to conclude that non-project sector assistance, with carefully planned steps and a component to strengthen policy analysis capabilities, is a more effective form of assistance than project assistance to reach the strategy goals. The resource transfer provides conditional support for Niger's development budget in agriculture/rural and health/population sectors. Local currency support may also help the GON to rationalize and restructure public investment priorities in these sectors. Our experience with the ASDG indicates that such a non-project sector approach is an effective financial and technical delivery mechanism

The IBRD provides similar assistance in the fields of public enterprise restructuring, macro-economic policy reform and financial/planning management, and in health and education. IBRD and A.I.D. staff work very closely in both the design and implementation stages to ensure that the two programs are complementary and reinforce one another.

A.I.D. intends to extend the Evaluation Assistance Project (which contributes towards the project development and resource management aspects of the strategy) for another year through December 1987, and then ensure that this type of assistance continues through the life of the second ASDG and the Health Sector Grant. The objective is to complete the full institutionalization of a unit which analyzes and evaluates proposed and ongoing projects so that project preparation and selection is upgraded. The evaluation unit has an initial core of good, but inexperienced, Nigerien staff who need additional on-the-job experience and training.

### III. AGRICULTURAL SECTOR

#### A. DESCRIPTION OF THE SECTOR

The Agricultural/Rural Sector, comprising crops, livestock, forestry and fishing provided 42.5 to 47.1 percent of GDP at current market prices between 1980 (the lowest figure) and 1985 (the highest). Crop production ranged from 22.5 to 29.4 percent, peaking in 1985. Livestock has ranged from 14.2 to 19.0 percent, peaking in 1983 while bottoming out in 1985. Forestry and fishing average 3.4 to 3.6 percent of GDP. Both livestock and forestry/fishing appear to have a slow decline in their share of GDP. (Annex A Tables A 1-5).

Niger's crops, livestock, forestry and fisheries provide food and fiber to the nation and employment for approximately 90 percent of the labor force. The productivity of the sector, however, is low. Increases which have occurred have been through crop production spreading into the fragile "transitional zone" just north of the rainfed agricultural areas. Per capita production is declining, and the productivity of farmers is decreasing. Agricultural production is primarily consumed on the farm, and rural incomes are very low.

##### 1. Rainfed Cultivation

Niger's principal food crops are millet and sorghum. Favorable weather between the 1968-73 drought and 1985 often resulted in fairly high food production levels. The 1984 drought showed the fragility of the agriculture base in Niger and the need to develop drought-proof technologies for agriculture and livestock production. Erratic and scant rains resulted in disastrous harvests and pasture conditions over northern and most of eastern Niger. There was no farm production in certain regions. About 350,000 metric tons of food aid from the U.S. and other donors bridged the gap to the 1985 harvest.

Improved weather conditions during the 1985 rainy season gave Niger one of its best agricultural years, with total cereals production of 1,559,000 mt. Rainfall, while only average in quantity, was well distributed both spatially and temporally. Thanks in large part to food aid and emergency seed distribution, farmers returned and planted sufficient surface areas to ensure a good crop. Niger has an estimated food surplus of over 242,000 mt which will be used to replenish on-farm and government stocks. With the possible exception of rice, the OPVN is not expected to import cereals this year.

Nearly three quarters of Niger's families are villagers who grow sub-

sistence crops, primarily millet, cowpeas and sorghum on dry land. About 5 to 20 percent of the total production of millet and sorghum is marketed, depending on production. Because rainfed crops provide only a small part of household cash income, most rural households engage in several economic activities to raise money, although rural income and purchasing power remain abysmally low. As a result, where there are localized pockets of drought, such as after the otherwise good crop of 1985, people do not have the resources to purchase food from surplus areas, thus contributing to a breakdown of the marketing system.

The rural household averages six to eight people, and cultivates four or five hectares of rainfed fields. The head of household, with his sons, cultivates the major rainfed cereals field, held under traditional usage rights. This field provides the main subsistence food for the family. His sons may or may not have their own fields, or they may migrate in search of work during the dry season. With the exception of the Gourmantche, women are not usually responsible for raising all the food for themselves and their children. While a Nigerien woman may occasionally have her own field, and helps with the major crop fields at times of labor shortage, she concentrates on wood gathering, water collection, mat weaving, kitchen gardening and small livestock activities, as well as cooking and caring for children. If a farmer has oxen or donkeys, a plow and/or wagon, he may engage in the plowing and/or transportation business. Sedentary farmers also engage in livestock raising and sometimes have feeding operations. Fishing, blacksmithing, cloth weaving, small-scale commerce, migration, etc. are all among men's activities undertaken to raise cash.

At the present time, the returns for labor from raising millet and sorghum are low; a substantial shift of the technological curve is needed to increase returns to a reasonable level. There are certain times in the calendar year when even those families producing only rainfed cereals face acute labor bottlenecks. There are other times of the year when farmers are underemployed.

## 2. Irrigated Agriculture

The Niger Irrigated Agriculture Assessment (1984) underscored the fact that Niger will have to rely increasingly on irrigated agriculture production to maintain the present level of per capita food production. The GON, with donor assistance, has been making considerable progress in bringing new and

rehabilitated irrigation perimeters into production. In late 1983, the cultivable area in the national irrigation parastatal (ONAHA) perimeters was 9,117 ha., and reached 9,976 ha. in late 1985. Dry season irrigated area under crops increased from 4,197 ha. in 1982/83 to 6,274 ha. in 1984/85. Rainy season cultivation increased from 5738 ha. in 1982 to 9,613 ha. in 1985.

The GON has a target of adding at least 1,000 additional hectares of perimeters a year through rehabilitation and new construction. These targets could be reached during the next few years, due to the IBRD-led rehabilitation project and other donor-financed irrigation projects underway or in the advanced planning stage. The irrigation area along the Niger River is probably limited to 20,000 - 30,000 ha. with water availability assured for double cropping without a major investment in dam building. In addition to the medium-sized perimeters in the interior, considerable small-scale potential exists. Prior to the 1984 drought there were probably at least 3,000 hectares under small-scale permanent irrigation systems and these are expanding rapidly.

Nigerien farmers use river flood waters or temporary lake waters for recessional agriculture, which is not considered true irrigation since the water is not controlled. Much micro-scale gardening falls into this important category. The national program of small irrigated and flood recessional gardening projects undertaken during the 1984-85 dry season resulted in a 15 percent increase in manioc, cowpeas, vegetables, sweet potatoes and corn production. In 1985 70,000 ha. of off-season crops were cultivated by about 185,000 farm workers. Niger has perhaps 30,000 ha. of rice using uncontrolled river waters. In addition there are large cultivated areas on the beds of temporary inland lakes.

Actual production levels on perimeters probably amount to only two-thirds of their potential due to a variety of economic, agronomic and social factors. Based on data available in early 1984, the value added from crop production amounts to 7 percent, from 0.2 percent of the land under crops. If we assume that by 1987 there will be 14,000 hectares of small and medium-sized perimeters under production, the value of "full exploitation" of perimeters using existing technologies could amount to 21 billion CFAF in 1984 prices. If so, irrigated perimeters would contribute about 17 percent of the value added to production, from less than 0.3 percent of cropped lands.

With the exception of destitute pastoralists working on small-scale dry

season gardening activities, nearly all families that engage in irrigation are also rainfed crop producers. The irrigation allotments are too small to make a living. Rainfed agriculture is judged as being more important to the family's survival and, in case of conflicting labor demands, family resources go first to rainfed crops. When the family has access to irrigated land, its produce is usually regarded more as a cash crop than as subsistence (although it may be used to feed the family). Where irrigation exists, it is an integral part of the rainfed farming system, and must be analyzed as such. The institutional development problems of irrigation concerning cooperatives, agriculture inputs, credit subsidies, etc. are largely the same as for dryland farming. Irrigation does require closer cooperation with neighbors and cooperatives, as well as having stricter water management requirements.

It is clear that irrigated lands can easily play a more important role in the country's total GDP from agriculture than they currently do, and there is the potential for more rapid increase during the next 15 years. Irrigated crop production, including the micro-irrigation and gardening activities would also partially mitigate the effects of periodic drought.

As successful models do not exist for developing new perimeters, USAID believes that donor efforts should concentrate on existing perimeters. There are several donors supporting irrigation projects. The IBRD, the French development loan agency (Caisse) and the West Germans are concentrating on rehabilitation, cooperative and credit management. The European Development Fund has embarked upon a multi-year irrigation program, and the ADF/FAO are also undertaking small-scale irrigation projects. None of these projects contain significant applied research programs (including farming systems) and most ignore micro-scale irrigation.

### 3. Livestock (See sections II.A.1 above and IV.B.4 below)

The livestock sector is Niger's second major source of foreign exchange earnings after uranium, and currently provides more than 10 percent of its export earnings. Animals provide a major part of the livelihood for about 20 percent of the population, many of whom are sedentary farmers. The situation has become precarious however, as a result of the disappearance of the southern pastures which provided dry season relief for the northern herds. Overgrazing, cultivation and lower than normal rainfall have increased competition for these southern pasture reserves and resulted in severe depletion.

The evidence suggests that the national herd cannot increase substantially

above the 1968 level without significant supplemental feeding, major range improvements, or other technological breakthroughs. Transhumant herders were particularly hard hit by the 1984 drought, in that the entire capital stock of many pastoralists was wiped out for the second time in a generation. The great drought left many pastoralists without the means to carry out their livelihood; as a result, many herded animals for others, including civil servants, and accelerated the movement to towns. The 84/85 drought caused a disastrous drop in the herder's terms of trade, split families (women and children remained behind with no way to earn a living or produce milk and meat) and drastically reduced the general nutritional status of pastoral children as compared to those of sedentary farmers. Income discrepancies have widened greatly.

The pastoral zone is generally perceived to be within the climatic zone too arid to support active cropping or forestation efforts. Crop production in the marginal arid areas is resulting in increased soil erosion, thereby reducing the carrying capacity of the national range further. Dry season irrigated gardening at seasonal lakes reduces livestock access to these critical dry season forage areas. The most obvious effect is the direct loss of rangeland to crop production, exacerbated by the fact that the most fertile and productive range sites are taken for cropping. The remaining poorer range sites are often inadequate to support current livestock production levels. The removal of these small areas of rangeland can affect the utilization of much larger surrounding areas.

#### B. KEY CONSTRAINTS

Agricultural production, upon which the vast majority of Niger's population depends for a living, is not keeping up with population growth. Major constraints to increased production include limited knowledge and availability of agricultural technology appropriate to Niger's changing physical environment and periodic droughts, the relatively weak institutional and infrastructure base required for technology transfer, input supply and credit; and certain government policies which tend to inhibit growth in the sector. The problems are compounded by periodic drought.

##### Constraint 1: Agricultural Policies

Niger must address a complex of interrelated institutional and policy constraints before it can attain a reasonable level of agricultural production

and rural income. The 1979 sector assessment identified ten broad constraints. Additional constraints were identified at the Zinder Agricultural Development Conference in November 1982. Studies and seminars carried out under the Joint U.S./GON Program Assessment and other USAID projects clarified the problem areas. The five most important policy problems were selected for specific action under the Agriculture Sector Development Grant (ASDG). Other donors agree that these are among the most important areas for policy change and support these reforms in their own programs. The most prominent donors are the IBRD, FED, the Caisse, and the West German development fund (KFW). The IBRD incorporated the five policy areas into its Structural Adjustment Credit. These are:

a. Input Supply, Subsidies and Input Pricing: Nigerien farmers traditionally use few modern inputs. Government attempts to promote the use of modern inputs such as fertilizer, animal drawn equipment and pesticides through subsidies, price setting and a state monopoly on input supply has resulted in uncertain supplies, market distortions and a budget drain. The state input monopoly, the Centrale d'Approvisionnement (CA) suffers from poor organization and management which compound the pricing and policy constraints. As a result, few farmers have the means to obtain needed inputs.

These problems are being tackled through both the ASDG and other USAID projects. For example, the ASDG requires the government to reduce subsidies to an average of no more than 15 percent by 1988, while the Agricultural Production Support Project (APS) is working to transform the CA into a private, cooperatively-owned enterprise in competition with the private sector. The GON is on schedule in reducing subsidies and has started the long-term process of restructuring the CA, especially in regard to manufacturing agricultural implements.

b. Agricultural Price and Marketing Policies

Cereals traditionally have had to be sold through official GON channels, to the state cereals marketing monopoly, (OPVN). A sizable "parallel market" of unofficial sales has always existed but given the low percentage of food grain production that is sold, prices vary greatly. The set official price and also various licensing requirements and restrictions on movement of cereals between regions have hampered cereals marketing, although Nigerien prices are high by Sahelian standards. Restrictions existed on the sale and distribution of other crops as well, with the rice parastatal (RINI) handling

rice and SONARA being the parastatal responsible for peanuts and cowpeas.

OPVN's historical responsibilities include objectives of stabilizing prices and maintaining a security stock for times of need. It has not been successful in its attempts to stabilize prices, however, and the real costs of security stocks are prohibitive under present conditions, unless financed by donors. Parastatals such as OPVN and the policies governing their operations have resulted in numerous market inefficiencies and distortions, with the result that cereals do not flow from surplus to deficit areas and farmers have little choice in the sale of their products. OPVN has made progress in the procurement area using bid and tender systems, and is moving away from a fixed purchase price towards a more flexible system. Other donors provide technical assistance to strengthen OPVN's management capabilities.

c. Cross-Border Trade in Grain and Livestock: The Government of Niger had introduced many obstacles to cross-border trade in cereals and livestock in the name of food security. These ranged from clear-cut prohibition of exports to various forms of licenses, quotas and export taxes. The result was reduced exports, customs receipts and exports earnings, and stagnation of private international commerce. One of the general thrusts of the ASDG is to liberalize cross-border trade, especially in livestock and cowpeas. Considerable progress was made in simplifying red tape. Exports were freed up until the drought caused the GON to place certain limitations on the export of breeding stock.

d. Agricultural Credit Policies: Agricultural credit has come to a standstill in Niger. The national credit organization (CNCA) no longer functions. While some forms of credit are being offered informally or through various projects, most farmers no longer have a ready source of credit. Farmers must be able to get the credit to bridge the gap between planting and harvesting if they are to use unsubsidized modern inputs.

The ASDG addresses this problem through a study of informal credit and savings by the Ohio State University. OSU is analyzing the rural financial market and the problems of mobilizing rural savings and of instituting a workable system of credit. The French and the FED analyzed the formal credit system, and the IBRD is auditing the CNCA.

e. The private and cooperative sector: All of these policies encroach on the Nigerien private sector, an important component of which is the cooperative. The ASDG requires the government to take steps to encourage coopera-

tive development, particularly in the areas of grain marketing and storage. The Agricultural Production Support Project (APS) and the Niamey Department Development Project (NDD) also focus on cooperative development (See below).

Constraint 2: Technology Transfer and Research

The major constraints to technology transfer and research in the agriculture sector are the limited knowledge of appropriate technologies and institutional weaknesses, characterized in part by a lack of effective research-extension linkages and the absence of a national research strategy. Technologies needed include selected seeds, chemical and organic fertilizers uses, insecticides, improved planting and cultivation practices (such as animal traction, interland multi-cropping), and agro-forestry and soil conservation techniques. In livestock, there is a need for improved knowledge of animal nutrition, livestock diseases and disease control, range management and of livestock marketing.

Niger's agriculture strategy has focused on increasing agricultural production on rainfed lands, although the 1984 drought experience has intensified interest in irrigation, including renewed attention to small-scale irrigation schemes initiated and managed by private groups and individuals. Both USAID and the GON view irrigation as essential to long-term development of the agricultural sector, as well as to reduced vulnerability to drought.

The GON does not yet however, have a prioritized national plan for agricultural research. Nor has the GON been able to make effective use of research done by the international agriculture research centers such as ICRISAT (which has its Sahelian research station in Niamey) or of applied research and field trials conducted by the regional productivity projects. IBRD and USAID policy dialogue efforts have led to the National Agricultural Research Institute's (INRAN) recent decision to take up an offer for an Institute for National Agricultural Research (ISNAR) study of agriculture research policies, planning and management.

There are a number of donor-financed experts in some key fields: dryland cereals varietal development and selection (particularly millet, sorghum and cowpeas); soil chemistry, physics and fertility; and farming systems analysis. The cornerstone of this effort is the National Cereals Research project approved in 1982 and supplemented by various central and regionally-funded research programs, notably TROPSOILS and INTSORMIL. The Niger Cereals Research project (NCR) is the first phase of a 10-year effort to help INRAN

develop a sustained capacity to design and execute research programs for rainfed agriculture. Its results will be disseminated to farmers through the cooperative and extension systems. Work on NCR, which reached full implementation two years ago, plus studies and field trials completed under the joint Program Assessment and Niamey Department Development projects, have led to abandonment of the uniform single technical package for dryland cereals throughout the country. The inescapable conclusion was that many elements were inappropriate and too costly for farmers, especially in transitional zones. Inputs often were not available, and returns to the farmer were usually insufficient to encourage use of the package. Nonetheless, Nigeriens adopt individual package elements rapidly when they proved economically attractive.

The GON has devoted very few resources to irrigated food crop production research. Some applied irrigation research is being conducted in INRAN, notably for rice. INRAN has only one full-time researcher conducting limited on-station varietal trials for rice, wheat, sorghum, maize, groundnuts and cotton. INRAN also conducts some research on alternative irrigation techniques and is experimenting with soil rehabilitation techniques.

INRAN requires much more institutional development. Only three Nigeriens conducting research at INRAN have Ph. D.'s, and the organization has acute shortages of operating funds as well as weak budget planning and management. It also suffers from inadequate linkages with the technical services and has shown reluctance to conduct off-station applied research, although this is changing. INRAN does not yet have the institutional capacity to address itself quickly to specific problems raised by extension personnel and farmers. The transfer of research results to farmers is weak for a variety of reasons. Part of the problem is that research results have not always been put into a form useful for extension. The top down approach of inadequately trained young extension agents has also had a dampening effect, and researchers do not receive positive feedback from the field. As INRAN's adaptive research efforts accelerate, increasing attention must be paid to making sure that research results get translated into something useful, and that technology transfer actually occurs.

USAID and INRAN have worked closely in the NCR project to develop research programs to develop new technologies for the agricultural sector. While progress has been made, in dryland agriculture research (particularly in the use

of acidulated phosphate rock, improved millet and sorghum and cowpea resistance to storage pests), technology transfer continues to be constrained by inadequate knowledge of appropriate technologies and by insufficient linkage between research and extension. In addition, locally tested technologies are needed for irrigated agriculture.

Research is also needed in livestock on more productive breeds of animals suitable for export and local markets, and on animal health and vaccines.

### Constraint 3: Institutional Development

The GON's policy of implementing development activities through local, self-managed organizations underscores the need to strengthen cooperatives' ability to select and manage their own economic affairs. In order to avoid the problems stemming from subordinating cooperative development to the institutional needs of external organizations and government policy, cooperatives should be viewed foremost as viable, member-owned and -managed private businesses, and gradually divorce themselves from central government. Ideally, the cooperative movement should eventually assume responsibility for its own development.

Cooperative development should be seen as a function of creating economic activities first within the cooperatives themselves and then gradually at higher levels as needs arise which separate cooperatives cannot satisfy individually. This implies that they have access to credit as well as the necessary training to carry out activities such as input procurement and marketing. The same organizational skills could permit them to serve as vehicles for technology transfer, and as active consumers in dialogue with research and extension agencies. The theoretical model of cooperative development chosen by the GON is sound; it involves linking training to the implementation of specific economic activities to provide the basis for skill acquisition in record keeping, accounting, management, and functional literacy and numeracy. However, in spite of the policy of self-managed cooperatives and the adoption of a sound implementation model, obstacles still exist in a long-term process (See II.C above). Other concerns: (1) uncoordinated cooperative development efforts scattered among a number of different donors and geographic areas; (2) insufficient resources given the condition and number of cooperatives needing assistance; and (3) the particular problem within the pastoral zone where there is no fully approved appropriate cooperative model adapted to the unique condition of transhumant pastoralists.

Farm level credit is currently in limbo until a decision can be made regarding the financial soundness of the official credit agency, CNCA. Shortand medium-term credit is no longer available outside of development projects. This is one of the biggest constraints to development of the agriculture sector, since it is obviously limiting input use and marketing in an era when subsidies are decreasing (see policy constraints section above). Experience in the use of computerized information for credit collection and administrative follow-up has shown that repayment rates in good crop years can improve dramatically. On another front, the APS project is starting up a small pilot loan guarantee program for cooperative credit with a local private bank, and other efforts are under way to develop sources of unofficial credit (which some exceptionally strong cooperatives may already have obtained).

The GON is in the process of beginning reorganization of the entire input supply system as a result of the study conducted by the APS project. The objective, once the subsidy issue is resolved, is to eventually have a private cooperatively owned and operated entity, and to spin off the manufacture of agricultural machinery to the private/cooperative sector. This reform is still in its early stage and time is needed before an increase in input use will become evident. The closure of the border with Nigeria and the collapse of official credit has reduced supply availability.

The two main organizations for marketing agricultural products, OPVN and SONARA, are also subject to change and reform as the GON implements the policy reforms to promote competition and private sector marketing of agricultural products. The opening up of cereals marketing is causing flaws that need working out, and market development is of great concern for irrigated vegetable crops. Increasing attention must be paid to marketing so that market forces result in redistribution within Niger from surplus to deficit areas, as well as locating livestock and crop markets outside the country.

#### Constraint 4: The Physical Environment (See section II, A

The physical environment of Niger is afflicted by widespread soil degradation which continues despite government priority and donor commitments to conservation efforts since the early seventies. Indications of degradation (crusted soils, heavy runoff, increased soil erosion and disappearance of certain perennial species) are much more apparent in both the agricultural and pastoral zones of Niger in 1985.

The period of range restoration following severe droughts has required

longer periods of time, making it more difficult to reverse degradation. Loss of soil fertility is particularly serious, since soil restoration can take many decades. Soil fertility is declining in the agricultural belt due to reduction and elimination of fallow periods, farming of poorer soils, occasional use of inappropriate equipment, as well as overintensive grazing and browsing during drought years.

Crop production has extended into the pastoral zone and marginal areas due to population increases, consequently cutting down pasture availability. Crop production in marginal areas contributes to increased soil erosion, thereby reducing the carrying capacity of the national range. Adverse effects on livestock can be expected on the relative competitiveness of components within the livestock production sector, and on the rate of resource base degradation.

Until recently, protection of the natural resource base was perceived as the exclusive domain of the Forest Service. It was thought that resolving the rural energy problem through massive reforestation schemes would simultaneously remedy other problems related to the degradation of natural resources. The GON and donors placed considerable emphasis on establishing large plantation blocks of fast growing exotic species. Most of these efforts have done little to improve the environment. It has also become evident that the loss of vegetation cover, trees, shrubs, and herbaceous plant life is more than just a "deforestation" problem, and that past approaches may have exacerbated the dichotomy between forestry and agriculture. Despite the setbacks experienced thus far, there are important lessons which have been learned about the role forestry and natural resources management can play in development efforts in Niger, and about the actions necessary to maintain viable farming systems and achieve food self-reliance over the long term. Niger made a commitment in 1984 to do everything possible to control desertification (Engagement de Maradi). Efforts will need to be more focused and respond to a coherent policy and guidance from a long-term strategy if they are to be successful. A newly created inter-ministerial committee, with technical advisors from the donor community, is developing such a strategy. Experience in Niger and in the Sahel have shown that with little investment soils can be protected from erosion and treated to improve their fertility. Biological and mechanical treatments have demonstrated their ability to increase soil productivity even during the most severe droughts. The CARE Majjia Valley windbreak project demonstrated that soil protection measures are directly responsible for

increasing cereals production even during serious droughts. Research conducted by the USAID Forestry and Land Use Planning (FLUP) Project is aimed at looking for ways to rejuvenate barren hardpan soils with simple low cost technology.

The FLUP project is also examining the value of natural areas for the sustainable production of other necessities of rural and urban life. For example, energy in Niger is mainly firewood, and a continuous supply of wood is necessary since there is little money for people to purchase alternative energy sources. The development of management techniques for forests to maximize output is steadily but slowly progressing. Other donors are replicating the lessons learned.

### C. STRATEGY

USAID's agriculture strategy emphasizes food production and diversification through community-based, self-managed development, with a programmatic thrust on local management private (and cooperative) sector participation and utilization of improved technical packages. These are medium to long-term undertakings. USAID's long-term objective is increased food production leading toward food self-reliance and increased rural incomes through diversification. The main thrust of our agricultural production strategy concentrates on the development of participatory, self-managed organizations and on the private sector.

The strategy components that will contribute to transformation of the agriculture sector during the CDSS period are:

- Implementation of the Agriculture Sector Development Grant policy reforms and related activities;
- Development of a national capability for sustained efforts in agricultural research followed by technology transfer;
- Development of Self-Sustaining Rural Organizations; and
- Natural Resource Management and Land Use Planning.

#### 1. Agricultural Policy Reform

The main instrument of policy reform in agriculture is the Agriculture Sector Development Grant (ASDG), which began in August 1984 and will end in 1988. The general theme of the ASDG is deregulation and promotion of workable competition through increased private sector (including cooperative) participation in the areas of agricultural input supply and distribution, agricultur-

al product storage, marketing and pricing, cross-border trade and rural savings and credit systems.

The ASDG promotes agricultural production by reducing policy constraints to development in the agriculture sector and by providing resources to support ongoing development activities in agriculture. It contributes directly to economic stabilization and acts to minimize the adverse impact on development programs of the austerity measures imposed to achieve short-term stabilization. The objective of agricultural input and subsidy reforms is to increase the availability of inputs at real prices and to encourage cooperatives and private enterprises to supply them, so that farmers can obtain whatever inputs they want, whenever and wherever they want them.

The cereals marketing objective consists of liberalizing primary and secondary marketing and encouraging competition. This strategy should encourage greater private sector participation in cereals marketing and provide additional opportunities for off-farm income generation. OPVN, for example, would no longer attempt to stabilize prices, but would still collect and disseminate price information. OPVN would maintain a security stock while encouraging more village level storage of cereal reserves.

The cross-border trade objective is to provide incentives to increased production and to provide alternatives for farmers to increase their incomes.

The credit component objective is to examine and establish ways to increase credit to farmers so that they can increase purchases of inputs, especially through private sector and non-formal sources.

The ASDG affects Niger's agriculture sector in three ways. First, the government has agreed to make certain specific policy changes as conditions precedent to disbursement of each increment of dollars. In this regard, the government has done so and satisfied the Conditions Precedent for the disbursement of funding increments so far. While these policy changes are rather basic, and somewhat general in nature, it is felt that they will have a major impact on the agriculture sector. Since the ASDG ends in 1988, it is anticipated that some of these policy areas should be examined in more depth in a second ASDG to "fine-tune" the required changes. For example, the current ASDG calls for a study of rural savings and credit, which is underway. It is expected that the study will contain specific recommendations on credit and savings policies, with specific proposals for intervention. A next step in cereals marketing might require changing pricing policies for other

agricultural products and might focus on changing specific restrictions to free up marketing. There are many activities that might be taken up as part of a follow-up in the medium to long-term process of restructuring the entire input distribution system.

Second, the ASDG and the pilot Rural Sector Development Grant provide of \$34 million of dollar resources under current authorizations. This directly affects the balance of payments, reducing the debt burden and facilitating economic stabilization. It also provides resources that can be used for local currency support to development projects in the agriculture sector. All criteria for the second year Conditions Precedent of the ASDG have been met.

Third, the use of the local counterpart fund under the ASDG allows agriculture projects and studies to continue which would otherwise be discontinued or reduced because of the GON's inability to finance local costs needed for project implementation. Since counterpart funds usually constitute less than 10 percent of any donor-funded project, this money essentially allows USAID to help complete projects worth much more than the amount provided. These funds may also be used for studies or pilot projects directly related to the policy reform areas and can thereby influence policy. Consequently, the local currency fund provides a device for improving the allocation of funds within the development sector, thus facilitating rational decision-making and alleviating the braking effect that stabilization often has on development.

Underpinning the ASDG is the technical assistance team working within the Ministries of Agriculture and Plan. This team is installing an agriculture policy analysis capability as well as analyzing the policy reform effects for alternative policy options. It also strengthens GON's capacity to apply sound economic reasoning to project selection and funding allocations in the agriculture sector. This assistance is expected to continue under an ASDG II.

In the livestock subsector, policy reforms will be required in marketing, grazing rights, water point development and animal health so that the GON can increase the livestock sector's capability to produce better quality animals and improve herders' standards of living.

## 2. Agriculture Research and Technology Transfer

USAID's long-term commitment to supporting agricultural research in Niger is predicated on the belief that increased food crop production can only be achieved by increasing agricultural productivity. Agricultural research provides the new technologies which are essential for increasing agricultural

productivity. USAID's coordinated approach to developing Niger's agricultural research-extension linkages and capacity addresses the major constraints of its development: lack of a prioritized research plan, weak institutional structures, limited human resource base and need for improved agricultural technologies.

USAID's technology development strategy objectives over the CDSS period concentrates on the following:

- Development of Niger's agricultural research and extension institutional capacities, particularly in the areas of (a) planning and management of research programs, (b) the creation of functioning linkages between research and extension agencies, and between INRAN and other international and multilateral organizations conducting agricultural research in Niger and (c) strengthening INRAN's human resource base through the creation of an integrated training program for agricultural research activities; and
- Implementation of a national food crop research program which provides the farmer with appropriate productivity-increasing technologies.

Agriculture research policy dialogues will emphasize: (a) development of a national agricultural research plan, including prioritization of research; (b) improved allocation of human and financial resources according to those priorities; (c) recurrent cost issues; (d) establishment of functional linkages between research, extension and training; and (e) creation of a national consultative planning and peer review committee on all aspects of agricultural research. The policy dialogue will take place chiefly in the context of the existing NCR project and the proposed Applied Irrigation Research project. A major component will be USAID support of the IBRD-financed study that ISNAR is expected to conduct on research planning, administration and implementation.

The central component for implementation of the Mission's long-term agricultural research development strategy is the Niger Cereals Research project. Begun in 1982, NCR is the first phase of a decade long effort to support INRAN's capacity to design and execute cereals research programs, the results of which can be disseminated to cooperatives and individual farmers. The project concentrates on (1) strengthening administrative and management support of research activities, (2) creating and strengthening research extension linkages and ties to other agricultural research organizations, (3) creating crop improvement, cereals production and farming systems research programs, and (4) strengthening INRAN's human resource and insitutional base.

Three centrally-funded Collaborative Research Support Programs (CRSP's) support NCR's objectives. INTSORMIL's research on developing a hybrid sorghum for Niger and the Peanut CRSP's varietal improvement research form integral parts of INRAN's ongoing research program. The tropical soils (TROPSOILS) CRSP scientists, in collaboration with INRAN and the International Center for Research in the Semi-Arid Tropics (ICRISAT), are conducting important research in critical areas of soil and water management and conservation. Beginning in 1986, the Mission will reinforce TROPSOILS support to INRAN's soils laboratory with a two-year, institution building effort designed to reorient the laboratory toward those activities that most effectively support food crop production. The nitrogen and phosphorus fertilizer research program begun in 1981 by the International Fertilizer Development Center (IFDC) will continue to conduct research with ICRISAT and the International Institute for Tropical Agriculture (IITA) toward the development of fertilizer technologies and improved fertilizer management practices for selected cropping systems.

To reinforce these efforts USAID will design an Applied Irrigation Research project in FY 1986 that focus on the development and adaptation of improved technologies for irrigated agriculture. The project, which should be implemented in FY 1987, will reinforce recent successes with small-scale irrigation projects, provide reinforcement to USAID/IBRD policy dialogue concerning agricultural research in Niger and fill research gaps in other donor irrigation production projects coming on line in the near future.

Farming systems research on agro-forestry measures to increase cereals productivity will be carried out at INRAN (NCR project and TROPSOILS) and field tested in the Niamey Department Development applied agronomy program. These will be integrated into INRAN when NDD closes out in late 1988. FLUP, and other PVO and regional projects (e.g., Care and Keita) have developed improved techniques in soil and water conservation, agro-forestry and natural resource management which can be incorporated into extension practices to increase productivity. Examples of these are water harvesting techniques, windbreaks, and water retention structures that increase moisture availability throughout the year. More effective technologies will be available as a result of these efforts.

The APS project has an extension liaison training component. It will be involved in the training of people and preparation of materials for transfer of technologies resulting from research to farmers. With the exception of the Niamey Department Development Project

until 1988, and spin-off from applied research, USAID will not be involved in direct transfer of technologies to the farmer in the near term. Most of this will be done by other donor projects for rainfed and irrigated agriculture. USAID should consider, however, intensifying the extension liaison-transfer function as a part of a phase II NCR beginning in 1988-89, as research results become available and are ready for transfer.

In fact, better adapted technologies are already near the point of readiness for extension. Examples of these are more productive, more drought resistant and higher quality cowpea varieties (ICRISAT, IITA, NCR), more appropriate pest control methods for cowpeas (IITA), and improved systems for mixed fertilization and rotation practices.

Taken together, the NCR, APS, Applied Irrigation Research and the CRSP's will contribute to the following targets:

By 1987: - INRAN and ONAHA will have established a research and extension protocol.

By 1988: - Farming systems research field studies carried out by the NCR project will be completed and analyzed; INRAN and ICRISAT will have concluded a formal agreement to actively involve the latter in technology transfer activities; and INRAN will have established a mechanism with the productivity projects for extending technical packages to farmers.

By 1989: - INRAN will have established an overall research strategy and defined its priority research programs; The phase II NCR will begin; Joint INRAN-TROPSOILS-IFDC research will have yielded soil fertility recommendations for different agro-ecological zones of dryland agriculture; and 21 MS degree holders financed under the NCR project will have return from long-term US training;

By 1990: - The Applied Irrigation Research Project will have its first preliminary technical recommendations for fertilizer application and water use rates and will have carried out studies on the cost/economic benefits of small and medium sales irrigation schemes in Niger.

Regarding livestock, the GON should undertake research in livestock designed to produce a better quality and healthier animal to improve the herders' standard of living. USAID's strategy objective here should be to assist with the development of vaccines and other interventions, eventually through centrally funded research projects and the international agricultural research organizations.

### 3. Development of Self Sustaining Rural Organizations

AID will help develop participatory self-managed organizations through cooperative development and restructuring, extension, seed multiplication and credit and input distribution. Cooperatives or village-based organizations are necessary to complement government research, extension and input supply organizations (See above for policy dialogue).

A.I.D. will reinforce the role of technical assistance and training entities and avoid creating a heavy institutional structure. Cooperatives are to be regarded as business organizations and cooperative development is a function of creating viable economic activities within the cooperatives. Training should be intensive, long-term, accessible to a large number of members and founded on village-based economic activity, with the objective of self-management. USAID's major vehicles for developing self-sustaining local organizations are the NDD and APS projects. Whereas the CLUSA/APS team offers specialized expertise in training and cooperative management to develop, test and improve the overall model, NDD is the appropriate organization to refine and extend it in a specific zone. With dialogue established between the national and the regional project, a natural complementary facilitates the work of both. The APS team benefits from the pioneering work, the contacts and the locally-specific knowledge and experience of its partner, while it in turn is provided the results of specialized concentration on cooperative development.

The long-range focus will be placed on promoting the strength of the cooperative movement as a whole. Individual cooperatives, no matter how strong in the short run, will not continue to survive unless they are gradually incorporated into a network of similarly viable cooperatives. As economic activity increases, specialized needs emerge that can only be accommodated through coordinated program interventions.

A unique and difficult situation exists in the pastoral zone. Dialogue and applied research are needed to determine the most appropriate and acceptable model for pastoral cooperatives, a model which best addresses the needs of migratory herders. Major socio-political questions revolve around the form and structure of the cooperatives, how to deliver training, and what is the best vehicle for credit delivery and recovery. All these questions must be resolved before effective widespread pastoral cooperative development can take place. The ILP and APS will use their experience and expertise to

examine solutions to these unknowns.

Prior to the creation of the new Ministry of Animal Resources (MAR), livestock management was under the Ministry of Rural Development, which allocated most of its resources to Agricultural Services. A national seminar was held in April 1985 to discuss the many problems of the pastoral zone. Solutions and recommendations were agreed upon, but policy reforms were not implemented. A follow-up seminar is being held this month. Current pastoral zone interventions are designed to assist herders in achieving improved animal health, production, marketing and research practices.

The long-term objective of USAID's livestock production strategy is to increase the quality of livestock while balancing the numbers of animal units with the carrying capacity of the national rangeland. USAID will pursue this strategy through a series of activities, including completing the revised ILP project in FY 1988. In regard to the self-sustaining organizations strategy objectives, USAID will work closely with the GON to develop satisfactory viable models, which pay particular attention to strengthening the ability of the line services to develop self-sustaining organizations, provide training in cooperative management, deliver services, and furnish credit and recover payments. Herder organizations must also be involved in questions regarding grazing rights, water point development, and the provision of animal health services.

USAID will continue its involvement with the input distribution system and begin focusing on the small farm operation. In order to increase household income through agriculture it is necessary for agricultural inputs such as fertilizer, pesticides and equipment to become more readily available. An in-depth analysis of cooperative mechanisms is needed to follow work already begun under the APS project. The agriculture input distribution parastatal (CA) is being transformed gradually into a cooperatively-owned input supply system. Other objectives include freeing up input supplies and marketing for cooperatives and small enterprises engaged in the production of farm equipment and machinery. This is being done under the APS project, with some experimentation (agriculture equipment design and manufacture) under the NDD project. Since APS ends in 1989, a new agricultural inputs distribution project may be considered. It might be linked to credit with a small technical assistance component. Although several donors supply agricultural inputs, the International Labor Organization is the most heavily involved in agricultural

machinery manufacturing. There are also some residual activities under the FED's Zinder productivity project.

The Mission will help Niger obtain reliable sources of fertilizers, particularly phosphates available from deposits in Niger itself, and continue work on improvements to national credit and distribution systems. This is important because the farmer must be able to finance his input purchases. Since subsidies are being reduced sharply, adequate credit is required.

Credit is needed from many sources--government, private banks, locally managed savings, and credit organizations. The APS-financed CLUSA program is the main implementing vehicle with local experimentation under the NDD Project. A.I.D. may consider developing a new project for FY 1988 or 1989 which would combine technical and subsectoral assistance modalities in the agricultural credit area.

In order to increase rural income and diversify the farmer's agricultural base, USAID will pay more attention to marketing and distribution. Cereals marketing and exports of livestock, cowpeas, and other products are already part of the ASDG policy dialogue process. Livestock marketing issues are being addressed in the ILP project. ASDG phase I and II technical assistance funds might be used to finance additional marketing studies on exports and produce from irrigated agriculture. Local currency proceeds from the ASDG and technical assistance may be used to strengthen price reporting systems, private and cooperative participation in marketing and market integration.

#### 4. Natural Resource Management and Land Use Planning

USAID will take advantage of the progress made to date in natural resource management, research, and institutionalization of land use planning and increasing soil productivity (including range management and agro-forestry) and integrating these activities into ongoing programs. In the short term, USAID efforts will be directed at slowing down the rate of increase in the decline of agricultural productivity and in the longer run reversing the process so that productivity increases. USAID's efforts should improve the natural resource base while increasing agricultural production. One of the major policy issues that USAID will pursue is discouraging the encroachment of dryland cereals cultivation outside of a specified rainfall probability zone, and adopting natural resource legislation to current conditions and constraints.

Most of USAID's activities in the sector are regional projects (Niger

River Basin and AGRHYMET projects), while Forestry and Land Use Planning (FLUP) is the only bilateral project in the subsector. Although many donors are engaged in forestry, anti-desertification, water and energy projects, USAID is the only donor actively involved in land use management planning. This project has accomplished its objective of establishing a planning unit and will phase out as a direct bilateral project in December 1987. The GON has increased pressure to continue bilateral projects in this field and funds for continuing support of specific activities in the field will come from the ASDG. USAID will also help develop a national strategy for anti-desertification by working through the USAID established Forestry Services Land Use Planning Unit and with the participation of contract staff from such projects as Integrated Livestock Production (ILP), Niamey Department Development, National Cereals Research and the Tropsoils CRSP. USAID will encourage the development of cooperatives and the recasting of the country's rural code to provide the local population with incentives to rationally manage forests. USAID might eventually finance a specialist under ASDG II to help in integration of land use planning with agriculture and livestock program planning and execution.

Project activity elements include continuing institutionalization of Land Use Planning capabilities under the FLUP project until project phase out and providing the continued support necessary to complete the institutionalization process for the economic aspects of land use planning through the use of PVOs and ASDG activities.

As noted, USAID and the GON will use local currency from the ASDG and successor projects to extend proven technologies including the promising model-site natural forest management activities developed under FLUP and specific agro-forestry activities implemented under the NDD and Livestock projects. The CARE Operational Grant, which runs to 1989, will continue to finance innovative, and proven agricultural and land management techniques in the Majjia Valley.

Because of the limitations on direct hire personnel and operational expenses which constrain USAID's ability to manage projects, and the large number of donors implementing forestry and anti-desertification activities, USAID has decided it must cease implementing bilateral projects in forestry and land use planning. This decision was made very reluctantly because land use planning is extremely important in drought proofing, reclamation of fragile lands, increasing agricultural productivity and diversifying the rural income base.

#### IV. HEALTH/POPULATION

##### A. BACKGROUND: (See II/B and Annex II for statistical data)

Niger established a system of training village-level primary health care workers in 1964, fourteen years before the World Health Organization goal of "Health for all by the year 2000" was enunciated. Village-based health received additional emphasis after the change in government in 1974, when the President proclaimed the right of every citizen to a better quality of life. Under the present strategy, rural health systems are expected to be integrated into self-sustained community programs and the Development Society. The GON has spent 15 years establishing a functioning infrastructure through which primary health care services can be delivered, using the village health worker system.

Primary health care now reaches 45 percent of villages, considerably more coverage than in other Sahelian countries. The Niger village health care system has been much praised and used as a model elsewhere in West Africa. Nevertheless, its performance has not yet been strong enough for a sufficient period to alter basic morbidity and mortality patterns. Niger is now launching a "second generation" primary health care program through which intervention technologies can be implemented.

Despite strong policy emphasis on rural health, a large portion of the health infrastructure is concentrated in urban areas. There are seven hospitals in the country, one in each department. The cost of running and maintaining this part of the health infrastructure is approximately 50 percent of the MOH non-personnel portion of the operating budget (excluding personnel). The MOH also operates medical centers in each arrondissement (39), 25 health posts with small in-patient sections, and 230 dispensaries. The larger towns have specialized facilities such as maternity clinics and maternal child health centers. Niger has three health schools which train doctors, nurses and auxiliary personnel. The MOH proposes to open a center for continuing education in public health as well.

Niger used substantial domestic resources during the 1978-81 uranium boom to expand rural health infrastructure. Little thought was given to the impact that recurrent costs would have on future service delivery. Consequently, insufficient effort was made to plan for the most effective utilization of resources and training programs for village health teams

(VHTs). These programs were often implemented without adequate consideration of the managerial burdens of supervision, drug distribution, and community participation. While great strides were made in terms of outputs (2,913 villages had VHTs by 1982, a 94 percent increase over 1978), not much energy went into organizing the system as a cohesive whole.

A.I.D. began its involvement in the health sector in 1976 with a rural health care project implemented by AFRICARE in the Diffa Department. After developing a model for training village health worker teams, the Rural Health Improvement Project (RHIP 683-0208) began in June, 1978. Initially funded at \$14,029,000 for five years, the project was later expanded to be carried out over a period of eight years at \$15,429,000. The primary objective of the RHIP was to train VHT's to extend basic health services to the villages.

The project emphasized human resources development and infrastructure support. Activities addressed the major constraints then facing the Ministry of Health which included training of medical, paramedical, auxiliary personnel and village health workers, technical assistance, commodities and infrastructure support. The United States became the largest bilateral donor in health in Niger, with the French, Belgian and UNICEF active at lower levels of commitment.

Designed as a budget support project, RHIP had few conditions precedent for the Government to meet, and did not emphasize policy dialogue or reform at that time. It has been run almost entirely by MOH staff with minimal expatriate technical assistance. Interim evaluations of the RHIP were conducted in 1981 and 1985, which led to changes in the project's emphasis. Most importantly, in late 1984 a Planning, Management Information System and Epidemiological Surveillance unit was set up in the MOH with technical assistance from Tulane University; the ministry has since slowed the rate of VHT training to make the program more manageable and less costly.

The MOH undertakes a number of program interventions which focus on child survival. The major ones include maternal and child health services, an immunization program, a malaria program, a diarrheal disease program, and

from the traditional services which are not well-integrated into the delivery system framework, and provides a model for other program interventions.

Until very recently, the GON had a de-facto pronatalist policy. A UNFPA financed national family planning clinic opened in Niamey in late 1984. Contraception and family planning issues were raised in a national forum for the first time in January 1985, during a conference on family health supported by A.I.D. President Kountche gave a major speech endorsing family planning and strongly recommending child spacing. A commission was established to write new laws on contraception and to recommend ways of organizing family planning services. In addition, the Ministry of Plan has been conducting seminars on demography and population dynamics, which contribute to the establishment of a national population policy. The number of contraceptive acceptors in Niamey has grown steadily during 1985.

Niger's pharmaceutical situation is relatively good, and the national parastatal (ONPPC) is financially viable. ONPPC controls drug importation, distribution and production. Private enterprises must be licensed by MOH, buy all of their drugs at ONPPC, and sell at prices set nationally. ONPPC manufactures aspirin and chloroquine and has added Oral Rehydration Salts (ORS) packets recently. It operates 18 commercial outlets ("pharmacies populaires") in major towns. Recently, MOH has allowed private enterprises to become involved in basic drug distribution, and there are now 40 private depots in rural areas of the country. These depots already meet a real need of rural consumers for routine and prescription medicines.

The findings of the 1985 evaluation and sectoral studies done in preparation for the World Bank's structural adjustment program provide an analysis of the major constraints now facing the health sector, and the basis for future USAID assistance.

## B. Health and Population: Priorities and Constraints

### 1. Priorities

Improving the health status of the Nigerien population will contribute to greater productivity as well as improve the quality of life, especially in rural areas. Health and agricultural production are inextricably linked because malnutrition and endemic parasitic and infectious diseases reduce the population's ability to work at the time of peak agriculture labor requirements. A profile of the major diseases in Niger (malaria, measles,

diarrhea, meningitis, respiratory ailments) indicates that they are preventable.

Child survival intervention technologies aimed at alleviating these diseases have been well proven. Establishment of immunization programs (EPI), diarrheal treatment (ORT), malaria control and nutritional surveillance program interventions can drastically reduce morbidity in a population. Given the GON policy, and its emphasis on primary health care, USAID has selected the health sector as a priority area for assistance. By helping the GON strengthen its primary health care program and establish specific child survival interventions, a positive impact can be made on reducing morbidity and mortality and eventually increasing the productive capacity of the population. In addition, implementation of child health care programs will facilitate the acceptance of family planning.

As discussed in Section III, upgrading public resource management through improved planning, policy reform implementation, and program execution and management is necessary for structural change. A number of the difficulties in implementing health program interventions and increasing the effectiveness of the primary health care system can only be solved by taking structural adjustment actions. The GON's health network and facilities have grown so fast that health sector management is under severe strain.

## 2. Constraints

Constraint 1: Lack of an integrated national health plan with clearly established priorities, combined with a weak institutional structure for planning, resource management, budget and manpower allocation and planning.

The MOH has made some commendable general policy statements, as well as impressive progress in putting VHTs in the field. Financial and program planning are not well institutionalized and they are segregated to the point of being outside MOH control for some budget components. No unified plan now exists for the health services as a whole. Except for the new diarrheal disease program, most of the ongoing program interventions were planned and budgeted without thorough consideration as to how they could be synchronized with other programs and the rural health system.

The Ministry needs help in planning and allocating resources for the health program. Very few MOH staff members have received substantive training in resource allocation and administration. The GON recognizes this, and has initiated training programs which will be expanded greatly under the proposed

World Bank Project. Although methods are now available to mechanically collect and analyze data, considerable work needs to be done to establish criteria for the method and purpose of the data collection. The A.I.D. financed Tulane University contract is now setting up the statistical base for MOH planning.

The GON needs to carry out a thorough study of trained health sector staff needs in integrated structures, program prioritization and budget constraints. This includes restructuring staffing patterns in accordance with priorities and budgets, rethinking training targets, and curriculum changes. The GON has already projected reductions for training village health workers to 250 teams in 1984/85, and then 200 teams a year for 1986/89, for reasons of supervision as well as budget. Enrollment at the two paramedical schools will be reduced beginning in 1986 and training of certified nurses will be re-introduced to ensure staffing continuity at rural health posts.

The present or proposed furnishers of assistance in health management and planning include IBRD and USAID. The World Bank has conducted important studies and is developing a \$20 million sector assistance loan for 1986 which is linked with the SAC. It will include training in administration and management as well as studies on hospitals and facilities, extension of the drug distribution system and the health education system. The Belgians are providing public health physicians to the planning unit, conducting epidemiological studies and revising reporting forms.

b. Constraint 2:

Poor allocation of budgetary resources in light of the objectives of promoting a broad-based public health system.

Niger has been addressing the macro-economic constraints since 1983 by adopting various austerity measures and economic reforms aimed at reducing the fiscal and payments imbalances. While the demand-oriented austerity measures are necessary, some structural changes in the economy are also needed in order to improve efficiency of resource use and to resume growth and development. Among the three priority areas identified for structural changes in the SAC, improved public resource management has direct implications for the formulation of a health sector strategy as far as USAID interventions in the sector are concerned.

GON health services have suffered from perennial financial shortages since 1981. Under the 1979-1983 Five-Year Plan, the Health Sector fell far short of

reaching its investment targets, spending only 43 percent of planned levels. Due to lack of funds, almost no investment occurred in 1984-85. The MOH's recurrent budget is at a steady 6 to 7 percent of total government recurrent expenditure. Since 1980 it has remained constant in real terms. The 1984 budget allowed only 730 CFAF (about \$1.83) for each Nigerien's health care. MOH budget allocation proportions are shifting as fixed salary obligations increase. In 1984, 54 percent went for personnel (a low figure for Africa), and 26 percent for medicine and vaccines. Given decreasing real financial resources for the future health sector, Niger has to cut back severely on training programs and expansion of the rural health system.

The urban/rural imbalance is shown most acutely by the fact that the seven hospitals in the department capitals account for as much of the budgetary resources as the rest of the country. Although not as distorted as in many other African countries, the Nigerien allocations are out of line with the direction of the proclaimed strategy.

c. Constraint 3:

Insufficient attention given to health financing policies in light of long-term severe budgetary constraints.

National health sector meetings since 1983 have led to a series of policy recommendations. These include community financial responsibility for construction and maintenance of dispensaries, institution of some sort of fee for service at all levels, and standardization of hospital services fees. At present Nigeriens pay for health services at village and hospital levels supplied by both public and private sectors. Although the capacity of individuals to pay cash for medical services may be limited, the fee for service concept is well-established in traditional medicine. The principle of heavily subsidized medical care was set when the system was much smaller and the cost of service delivery was much less apparent. All services of rural dispensaries and health centers are free, but medicines may not be available.

At the hospital level, not all the charges are applied at all hospitals and there is a sliding scale depending on economic or other status. There are no consistent, enforced collection procedures, so that the MOH subsidizes health charges for the rest of the GON. The Niamey hospital recovers about 17 percent of its operating costs, whereas rigorous application of current rules should yield 40 percent. Since drug supplies are so limited at public facilities, some patients are given prescriptions to fill at pharmacies or

private drug depots. Before the border closed, large stocks of drugs came from Nigeria.

Proposals for stiffer fees-for-services have been presented but major changes have not yet been approved or implemented. The GON specifically requested that a user fee study (for rural services-not limited to the health sector), be the final study under the USAID Joint Program Assessment.

d. Constraint 4:

Weak delivery system for program interventions and primary health care due to inadequate supervision, over-centralization and compartmentalization.

In order to implement health interventions such as those in the A.I.D. child survival program, an effective physical and human infrastructure must be in place for the programs to reach the beneficiary. One problem is the relative lack of integration of program interventions into this infrastructure. Regular MOH staff and VHTs do not receive the supplemental training, institutional support, or the resources necessary to make them fully effective. The programs themselves will not be fully effective until greater progress is made in rationalized planning and institutional management within the sector as well as meeting recurrent costs, cost recovery and staffing.

Niger has, however, developed a health sector infrastructure in quantitative terms which can begin effective execution of some program interventions, given well-planned and well-managed institutional support as well as budgetary support for programs. The major programs are:

- Maternal and Child Health (primary donor UNICEF)
- Immunization Program (the French were historically the main donors, but proposed IBRD health credit includes vaccination which UNICEF may carry out using Italian funds),
- Malaria Control (a program has been planned since 1983),
- Diarrheal disease program (newly established)
- Nutrition programs (weak and scattered, except for drought related efforts).

Regarding family planning and population, Niger has just undergone a fundamental governmental policy shift in family planning. The National Family Health Center (CNSF), which opened its doors 14 months ago, is the only active public sector facility where family planning services are available. The 1920 law forbidding the sale of contraceptives is still on the books. Because of the major change in policy direction, family planning policy dialogue and

detailed strategy development are now necessary as well as integration of family planning into the existing health structure in order to improve acceptability and avoid costly duplication.

Family planning, and especially child spacing, have a very important role to play in child survival programs. In Niger, however, a high value is placed on having a large number of children especially in the rural areas where children are the social security system. Demographic and socio-cultural studies are needed in order to effectively contribute to the policy dialogue. The 1984/85 drought demonstrated to the GON the consequences of a very rapidly expanding population on a decreasing resource base. The legal code needs complete revision regarding family planning. Studies on pricing and provision of contraceptives are needed.

The CNSF receives the bulk of its funding from UNFPA as well as WHO and Columbia University technical assistance. Staff is needed to develop information on the demographic situation, to determine the consensus concerning the right of couples to choose the number and spacing of children, and to strengthen existing information systems. Health workers at all levels need training in family planning.

### C. HEALTH STRATEGY

#### 1. Statement

A.I.D. assistance has the eventual objective of improving the health status of the population at large. This means reducing mortality and morbidity, particularly among children, improving overall nutritional status, and expanding access to family planning. USAID will take advantage of a receptive environment on the part of the Nigerien Government in the area of family planning and population policy. Since a sound population policy in the long run can reduce demand on public sector resources, it is a relevant component of USAID public resource management strategy.

USAID's near and medium-term health strategy objective will focus on supporting policies that are conducive to structural changes, particularly improved health sector public resource management. Given the stagnant economy and poor prospects for rapid revenue increases, development of a policy environment that encourages more efficient use of existing public resources is a prerequisite for improving the health system performance and consequently the population's health status. A strategy emphasizing sectoral policy and

structural changes is an important part of Niger's overall structural adjustment effort. Additional financial resources will facilitate the changes as well as promote adoption of key health policies, including population. The local currency generations will allow the Nigerien Government to conserve worthwhile investments, particularly in child survival and preventive health care programs, while the structural adjustment process is under way.

Because of limited institutional capacity in planning and executing policy changes, institutional reform and development will be a part of the strategy. Developing policy analytic capacity is necessary for sustaining policy dialogue and reform. The policy and institutional reform strategy will address the constraints listed in Section V/B, as identified by various sector/sub-sector analyses.

a. Improved Resource Management: One of the most important dimensions of USAID's strategy of improved public resource management will be institution strengthening, particularly at the level of the central ministry, in information management, planning, policy analysis, project selection, and coordination of programs among different executing agencies and donors. The institutional reform and strengthening is designed to facilitate and maintain policy dialogue, and reform, and improve the effectiveness of planning resource allocation as well as project selection and implementation.

Redistribution of personnel and innovative approaches to the supervision of components of primary health care system are also part of resource management. Rural health posts and VHT's can reinforce their effectiveness without overburdening administrative mechanisms. Some decentralization in health delivery planning is needed to allow for differing conditions throughout the country.

b. Expenditure Restructuring. The strategy calls for a restructuring of budgetary resources, both in current and investment outlays to improve resource allocation and mobilization. The allocation of current health expenditures is skewed toward personnel, urban areas and hospitals (See V/B), while development spending has declined. Budget allocations are not consistent with the objective of achieving a broad-based and cost-effective health care system. An important element is to accelerate and intensify the policy dialogue in order to bring about restructuring in both the current and the development budgets. It will focus expenditures in: (1) preventive (over curative) health care, particularly in cost-effective child survival programs;

(2) maintenance and rehabilitation, instead of new infrastructure; and (3) containment of hospital and medical evacuation expenditures.

c. Health Financing. The strategy will promote health financing policy in order to improve the sustainability of the health care system over the long run. This includes introducing a more forceful cost recovery policy for the hospitals and containment of medical evacuation subsidies. Because of the limited budgetary resources, it is necessary to find alternative means of financing to defray the recurrent cost burden. Another aspect is engaging the GON to explore various possibilities of community financing schemes or user fees.

d. Program Interventions USAID's strategy still emphasizes child-survival program interventions. USAID will use regionally and centrally funded projects to finance technical assistance for selected child survival programs as well as provide support through local currencies generated by the Health Sector Grant. The strategy will promote improved delivery of primary health services through expanded coverage and quality of existing child survival activities, and through the introduction of additional appropriate child survival initiatives.

The urgency of Niger's health and population problems mandate the re-inforcement of basic health services including actions to consolidate and expand the scope of selected child survival and family planning programs. Components include: the integration of program interventions into the health care delivery system, the treatment of diarrheal diseases, nutrition surveillance, the possibility of an expanded immunization program which focuses on planning and program execution, and a malaria control program.

USAID's strategy integrates family planning services and demographic planning into the health strategy at all levels. It incorporates improvement in quality and quantity of available preventive (child survival) and family planning services, in accordance with A.I.D.'s agency-wide policy guidance. Family planning is viewed as a key child survival activity that provides health benefits to both mothers and children. Objectives include the resolution of key population policy issues that must be addressed as part of the health policy dialogue. Institutional development will automatically incorporate family planning in management planning, resource allocation and evaluation of program options. Family planning services should be integrated into the health structure to improve acceptability and avoid duplication.

These will receive technical assistance from various centrally and regionally funded projects, plus local currency support from the Health Sector Grant.

The activities include: (1) development and approval of an integrated population strategy for Niger; (2) removal of legal barriers to family planning and establishment of legislation allowing health workers to deliver family planning services (Columbia University); (3) establishment of an Information Education and Communications (IEC) program; (4) strengthening service delivery at all levels, training, community outreach and operational research activities; (5) training health workers to deliver family planning services into the entire system; (6) developing the necessary logistic system for distribution of contraceptives; and in the medium term, (7) extending family planning activities into the departmental capitals and eventually into the rural areas.

## 2. Conformity to A.I.D. Priority

USAID's health and population strategy is fully consonant with A.I.D.'s worldwide health, population and general developmental policies. Health programming will concentrate on enhancing the effectiveness of health programs through improved program design, management and implementation, introduction of self-financing for health programs, and expanded child survival and voluntary family planning activities--all of which are major components of A.I.D.'s worldwide health strategy. The population strategy is most appropriate and timely according to A.I.D.'s criteria. It emphasizes policy dialogue in its early stages, combined with expanding service delivery as the country's population policy evolves into a more concrete form.

Promotion of policy reform will be an essential element in the strategy. It includes implementation of reforms enunciated but not yet executed by the Government of Niger as well as institutional changes. The private sector will become increasingly important as the GON makes pharmaceutical distribution improvements, including licensing more private sales outlets in rural areas. This will partially relieve the recurrent cost burden.

The health strategy takes full advantage of the position achieved by USAID as the major health donor in Niger, through the RHIP and other centrally and regionally funded programs (Pritech, FEWS). A.I.D. is financing technical assistance for family planning through its centrally funded population activities with Columbia University, (program management, operations research and policy development), Family Health International (biomedical research), and

the Futures Group (policy development and analyses). It includes activities in which A.I.D. has a comparative advantage, such as management planning, health statistics, training, certain types of technical assistance in the population field and family planning commodities.

V CONFORMITY WITH GENERAL AID POLICIES, ASSISTANCE MODALITIES AND MANAGEMENT

A. AID POLICIES AND DONOR COORDINATION

The USAID/Niger program is in accord with general A.I.D. policies. The program concentrates on agriculture and health/population, all among the five general areas of A.I.D. programming. Health and population are viewed as a continuum, partially because family planning is an integral part of family health and child survival, and partially because of the sociological context in which such a program must operate.

USAID/Niger has integrated the "four pillars" thoroughly into its program. Macro-economic and sector policies are the foundation upon which the structural adjustment and resource management strategy is based. The whole approach of non-project sector assistance based upon a step-by-step policy reform program in the agriculture and health sectors, from the pre-PID phase through implementation and evaluation, would not be possible otherwise.

Technology transfer is the principal concern of the Niger Cereals Research Project, the proposed Applied Irrigation Research Project, and the Agriculture CRSPs. It is an integral part of Agriculture Production Support. Use of modern technologies for analysis and forestry/land use planning is an important part of the FLUP project. Transfer of Health technologies are part of the Rural Health Improvement Project, and the regionally and centrally financed child survival and population activities.

Among the key objectives of the structural adjustment and agriculture sector strategies is a deliberate movement away from the government sector and toward the private sector and the cooperatives. It should be noted that a very small private sector in the "modern economy", as well as a lack of rural purchasing power, are limiting factors. Agricultural policy strategy is decreasing direct government regulatory intervention and encouraging competition and subsequent open market equilibrium. One goal is to increase the farmer's access to inputs and permit alternative marketing channels to develop. The major projects involved in this area are ASDG and APS, but the concept is an element in all the agriculture sector activities. In health/population, it is not yet clear precisely how the A.I.D. program will involve the private and cooperative sectors. One item for study is pharmaceutical pricing and distribution.

Institution-building is also part of USAID/Niger's approach. We are

involved in two long-term processes, the institutionalization of a national agricultural research system, and the development of self-sustaining local organizations (including restructuring the agricultural input system). Increasing resource and budget management capacity also requires institution building, although this is more of a medium-term process. Training is an extremely important part of all USAID/Niger projects, even in the sector grant technical assistance components, where on-the-job training, workshops, and short-term training sessions are provided. Literacy and numeracy are essential toward developing self-managed cooperatives. Other projects have major long-term training programs built into them, and USAID uses regional training projects to facilitate this. Peace Corps volunteers have worked on a number of bilateral and regional A.I.D. projects, including Niamey Department Development, FLUP and Integrated Pest Management. There could be an increased role for Peace Corps in applied agricultural research.

USAID/Niger works very closely with other donors in the design and implementation of programs. No formal national level consortium, donor's group, etc. exists, although UNDP is planning a round table in the near future. There are functioning groups, some formalized, for certain fields (drought, desertification). Some projects, especially regional projects such as Sahel Water Data Management (AGRHYMET) and Niger Basin Authority, and the Rural Human Resources Development (Kolo) project closing out this year are in effect, close to being donor group projects, A.I.D. sometimes being a relatively minor donor. In other areas, such as structural adjustment agriculture and health policies, USAID works extremely closely with other donors, especially the IBRD. Policy reform programs are designed for complementarity and reinforcement of common objectives. The French, the FED, and the West Germans are heavily involved in some agriculture policy reforms such as credit and cereals marketing, and sometimes are the primary donors in specific sub-sectors (USAID will be a small donor in irrigation, but the other donors are looking to the U.S. to provide the lead in irrigation research). There are frequent non-formal working level contacts at the technical level (including a monthly "forum" on agriculture technical areas), as well as general meetings among senior staff.

A handful of U.S. voluntary agencies are active in Niger. Most programs are in drought relief and recovery, although CARE has a large and important agro-forestry project that is a model for West Africa; AFRICARE is finishing

up the TARA agriculture development project and its transport logistic support component under RHIP, and Lutheran World Relief has very interesting independent small scale irrigation and appropriate technology activities. CLUSA, which is non-profit, has a major role in cooperative training and an experimental credit program with private banks. It is possible that the small scale irrigation component of applied irrigation research might be suitable for a sub-contract with a voluntary agency.

#### B. CHOICE OF MODALITIES

The emphasis on policy dialogue, structural adjustment and resource management reform in agriculture and health suggests that non-project sector assistance would be an appropriate assistance modality. To facilitate and sustain policy dialogue and reform, a portion of sector assistance is set aside for policy-related institutional strengthening. The case for a non-project assistance mode becomes stronger under the present financial constraint imposed by the macro-economic situation, and the urgent need to improve public resource management as part of an overall structural adjustment effort. This, combined with efforts to mobilize resources through cost recovery, make the project assistance mode less suitable for health and agriculture because this mode does not fully cover the key constraints.

In the agriculture sector, USAID has chosen a combination of sector and project assistance. The sector assistance is used to tackle key policy reform issues which are not particularly amenable to the project approach, and it is combined with a more classical project mode to alleviate other constraints at different levels. The advantage of this, in our experience to date with the ASDG, can be seen most clearly in the case of agriculture input subsidies, marketing and distribution. The ASDG has a strict, graduated policy of subsidy reduction and is opening up input distribution to the private/cooperative sector. The ASOG also provides funds for meeting some local costs for the transformation of the Distribution Centers into cooperatives. The APS project provides the technical assistance necessary to study the problems, work out the modalities and implement the long-term restructuring of the supply system, as well as technical assistance for cooperative training. Other subsectors, such as institutional development and implementation of agricultural research will require considerable technical assistance and are better suited to project assistance.

In the health sector, the use of A.I.D. resources for structural adjustment and policy changes, and for conserving past investments through financing of operating and maintenance costs of already installed health facilities is likely to be more cost-effective than financing an "integrated" rural health development project. This will allow an adequate level of support for health services. When combined with technical assistance from appropriate regionally and centrally funded projects in selected program intervention areas, we feel that the Health Sector Grant will by a much more effective device in alleviating the key constraints identified in IV above.

Another option for A.I.D. assistance is through a project for improved rural health service delivery in child survival activities (EPI, ORT, nutritional surveillance, and family planning). USAID has considered such an option and rejected it for three reasons. First, health service delivery will be difficult to implement successfully without first tackling the management, planning, and budgetary allocation problems at the Ministry level which are more amenable to sector assistance. Second, from A.I.D. management's perspective, such a project will require direct USAID supervision for each project component. The management burden could not be met under the current staffing policy. Third, there exist other donor-financed projects in support of child survival activities. A.I.D. itself will also provide technical assistance under regionally and centrally funded projects in key areas of child survival/population program interventions in which the U.S. has a comparative advantage.

#### C. MANAGEMENT AND STAFFING

USAID/Niger has conducted an analysis of its portfolio and sectors of assistance because of cuts in staff ceilings and substantial reductions, especially in real cost terms of operational expenses. In addition, managing sector programs and policy dialogue are labor-intensive activities in the least developed countries.

The current USAID/Niger staffing ceiling is 22 direct hire Americans and 11 Foreign National employees. While this level is cause for concern now, the Mission anticipates that the proposed DH level of 20 to be reached by the end of FY 87 will present a larger problem. In effect, the Mission will have experienced a 25 percent cut in USDH personnel since the previous CDSS which was designed for a program with a USDH ceiling of 28. As a result, USAID has

very reluctantly decided to pull out of bilateral assistance in the key area of desertification control/natural resource use planning. It has also postponed indefinitely the planning of a bilateral project to strengthen adult literacy and numeracy for the development of self-sustaining organizations. Between 1983 and December 1987, USAID will have pulled out of all bilateral projects in the areas of alternative energy development, shelter sector planning, education/human resources development, evaluation assistance and forestry/land use planning. Reductions have also been made in regionally and centrally funded projects so that only those that contribute positively to USAID/Niger's bilateral strategy objectives are included.

USAID/Niger has found through experience that managing policy dialogue and non-project sector assistance is as labor intensive a process, especially in pre-design and early implementation, as major technical assistance projects. Early implementation is a heavy consumer of senior staff time, and requires full fluency in French. Sector assistance however requires slightly different staffing skills that are stronger in economics, including a resident USDH general economist, an agricultural economist etc. It is clear that USAID will need a second mid-level health/population officer to implement the sector grant. It is also clear that REDSO will have to provide additional support, in particular, circuit-rides for engineering certification.

Since program levels probably will remain constant throughout the CDSS period, any further reductions would be considered severe and would have a negative impact on achieving the limited strategy objectives outlined in this document. To counter any negative personnel deficiencies, the Mission will obviously have to consider an increase in contract personnel which will require immediate attention and planning.

USAID/Niger is in the process of establishing a Contractor Liaison Unit which will be set up to help alleviate the administrative burdens that contractors currently experience when they arrive at post and at the same time assist in obtaining support services not provided to contractors through normal Embassy General Services Operations. The goal of contracting for a Wang Automation Specialist is to provide continuity and improved direction in the Mission's efforts to continue efficient development of automated services. The development of a Mission FSN training plan should also provide for the future delegation of responsibilities to local staff which will compensate for USDH ceiling reductions if basic training objectives are achieved.

While there are no current projections at this time of future operating expense levels, it appears the Gramm-Rudman-Hollings Bill will result in OE reductions. Some future savings in OE funds should be realized with the completion of the new USAID office building, probably in the spring of 1988. The current \$2.3 million allocation of OE funds represents close to the minimum necessary to support program objectives. The effect of a continued fall in the exchange rate of the U.S. dollar would also have an impact on future OE allocation.

The management restraints to achieving the future program objectives of this Mission will continue to be addressed over the course of the next 5-6 years with a view to maximizing resources available. Greater attention will be placed on allocating the right skills to the right job. Any additional personnel cuts beyond what is planned will result in program cuts that will come at a critical period in Niger's development, and will complicate the possibility of achieving strategy objectives in structural adjustment, agriculture development and health. Attaining development strategy objectives is becoming dependent upon decisions concerning staff ceilings and OE levels established on the basis of U.S. domestic policy concerns.

Regarding DA and ESF funding, we believe that a FY 1985 level of \$16 million DA and \$4,785,000 million ESF should be adequate with careful planning and budgeting. We have put in the FY 1987 AAPL levels as presented in the ABS. These should be sufficient to finance the program required to meet the strategy objectives set forth above.

PROPOSED ASSISTANCE PLANNING LEVELS (\$000)

Development Assistance	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Sahel Development Program		AAPL					

Agriculture

Research/Irrigation	-	6,000	5,289	4,962	5,000	5,749	4,000
Institutional Development	5,721	2,000	2,500	6,000	6,500	7,257	10,000
Sector Assistance (non-Project) a) <u>ASDG</u>	5,500	4,000	5,000	5,000	5,000	5,000	5,000

Health      b) NHSS  
Population

	4,785	5,000	5,211	3,000	3,000	3,000	3,000
Total DA.....	16,000	17,000	17,000	19,000	19,500	21,000	22,000
ESF (ASDG)	4,785	7,000	7,000	7,000	7,000	7,000	7,000

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Total DA and ESF.....	20,785	24,000	24,000	26,000	26,500	28,000	29,000
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Reg - PL 480 Title I & II	-	-	-	-	-	-	-
P.L. 480 Title II (PVO Emerg)	8,786	-	-	-	-	-	-
OFDA	1,776	-	-	-	-	-	-

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# Country Development Strategy Statement

**FY 1988**

**NIGER**

**ANNEX A**

**CURRENT MACROECONOMIC SITUATION  
AND CONSTRAINTS**



**MARCH 1986**

Agency for International Development  
Washington, D.C. 20523

UNCLASSIFIED

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## I. MACROECONOMIC PERFORMANCE

The course of economic development in Niger since 1975 has been determined by four major macroeconomic factors, two domestic and two external:

- domestic agricultural and rural production;
- domestic government activities and policies;
- international uranium markets; and
- foreign assistance and international capital flows.

Niger's economic growth performance since the Sahelian drought of the early 1970s has been volatile (Figure 1). The growth of Gross Domestic Product (GDP) ranged from an annual average rate of 9 percent during the second half of the 1970s to a negative rate of 1 percent during the 1981-1983 period.<sup>1/</sup> In 1984, the severe drought reduced real GDP by 16 percent. Preliminary estimates of GDP for 1985 show a growth rate of almost 7 percent as agricultural production recovered from the 1984 drought.

### A. Growth Period, 1976-1980

The 1976-1980 period was characterized by extraordinary growth performance. All of the above-mentioned factors are favorable for economic growth. Adequate rainfalls contributed to a steady increase of cereal production (millet and sorghum), cowpeas, and groundnuts. Aided by a government-supported herd reconstitution program after the drought, livestock production also increased. The rural sector grew at an average of 6 percent during this period.

Following the 1973 oil crisis, rising demand for nuclear energy contributed to increases in uranium demand and price. World uranium prices increased more than four-fold. The Nigerien uranium export price tripled (from less than 8,000 CFA francs/kg. in 1975 to almost 24,000 CFA francs/kg. in 1980). With the opening of the second uranium mine in 1978, uranium production increased from less than 1,500 tons in 1976 to slightly more than 4,000 tons in 1980.

The uranium boom provided budgetary resources and foreign exchange (more than 70 percent of export earnings) for substantial increases in public investment spending. The government undertook an ambitious five-year development program (1979-1983). Government spending and the public sector expanded rapidly. Capital expenditures more than doubled between 1979 and 1980. Gross fixed capital formation grew from 43 billion CFA francs in 1976 to 136 billion CFA francs. This largely reflected a relatively high concentration of spending in infrastructure. The value added of construction and public works in the national product account increased by more than six-fold (from 5 billion CFA francs in 1975 to 32 billion CFA francs in 1980).

International capital flows, together with foreign assistance, also contributed to the rapid growth during this period. They helped finance a sizeable portion of the 1979-1983 public investment program. Total net flows of

<sup>1/</sup> All growth rates are expressed in real terms--i.e., after adjusted for inflation. The implicit GDP deflator is used as a proxy for the rate of inflation.

foreign capital grew from \$65 million in 1978 to \$154 million in 1980 (with the foreign assistance portion, both multilateral as well as bilateral, increased from \$46 million to \$88 million during the same period). The increased private capital flows, however, were largely in the form of debt instead of equity, with an increasing portion having non-concessional terms.

#### B. The 1982/1983 Crisis

The favorable uranium situation proved to be short-lived. The rapid economic growth of the 1976-1980 period ended abruptly in 1981 with a drastic drop in uranium demand and price. World spot market prices fell by an annual average of 24 percent between 1979 and 1982. Niger's contract price fell from 24,500 CFA in 1980 to 20,000 CFA in 1981. Although the prices for 1982 and 1983 were raised to 24,000 CFA and 27,500 CFA respectively, the depreciation of the CFA franc kept the 1982 and 1983 collar prices relatively unchanged at \$73 per kg. Nonetheless, these prices were higher than spot market prices which were in the neighborhood of \$45-50.

The decline in the uranium price in 1981, together with the depreciation of the CFA franc, contributed to a fall of more than 20 percent in the export price index, whereas the import price index increased modestly. Consequently, Niger's terms of trade deteriorated by more than 25 percent between 1980 and 1982.

Uranium production decreased from more than 4,300 tons in 1981 to 3,400 tons in 1983. Uranium export earnings were reduced by 9 billion CFA francs from 100.8 billion CFA francs in 1980 to 91.5 billion CFA francs in 1982. The depressed demand for uranium also affected other economic activity which had a backward linkage with mining such as construction and transport. The value added of the construction sector decreased by an annual average of 20 percent in real terms during this period. Finally, the growth of the rural sector slowed down to approximately 1 percent. The GDP during 1981-1983 showed a negative growth rate of 1.3 percent.

While the unanticipated changes in the uranium situation were a major factor leading to the poor economic performance, past government policies and activities also contributed to the 1982/1983 crisis. The latter included, in particular, its over-acceleration of public capital spending beyond the level which could be sustained by available resources and the practice of prefinancing projects in anticipation of exceptional foreign assistance which did not materialize. These resulted in large extrabudgetary capital expenditures and deficits. During the 1981-1983 period they amounted to 7-11 percent of GDP. The current account deficit was almost 50 billion CFA francs and the overall balance of payments deficit was 42 billion CFA francs (7 percent of GDP).

Because of the rigidities involved in lowering capital outlays and the government's reluctance to cut current spending, the problems of budget and balance of payments deficits were postponed by resorting to draw down of official reserves and foreign borrowing with increasing short maturities and on commercial terms. Foreign assistance during this period was also at a low level (fallen from disbursements of \$160 million in 1981 to \$92 million in 1983). When the export situation did not improve at a rate compatible with the need for

debt servicing and external capital flows from private sources declined (from \$124 million in 1981 to \$35 million in 1983), the liquidity crisis was set in motion.

#### C. Stabilization and Adjustment Efforts, 1983-Present

Prior to 1983, the economic and financial difficulties were considered essentially of a short-term nature which could be overcome through temporary financing without the necessary adjustment in the country's spending pattern and economic policies. However, the difficulties in servicing the country's external debt and the emerging liquidity crisis in 1983 compelled the Nigerien authorities to initiate an adjustment process in addition to the immediate stabilization requirement.

To date, major resources channeled into support of the stabilization and adjustment efforts include: balance of payments assistance under the IMF Compensatory Financing Facility (CFF) and stand-by arrangements; French exceptional budgetary assistance; A.I.D. non-project sector assistance in support of local currency counterparts; and debt relief from the Paris and London Clubs. With the exception of the French exceptional aid, these resources are intended to facilitate necessary policy and structural changes while averting the country's immediate financial crisis. The IMF assistance is currently in the third year and the World Bank will begin its three-year Structural Adjustment Credit (SAC) program in 1986. The SAC will combine current stabilization effort with structural changes in the economy together with other sectoral reform programs.

#### D. Special Factors in 1984/1985

The stabilization and adjustment efforts were complicated by three events which affected the country's economic performance in 1984/85. Two of these factors were not predicted; one was anticipated but beyond the control of the country. These events are: the 1984 drought; the closure of the Nigerian border since April 1984; and the strong U.S. dollar and high interest rates.

##### The Drought

The direct effect of the drought on the rural sector alone accounted for 11 of the 16 percent reduction of real GDP in 1984. It caused dissavings in the subsistence economy by depleting grain reserves and decreasing herd size. Capital formation, particularly in the form of livestock, was reduced by losses due to death and premature destocking of animals. The impact of the drought on livestock is more serious on future potential than current output. The drought also aggravated the country's income distribution, both between the rural sector and the modern sector as well as within the rural economy. The income distribution effect was especially pronounced for the livestock subsector whose terms of trade (livestock vis-à-vis grain) were worsened. According to available estimates, the drought lowered rural income by more than 50 billion CFA francs.

In addition to its direct effect on the rural economy, the drought had implications on the Niger financial and adjustment program through its effects on the balance of payments and government finance. Table 2 below provides estimates of major macroeconomic effects attributable to the

FIGURE 1

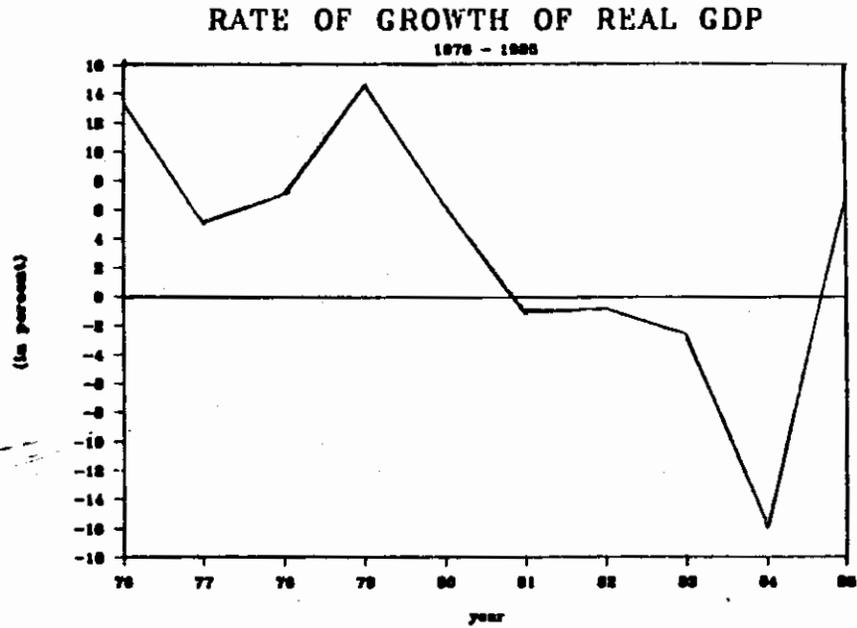
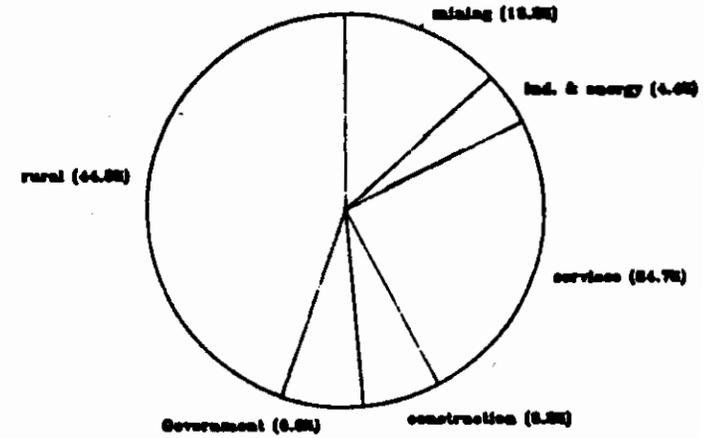


FIGURE 3A

### STRUCTURE OF ECONOMY, 1980

relative shares



3a

FIGURE 2

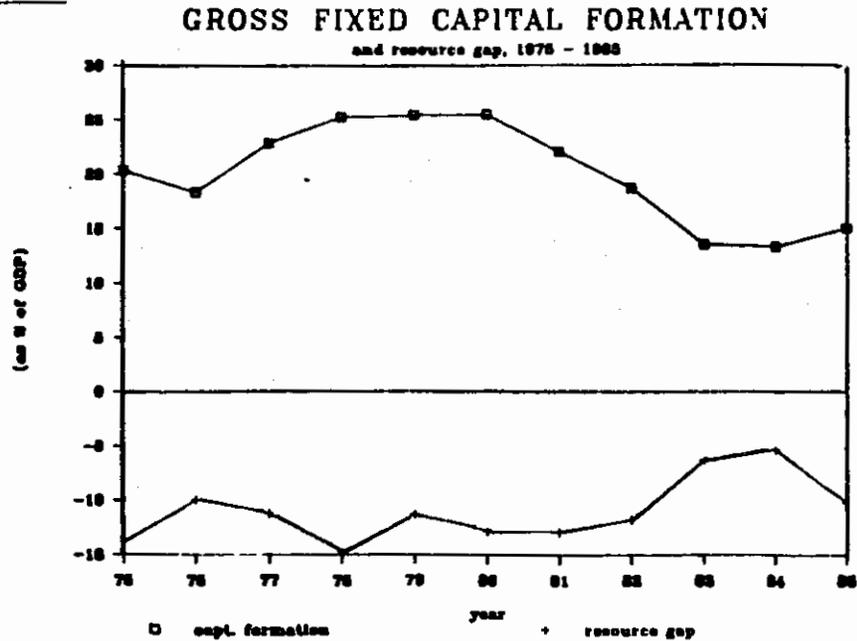


FIGURE 3B

### STRUCTURE OF ECONOMY, 1985

relative shares

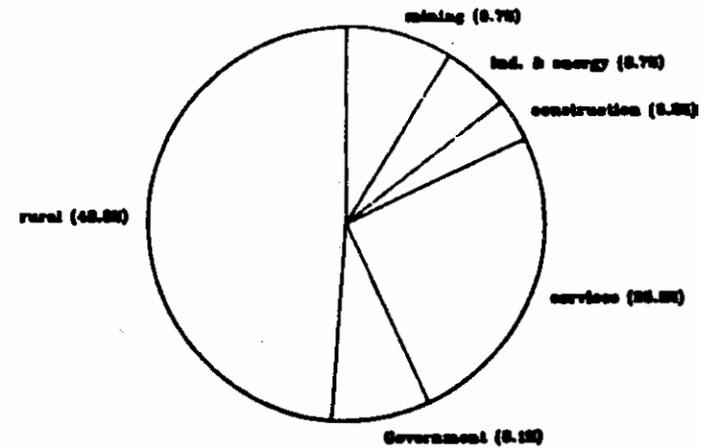


FIGURE 4A

INDICES OF URANIUM PRICE, 1975 - 1985  
(in current CFA francs)

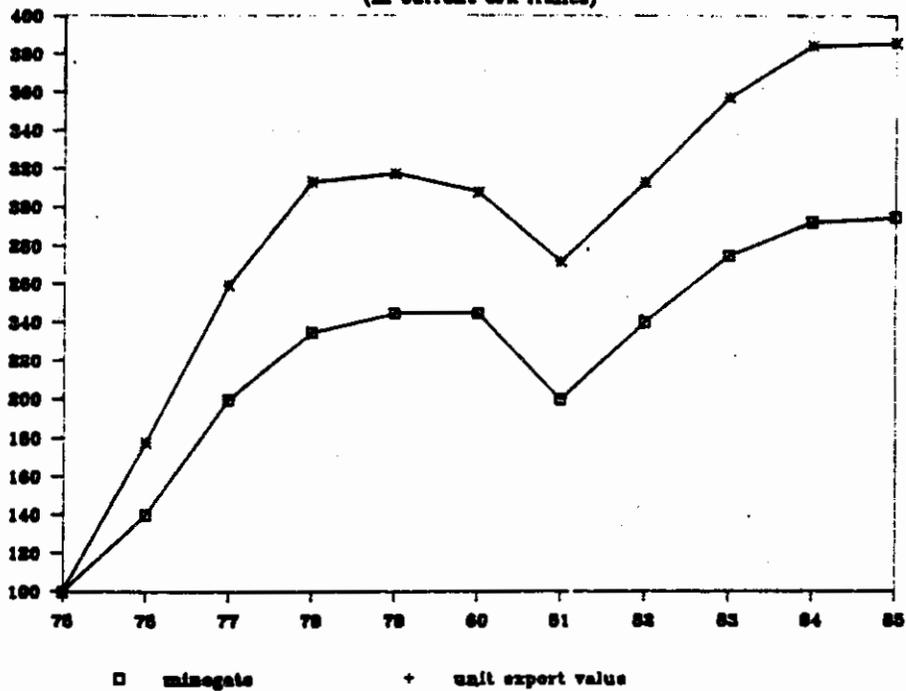
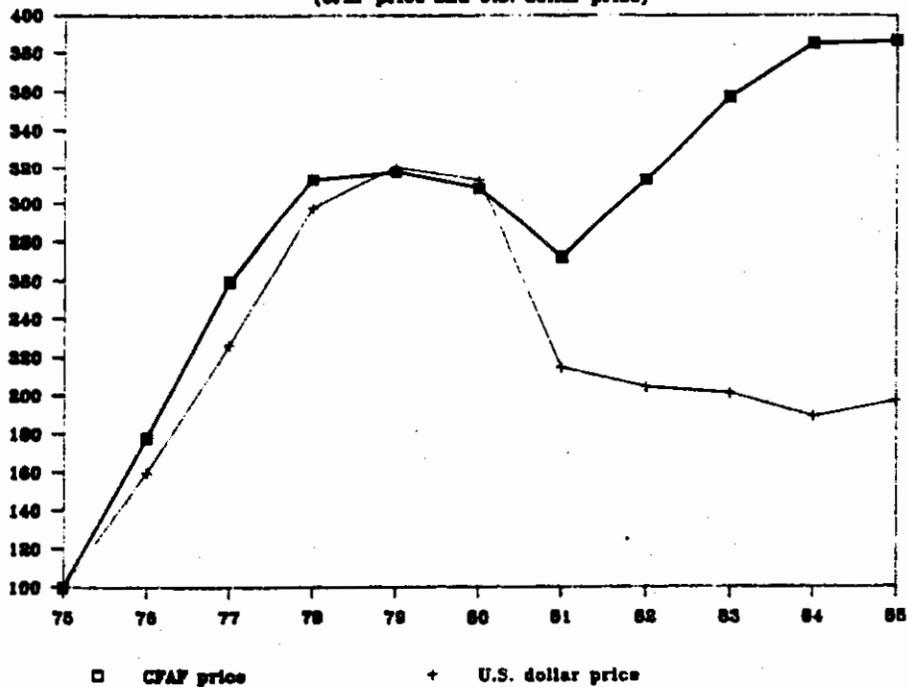


FIGURE 4B

INDICES OF URANIUM UNIT EXPORT VALUE  
(CFAF price and U.S. dollar price)



INDICES OF PRODUCTION, YIELD,  
AND OFFICIAL PRICE: MILLET (1976-84)

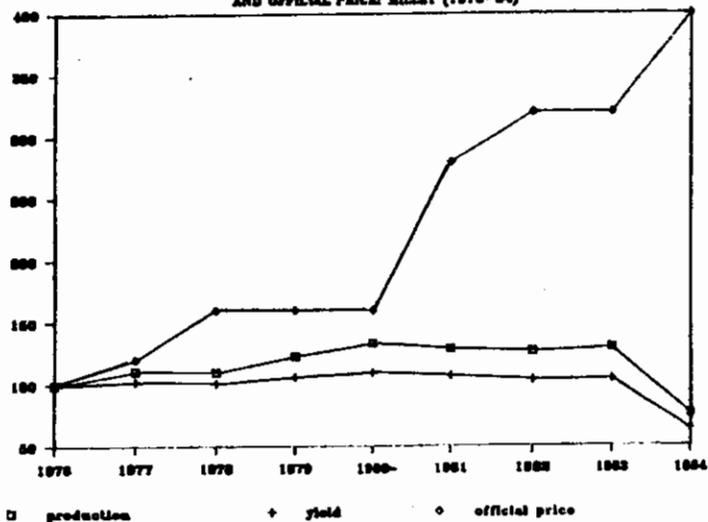
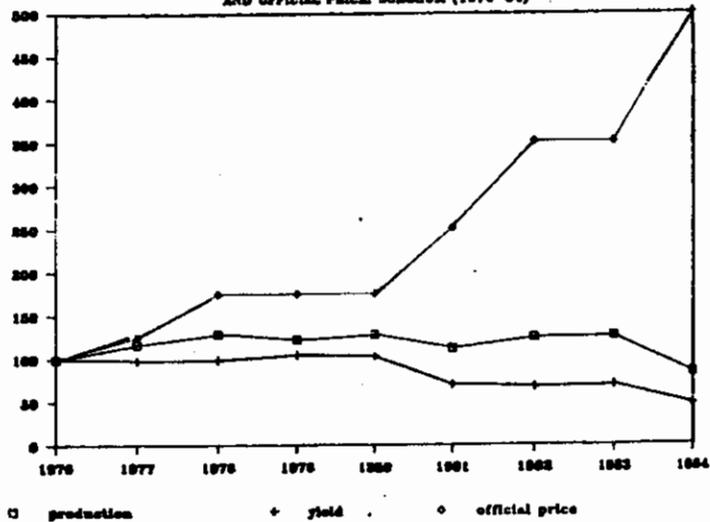


FIGURE 5B

INDICES OF PRODUCTION, YIELD,  
AND OFFICIAL PRICE: BORGHUM (1976-84)



INDICES OF PRODUCTION, YIELD,  
AND OFFICIAL PRICE: COFFRAN (1976-84)

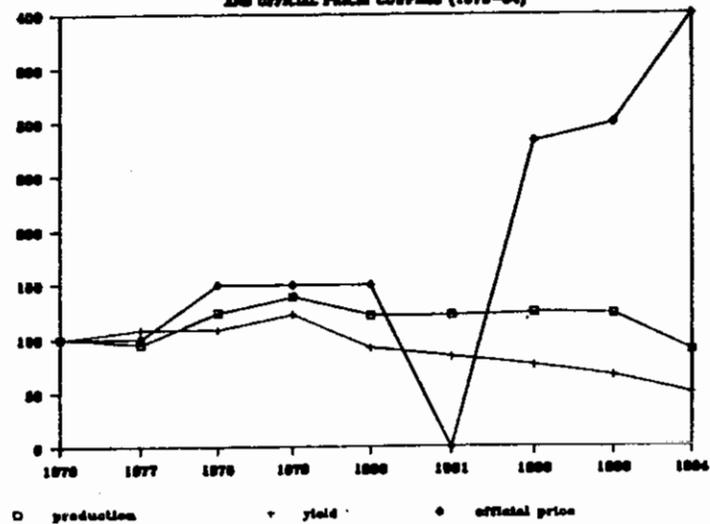


FIGURE 5D

INDICES OF PRODUCTION, YIELD,  
AND OFFICIAL PRICE: COTTON (1976-84)

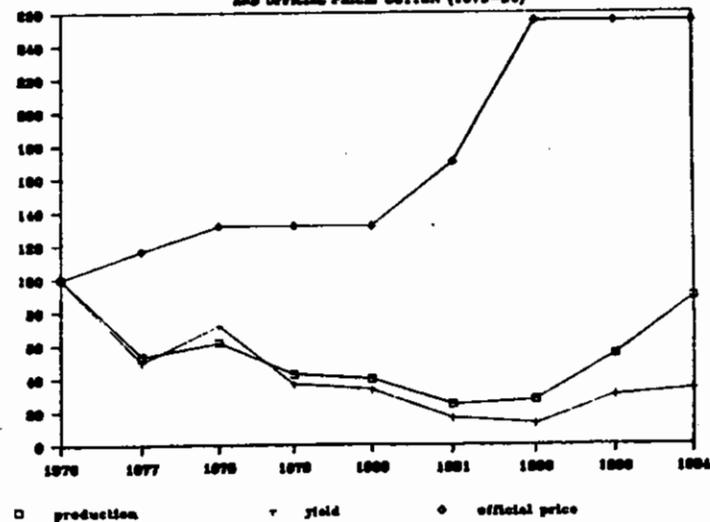


TABLE 1

## NIGER: Selected Indicators of Macroeconomic Developments, 1978-1985

	1978	1979	1980	1981	1982	1983	1984	1985
<b>National income and prices:</b>								
GDP growth rate (annual % change)	7.2	14.7	6.3	-0.9	-0.8	-2.6	-16.1	6.6
GDP deflator (annual % change)	16.0	7.6	13.8	11.0	9.8	7.8	8.7	7.5
Gross fixed investment (% of GDP)	25.3	25.5	25.5	22.0	18.7	13.5	13.3	14.9
Resource gap (% of GDP)	-14.8	-11.3	-12.8	-12.9	-11.7	-6.3	-5.3	-10.2
<b>Trade and payments:</b>								
Exports (millions of U.S. dollars)	290.7	487.1	578.2	486.7	370.5	376.8	326.1	294.7
Imports (millions of U.S. dollars)	410.0	628.5	794.1	662.8	520.4	424.3	340.5	411.9
Terms of Trade (1980 = 100)	88.2	97.5	100.0	75.2	73.3	76.1	72.8	....
Uranium export price index (1980 = 100, on dollar basis)	89.9	99.1	100.0	63.5	63.0	62.3	57.7	60.6
<b>Current account deficit</b>								
(millions of U.S. dollars)	200.8	189.0	289.2	181.8	163.7	71.6	47.6	80.0
(percent of GDP)	12.6	9.1	11.4	8.4	8.4	4.0	3.4	4.8
<b>Overall balance (- deficit)</b>								
(percent of GDP)	-0.7	-0.7	-2.8	0.3	-7.2	-1.1	-0.6	-3.7
<b>Gross official foreign reserves</b>								
(weeks of imports)	13.7	8.5	6.7	6.6	2.2	5.2	10.9	....
Nominal exchange rate (CFAF/%)	225.6	212.7	211.3	271.7	328.6	381.1	437.0	420.0
Effective exchange rate index (1980)	96.8	99.0	100.0	104.8	103.2	89.9	88.9	....
<b>Public Finance:</b>								
Domestic revenue (% of GDP)	12.8	13.5	13.7	12.7	11.5	10.2	11.4	9.6
Expenditure (% of GDP)	16.5	16.7	19.7	23.6	18.5	17.4	16.4	14.4
Current (% of GDP)	8.8	8.5	8.5	8.6	8.9	8.2	10.6	10.0
Development (% of GDP)	7.7	8.2	8.6	11.9	5.9	8.7	5.3	4.3
Budget deficit (% of GDP)	3.8	3.2	6.1	10.8	7.0	7.2	5.1	4.7
<b>Money and credit:</b>								
Money (M2) supply growth		19.0	20.8	20.6	-11.7	-1.1	22.5	9.5
Domestic credit growth		35.6	43.3	20.2	28.0	-1.1		
<b>Interest rate (end of period)</b>								
(central bank discount, overnight)	7.25	8.00	10.06	14.56	13.31	12.31	11.00	10.87
<b>Public and Publicly-guaranteed Debt:</b>								
Outstanding & disbursed (% of GDP)	7.4	9.5	10.4	18.4	30.9	35.5	49.3	47.1
<b>Debt service (% of exports)</b>								
before debt relief	3.2	2.7	6.7	13.0	30.0	22.2	31.0	32.9
after debt relief	3.2	2.7	6.7	13.0	30.0	17.0	16.3	18.3
<b>Debt service (% of gov. revenue)</b>								
before debt relief	4.6	4.7	11.2	22.8	49.5	46.3	63.1	59.9
after debt relief	4.6	4.7	11.2	22.8	49.5	35.5	33.3	33.4
<b>Interest payments (% of exports)</b>								
before debt relief	1.3	1.4	2.8	6.9	12.0	10.9	18.9	13.9
after debt relief	1.3	1.4	2.8	6.9	12.0	10.8	11.8	12.1
<b>Interest payments (% of gov. revenue)</b>								
before debt relief	1.9	2.4	4.6	12.2	19.8	22.8	38.5	25.4
after debt relief	1.9	2.4	4.6	12.2	19.8	22.5	24.0	22.0

## WIBER: ESTIMATES OF ECONOMIC AND FINANCIAL EFFECTS OF 1984 DROUGHT

Key Macroeconomic Indicators	Estimates for 1984			
	1985	without drought	with drought	Net Effects of drought*
(in billions of CFA francs unless otherwise specified)				
Gross Domestic Product at current market prices	674.6	693.5	615.4	-78.1
Gross Domestic Product at constant 1976 prices	315.0	301.1	262.7	-38.4
Nominal GDP Growth Rate (in %)	5.0	2.8	-8.8	....
Real GDP Growth Rate (in %)		-3.8	-16.1	....
Implicit GDP Deflator Growth Rate (in %)	7.8	7.0	8.7	1.7
Value Added in Informal Sector	474.4	480.4	423.7	-56.7
of which: Agriculture	(159.7)	(172.5)	(153.1)	-19.4
Livestock	(128.0)	(119.3)	(92.7)	-26.6
Estimates for 1985**				
Key Macroeconomic Indicators	1984	without drought	with drought	Net Effects of drought
Balance of Payments:				
Exports, of which	135.3	144.7	124.6	-20.1
Livestock (recorded)	(19.6)	(20.6)	(12.6)	-8.0
Cattle	(4.1)	(4.7)	(2.0)	-2.7
Imports, of which	148.8	155.1	173.0	17.9
Commercial Cereals Imports	(19.4)	(21.5)	(31.4)	7.9
Official Transfers	46.0	46.0	47.0	21.0
Current Account Deficit, excluding Official Transfers	66.8	67.3	101.2	33.9
Overall Deficit	4.0	17.3	25.8	8.5
Government Finance:				
Budget Deficit (commit. basis)	31.2	31.9	33.4	1.5
Government Revenue	70.0	66.8	68.0	-0.8
Government Expenditure	101.2	100.7	101.4	0.7

Notes: \*to the extent possible, the estimates are net of other factors which also influence these indicators. The net effects are defined as the differences between the estimated actual 1984 indicators and those which would have been in the absence of drought.

\*\*The effects of drought on the real side of the economy were accounted in 1984. Its effects on the balance of payments and government finance, however, show up

1984 drought.<sup>1/</sup> The drought contributed to a larger balance of payments deficit (8.5 billion CFA francs larger). This was due to a combination of reduced exports (livestock and cowpeas) and increased cereal imports. Its impact on the balance of payments would have been much larger (an estimated 34 billion CFA francs instead of 8.5 billion CFA francs) if it were not for much larger official transfers in the form of food aid.

With respect to government revenue, the direct effect of the drought was on the local government revenue which represents only a small portion of total government revenue (less than 5 percent). Because of the subsistence nature and relatively low tax rates, the revenue effect from the drought was insignificant. On the expenditure side (excluding spending directly related to food aid distribution which was financed by grants from donors), it was estimated that the drought had increased government spending by 0.7 billion CFA francs. The drought was estimated to contribute to a larger budget deficit by 1.5 billion CFA francs. This was due to the inability of the Grain Marketing Agency to make previously scheduled repayments to the Treasury and thus reduced government receipts.

#### Border Closure and Interest Rates

Niger also faced the closure of the Nigerian border and currency depreciation and high interest rates due to the strong U.S. dollar in 1984 and 1985. The border closure created inconveniences for trade and officially foreclosed the most important market for Nigerien agricultural and livestock exports. However, casual observations seem to indicate that the economic effect of the border closure is substantially offset by a strong economic incentive for trade created by the serious exchange rate distortion between the Naira (Nigerian currency) and the CFA franc.<sup>2/</sup> No estimates of the effect of the border closure on trade flows are available. Its effect on customs receipts was estimated at 0.5-1.0 billion CFA francs.

The strong U.S. dollar and high interest rates raise the interest payments on debt since a sizeable portion of Niger's debt is denominated in U.S. dollars. It was estimated that as much as 1.4 billion CFA francs of the larger fiscal 1985 budget deficit (3.5 billion CFA francs larger than originally foreseen) may have been due to currency depreciation and high interest rates. The depreciation of the CFA franc also affected Niger's foreign exchange earnings because its uranium price is set in CFA francs. In 1985 the reduction of uranium earnings due to the currency depreciation was estimated at approximately \$15-20 million.

Tables 1, and A.1 through A.9 together with Figures 1 through 5D provide a summary of key indicators of Niger's recent macroeconomic and sectoral developments.

#### E. Near-Term Outlook

Table 3 below summarizes the projections for GDP over the next three years (1986-88). The projections are based on recent historical trends with

<sup>1/</sup> The balance of payments and government finance effects were also influenced by the Nigerian border closure and the strong dollar cum high interest.

<sup>2/</sup> The official rate fluctuates from 545-600 CFAF/Naira, while the parallel market rate is between 110-150 CFAF/Naira.

TABLE 3

PROJECTIONS OF GROSS DOMESTIC  
PRODUCTS, 1986-88  
(current billions of CFA francs)

	1985	P r o j e c t i o n s			Average annual rate of change	
		1986	1987	1988	1986-88	1981-88
Rural Sector	332.1	364.4	386.3	408.3	6.7%	5.2%
Agriculture	297.5	232.4	251.0	269.8	8.8%	-7.0%
Livestock	100.0	106.0	108.0	110.0	3.2%	-1.0%
Forestry & Fishing	24.6	26.0	27.3	28.5	4.9%	4.9%
Mining	59.3	58.5	60.0	62.0	1.5%	3.3%
Industry and Energy	38.5	40.8	44.1	47.6	7.1%	8.9%
Construction & Public Works	23.7	25.6	27.6	29.5	7.7%	-2.9%
Commerce, Transport, & Services	171.6	180.8	193.5	209.0	6.6%	3.8%
Commerce	79.4	83.4	89.2	96.8	6.6%	3.5%
Transport	30.5	32.0	34.5	36.7	6.1%	5.7%
Services	61.7	65.4	70.0	75.6	6.8%	3.2%
Government	54.9	57.0	62.0	67.0	6.6%	6.2%
GDP at factor cost	680.1	727.1	773.5	823.8	6.4%	4.8%
Import taxes & duties	25.0	26.0	32.5	33.0	9.3%	-2.7%
GDP at current market prices	705.1	755.1	806.0	856.8	6.5%	4.5%
Implicit GDP deflator (1976=100)	251.7	267.5	287.1	304.3	6.3%	8.1%
GDP at constant 1976 prices	280.0	280.2	280.8	281.0	0.2%	-3.6%

appropriate considerations given to recovery prospects of key sectors in the economy, notably the rural and mining sectors, and the direction of the new public investment program. In general, the prospects for economic recovery during the next three years are modest, at best. Gross domestic products at current market prices are expected to grow at an average annual rate of 6.5 percent. With the implicit GDP deflator growing at slightly above 6 percent, the rate of growth of real GDP is projected to be less than 0.5 percent over the period. In comparing to the 1981-85 trends, which show an average annual growth rate of negative 3.6 percent, this is not an insignificant recovery.

The value added contributions of all sectors (except mining, industry, and government) are expected to grow faster than the recent trends. The rural sector, especially livestock which is anticipated to recover from the 1984 drought during this period, is projected to grow on the average more than 1.5 percentage points above its trend. The value added of construction and public works is projected to recover from the negative trend to almost an 8 percent growth per year. The dim projections of the mining sector reflect no increase in uranium production; the increased value added will come from slight increases in contract prices. The growth of industry is expected to be below its trend by 2 percent. Moreover, the sector is dominated by state-owned enterprises some of which are under privatization. No significant increases in private investment and increased production are expected during 1986-88.

## II. MACROECONOMIC POLICIES AND REFORM MEASURES

Niger's adjustment and recovery efforts comprise, on the one hand, an economic reform program in the areas of fiscal, monetary, balance of payments, and external debt policies aimed at addressing the internal and external financial imbalances; on the other hand, they also incorporate measures which attempt to bring about structural changes in the economy as well as improved economic management. The latter includes four major reform areas: improving public resource allocation and management; improving the operations of state-owned enterprises and privatization effort; agricultural policy changes; and pricing and marketing policies.

### A. Macroeconomic Policies

Niger has successfully carried out two IMF-sponsored austerity programs since 1983 under the stand-by arrangements and currently has an active third IMF stand-by program. The normal demand-oriented fiscal and monetary policies and import reduction were adopted.

#### Fiscal Policy

Since mid-1983 the Nigerien authorities have been pursuing policies to reduce the budget deficit through reduction in capital (development) outlays and restraint in current expenditures. Total government spending has remained unchanged during fiscal 1984 and 1985 at about 14 percent below the 1983 level. In addition to cuts in capital spending, there were reductions in current expenditures on scholarships, subsidies, and transfers to public enterprises or other public entities. The budget deficit was reduced from almost 11 percent of GDP in 1981 to 4.7 percent of GDP in 1985. There were also reductions of previously accumulated arrears (in 1985 by 4.1 billion CFA

francs). The 1986 budget shows an increase in total government spending by 4 percent, mostly reflecting an increase in anticipated development expenditure and a modest increase in personnel spending (6 percent).

The above austerity measures are accompanied by efforts to improve tax collection and administration in order to expand the country's public revenue base. A tax reform program was put into effect in fiscal 1984 following a comprehensive tax study by the IMF in 1982. The tax reform encompasses a number of revenue-increasing measures. Major tax reform areas are:

- a) strengthening tax administration and collection including prior approval by Minister of Finance for tax exemptions and increasing penalties for tax avoidance;
- b) standardizing taxes on income and profits and adopting a more rational system of income tax deductions or tax credits for dependents;
- c) eliminating preferential duties on certain imports;
- d) changing tax assessment code (for several commodities, from basing their tax liabilities on administrative value to C.I.F. value);
- e) raising excise taxes, stamp duties, and registration fees on certain commodities and services (petroleum products, tobacco, beer and other alcoholic beverages, soft drinks, telecommunication services, vehicle registration fees, and insurance services);
- f) adopting revised property and estate tax codes including the introduction of a property tax registry;
- g) introducing a value added tax system beginning January 1986.

The above tax reform measures, with the exception of the value added tax, have been in effect since fiscal 1984/1985. Some are progressing more rapidly than others. These measures are expected to generate a net increase of 4-6 billion CFA francs in government revenue once fully implemented. To date, the revenue effect of the reform is much less than anticipated--approximately 1.5 to 2 billion CFA francs, mostly from excise taxes on goods and services, and some from a more rigorous enforcement of taxes on salaries and income. The modest outcome is partially due to the unforeseen events of the 1984 drought, and especially the closure of the Nigerian border. The latter offsets any potential revenue increases from the reform of customs duties which are a major source of government revenue.

The most notable and significant change in Niger's tax system will be the introduction of a value added tax which will be in effect in January 1986. One of the attributes of a value added tax is its neutrality with respect to the number of production stages. Niger's present taxes on production and consumption are based on turnover. Consequently, the tax is applied several times on the early stages of the productive chain because it is based on the full value of each stage as the turnover of goods takes place. A value added tax avoids this so-called "cascading" effect by taxing only the value added of each stage of the productive chain. The tax is collected in successive installments. The sum of these installments is the same as if the tax were a

single stage retail sales tax. The cascading effect also generates artificial incentives toward vertical integration of productive processes.

Because of the nature of the tax, it is necessary to extend coverage to as many stages of production and distribution as possible in order to have the intended revenue effect. It would not be too difficult to have a reasonably effective collection method for the modern sector and import-intensive local industries since their numbers are small. However, for local artisans and small traders who are in large numbers and most of whom do not keep adequate books and records, the administration of the value added tax will present a challenge for the Ministry of Finance.

#### Monetary Policy

On monetary and credit expansion, the Nigerian authorities have adhered to the quantitative target ceilings under the IMF stand-by programs. Money supply grew less than 10 percent in 1985 and is expected to grow less than 9 percent in 1986. The increases in net credit to the government during 1983-1985 were within the limits of the IMF programs. The growth of net credit to the government reflected reduction in previously accumulated government arrears.

There were also some changes in the distribution of credit. A higher portion of the credit growth has been allocated to the private sector. The restrictive monetary and credit policies have contributed to relative price stability in recent years. The rate of inflation averaged 8 percent during 1983-1985 as compared with 11 percent during 1980-1982. The government is expected to continue the cautious monetary and credit policies under the 1985/1986 IMF stand-by program. The growth of money supply in 1986 is projected to decrease from 9.5 percent to 8.6 percent. The growth of credit will be limited to 11.4 percent with a higher portion of the credit growth going to the private sector.

#### Balance of Payments Policy

In the external sector, the current account deficit has been reduced by more than half (from 11.4 percent of GDP in 1980 to 3.4 percent of GDP in 1984). This was accomplished largely by import reduction. The objective of balance of payments stabilization had been largely accomplished in 1984 when the overall balance of payments deficit was reduced to 4 billion CFA francs (or 0.6 percent of GDP).

However, the effect of the 1984 drought and the closure of the Nigerian border (which affected official exports and imports) caused an increase in the current account deficit to 4.8 percent of GDP in 1985. Furthermore, net capital flows also declined from 12.9 billion CFA francs to 9.3 billion CFA francs. Consequently, there was an increase in the overall balance of payments deficit to 3.7 percent of GDP. The deficit was largely financed through debt relief. Throughout this adjustment period the authorities have maintained a liberal trade and payments regime; there were no new restrictions imposed on payments and transfers for international transactions.

## External Debt Policy

Since mid-1983, Niger has refrained from contracting or guaranteeing new non-concessional loans with a maturity period of less than 12 years in accordance with the IMF conditionality. The IMF programs, together with their prudent fiscal, monetary, and balance of payments policies, allowed the Nigerien authorities to obtain three consecutive debt reschedulings from both the Paris Club and one debt relief London Club. The debt relief helped finance the budget and balance of payments deficits during fiscal 1984-1986 and brought economic and financial stability. The third IMF stand-by program (December 1985-December 1986) will continue the present external debt policy.

### B. Public Resource Management

In the reform of public resource management, there are three main components: consolidation and restructuring of public investment (development or capital) outlays; restructuring spending in the current budget; and debt management.

#### Public Investment

In 1983/1984 the Nigerien authorities began the consolidation of public investment spending with the implementation of the 1984-1985 program of consolidation. Under the consolidation program the level of spending was cut by about 20 percent. It also re-oriented more spending toward the directly productive sectors and less toward administrative infrastructure (government buildings), telecommunications, and social services. There was also added emphasis on economic policy.

In fiscal 1985 the Nigerien authorities also adopted an integrated investment budget approach together with the concept of a "rolling plan" (programmation glissante). With the World Bank assistance, the authorities are in the process of completing an initial three-year rolling investment program (1986-1988). The three-year program will be limited to no more than 275.5 billion CFA francs. The emphasis will be in the areas of agricultural and rural development, industry, trade and commerce, and maintenance or rehabilitation of selected existing projects instead of new projects, as well as giving priority to maintenance in the transport sector.

#### Current Expenditures

While the austerity measures mentioned above involved lowering government spending in subsidies and transfers and restraining increases in personnel expenditure, an analysis of the structure of government spending revealed the following facts: (a) an unsustainable rising wage bill given the revenue prospect; (b) a declining expenditure ratio between materials and wages;<sup>1/</sup> and (c) a neglect of recurrent cost consideration for the maintenance and operation of existing development projects.

<sup>1/</sup> Materials expenditure category is defined broadly here to include transport, maintenance, and other non-wage expenditures excluding interest payments, subsidies and transfers.

Among the above three policy issues, the wage bill issue is central in the success or failure of any effort to restructure current expenditure outlays. Without limiting the increases in the wage bill, it would be difficult to raise the materials to wage expenditure ratio which would help increase effective use of public resources. It would also make it more difficult to justify any attempts in cost recovery of governmentally supplied services. The Nigerien authorities are aware of these issues and are moving toward the restructuring of its current expenditure pattern. The increases in the government wage bill have declined from an annual average rate of more than 12 percent during 1978-1983 to 7.5 percent during 1984-1986. Efforts are also being made to recover costs in areas of irrigation, water supply, educational materials, and hospital services.

#### Debt Management

One of the causes of the debt problem is inadequate control and coordination among different ministries, agencies, and public enterprises. The Nigerien Government recognized the problem, and with the assistance of the World Bank and the IMF have proceeded with the task of strengthening key offices in the Ministries of Planning and Finance to improve the management of public debt. A complete inventory of all existing debt has been done. A study of "cross-debt" among state-owned enterprises is planned for the near future. There has also been an attempt to raise the awareness of the external debt situation at the line ministry level.

#### C. Privatization Effort and Reform of State-Owned Enterprises

The reform objective in the state-owned enterprise (SOE) sector is three-fold: (a) to reduce its size by divesting a number of SOEs; (b) to increase efficiency of SOEs in order to lighten their financial burden on the state treasury; and (c) to encourage investments from the private sector. Following the IBRD-financed studies, the Nigerien authorities have adopted a number of policy and institutional changes including an establishment of the Ministry of Public Establishments and Enterprises in charge of overseeing policy, administration, financial, and technical matters related to SOEs. As its first act, the Ministry issued administrative decrees to privatize (partially or fully) or liquidate 22 of the 54 SOEs.

Of the SOEs which will remain in the public sector, a number of specific measures to improve their operations have been instituted. Two important SOEs, the grain marketing agency (OPVN) and the postal and communication service (OPT), will be major candidates for rehabilitation in 1986. The measures taken by these SOEs range from cost savings (such as reduction of personnel), to revisions of pricing/tariff structure in the case of public utilities, to institution of cost recovery efforts in the case of irrigation and underground water supply agencies, to improved accounting and financial systems and rigorous enforcement of loan recovery in the case of BDRN (development). The reform effort has been supported mainly by the IBRD and the French.

In addition to the above policy measures for specific SOEs the Nigerien authorities are in the process of developing a more flexible policy with respect to the regulatory system of prices and profit margins (systems of "homologation des prix" and "taux de marge"). The authorities will also adopt clearer legal and contractual arrangements to delimit the responsibilities and

relationships between the SOEs and the State. This should provide more autonomy to SOEs and allow them to operate like profit-making concerns and less interferences from the State.

#### D. Agricultural Policy Reform

The agricultural policy reform focuses on four areas: (a) grain pricing, marketing, and security stock; (b) agricultural input subsidies; (c) agricultural credit; and (d) agricultural research. Some progress has already been made, particularly in the areas of grain price and marketing and agricultural input subsidies. Subsidies on farm implements were eliminated in 1985. Grain price and marketing have been liberalized in order to increase competition and generate price and market information, the grain marketing agency initiated a system of tenders and bids for wholesale purchases and sales of millet and sorghum. It has also agreed to set official prices in line with market conditions. Moreover, the Nigerien Government is moving toward a policy of using official floor prices only for indicative purpose. It is also adopting a policy of reducing the level of grain reserves maintained by the grain marketing agency in order to reduce its financial burden.

In the area of agricultural credit, the government has initiated a study of informal credit with A.I.D. financing. The study is expected to be completed late 1986. The study should provide a better basis for future policy direction in the area of agricultural credit. It will also undertake a study of the official credit institution (CNCA) in the near future. In agricultural research, the government is in the process of reformulating its agricultural research priorities.

#### E. Pricing and Marketing Policies

In addition to grain price and marketing reform, the Nigerien authorities abolished all imports distribution monopolies, except the imports of petroleum products, in October 1985. In November 1985 it replaced the price regulatory system with a system of profit margin control for most products and services with the exception of petroleum products, salt, bread, flour, transportation, water, and electricity services. The pricing and marketing policy changes are important in improving economic incentive which is necessary for the privatization effort.

### III. PUBLIC FINANCE: TRENDS AND OUTLOOK

#### A. Recent Developments and Trends

##### Government Expenditure

Total government spending more than doubled between fiscal 1978 and 1981, from 59 billion CFA francs (\$262 million at 1978 exchange rate) to 139 billion CFA francs (\$616 million at 1978 exchange rate). As a percentage of GDP, it went from 16.5 percent in 1978 to 23.6 percent in 1981. The average annual rate of growth of total government spending was 28 percent during this period. Following the 1982/83 economic crisis and the adoption of austerity measures in 1983, government spending was cut by 27 percent during 1982-85. It declined to approximately 15 percent of GDP (101 billion CFA francs) during 1984/85.

During the past eight years, current expenditures increased steadily by an average annual rate of 10 percent (from 31.5 billion CFA francs in 1978 to 70.4 billions CFA francs in 1985) They represented about 10 percent of GDP in 1985--an increase of 1.2 percentage points from 1978. Interest payments on public debt have the highest growth rate (an average of 20 percent); it more than quadrupled during this period with largest increases between 1983 and 1985. Wages and salaries grew by an average annual rate of 12.2 percent during this period; followed by materials and supplies (9.1 percent), and subsidies and transfers (5.6 percent). The low average annual rate of growth for subsidies and transfers was accounted by the cuts in subsidies in 1982/83 and 1985. Materials and maintenance spending was actually cut by 25 percent in 1983 and began to rise modestly again in 1984 and 1985. The level of material and maintenance spending in 1985 was 19 percent higher than that of 1980. Taking inflation into account, the 1985 level was about 10 percent lower than the 1980 level.

Because of the rapid growth of interest payments in the current budget, the relative shares accounted for by different economic categories of current expenditures have also changed. Interest payments in 1985 represented 24 percent of current spending as compared to 13 percent in 1978. The large share of interest payments and greater increases in wages and salaries limit the resources going to materials, supplies, and maintenance. The ratio of materials (including supplies and maintenance) to wages, an indicator of the likely degree of efficiency for the supply of goods and services from the public sector, has declined from 0.81 in 1978 to 0.65 in 1985. The declining material-wage ratio has resulted in many project activities and already installed infrastructure operating below their potential because of inadequate funding of necessary recurrent expenditures. This is particularly acute in the cases of road maintenance, in health and educational facilities, and maintenance of irrigated perimeters.<sup>1/</sup>

Table A.11 in the Statistical Appendix shows the allocation trends of current expenditure spending by major functional classification. Spending on education and training accounted for almost one-fourth of total current expenditure. It is followed by expenditures on general public services which show a declining trend from more than 28 percent in 1980 to about 21 percent in 1984. Slightly less than one-fourth of this spending went to public order and safety. National defense represented the next largest category of current expenditures, approximately 7 percent.

There have been two distinct trends in development (capital) expenditures: a rapid rising trend of the late 1970s and early 1980s and a declining trend between 1982 and 1985. Following the adoption of a uranium-led growth strategy under the 1979-83 Development Plan, capital spending took off with a rapid expansion of public expenditure programs and investments. Development expenditures almost tripled between 1978 and 1981, from 28 billion CFA francs (\$123 million at 1978 exchange rate) to 70 billion CFA francs (\$308 million at 1978 exchange rate or \$260 million at 1981 exchange rate).

<sup>1/</sup> While there is no particular single optimal ratio between wages and materials, to maintain an efficient management and use of public sector resources, an adequate balance between the two categories of expenditures and between capital (investment) and recurrent expenditures has to be maintained.

Since fiscal 1982, the levels of development expenditures have been lowered to less than half of the 1981 peak. The drastic reduction occurred in 1982 when development expenditures fell by almost half from the previous year. In 1985, development expenditures accounted for 30 percent of total government spending as compared to 47 percent in 1978. During the last two years, capital outlays averaged about 31 billion CFA francs (\$73 million). This was about the same level as that of 1978 in nominal terms.

Prior to fiscal 1985, there was no consolidated budget (i.e., integration of current and development budgets). Development expenditures came from two sources: National Investment Fund budget (Fond National d'Investissement--FNI) and extrabudgetary financing. The FNI budget is intended to provide local counterpart contributions for foreign-financed projects. Extrabudgetary outlays were also used for the prefinancing of projects in anticipation of foreign assistance.<sup>1/</sup>

In fiscal 1981, the FNI budget financed 38 percent of development expenditures; it financed only 17 percent of development outlays during 1984/85. A substantial portion of the FNI budget came from uranium receipts. As uranium revenues declined, the FNI budget was reduced from 26.9 billion CFA francs (\$100 million at 1981 exchange rate) in 1981 to 5 billion CFA francs (\$12 million at 1985 exchange rate or \$18.5 million at 1981 exchange rate) in 1985. Even at this low level, the proportion of the FNI budget which was funded by donors' non-project assistance has increased. In 1984/85, A.I.D. financed almost all the previously FNI-financed agricultural/rural development projects through A.I.D.'s Agriculture Sector Development Grant.

In fiscal 1985, the Nigerien Government introduced a consolidated budget (Budget Général) divided into three budgets: current budget (Budget de Fonctionnement); investment budget (Budget d'Investissement); annexed budget for public works agencies (Budget Annexe d'Exploitation du Matériel de Travaux Publics--BAEMTP). The Investment Budget includes all development expenditures both project-tied and financed by donors as well as those financed by the previous FNI. The previous FNI now appears as a line item in the Investment Budget. The source of FNI financing is the Treasury (which in recent years depended, to a large extent, on non-project assistance from donors).

Table A.12 shows the allocation of development expenditures from the FNI budget during the period of 1980-84. Over this period the FNI budget declined by an average annual rate of 39 percent, from the peak of 27 billions CFA francs in 1981 to 5 billions CFA francs in 1984. In 1985, the level of spbudgetary capital spending was preliminarily estimated at 4.5 billions CFA francs. Prior to 1984, education and general public services accounted for almost half of the budgetary capital spending followed by water and electricity and roads. Spending on agriculture showed a declining trend from more than 11 percent in 1980 to 5 percent in 1983. In 1984, with the emphasis on road maintenance and rehabilitation and rural development, spending on roads increased; so are agriculture. The share of spending on education declined in 1984 following the reductions in subsidies and other transfers. The health share in the budget represented less than 4 percent in 1984.

<sup>1/</sup> Not all the expenditure outlays in the FNI and extrabudgetary categories are capital spending and certainly not investment in the strict economic sense. For example, they include subsidies and transfers to public enterprises.

### Government Revenue

Tables A.13 and A.14 in the Appendix show the trends and structure of government revenue during 1977-85. Government revenue almost doubled between 1977 and 1980, from 37.7 billion CFA francs to 73.3 billion CFA francs. It reached a peak of 75.2 billion CFA francs in 1981. Total revenue declined by 1.8 percent in 1982 and again in 1983 by 6.7 percent. It remained at about the same level in 1984 following the implementation of a fiscal reform program. The 1984 drought and the Nigerian border closure, the effect of which shows up mostly in fiscal 1985, delayed any anticipated revenue increases from the reform program. Government revenue fell to its lowest level (68 billion CFA francs) of the past six years.

As a percentage of GDP, government revenue has shown a declining trend from more than 13 percent in the late 1970s to 9.6 percent in 1985. The declining and stagnant revenue performance reflected the slowdown in general economic activity, Niger's narrow tax base and dependence on uranium, and a relatively inefficient tax administration in terms of the effectiveness of tax collection and enforcement. Despite the fiscal reform program instituted since 1984, its impact in terms of additional revenue has been limited although unforeseen events, such as the Nigerian border closure, may have offset or delayed potential revenue increases from the reform. According to the IMF estimates, the reform should contribute to an annual revenue increase of about 4 billion CFA francs; this has yet to be fully realized.

The share of government revenue from taxes has increased from 75 percent in the late 1970s to almost 90 percent since 1982. In 1979, uranium receipts represented one-fourth of the total revenue. Its share has declined to less than 10 percent in 1985. Major sources of tax revenues are: taxes on international trade; turnover taxes on goods and services; and taxes on income and profits. Together they made up 85 percent of the government revenue. Taxes on international trade contributed between 30 and 40 percent of the total revenue; in 1985, they were estimated at 36 percent. As percentage of GDP, international trade taxes have fallen from 5.2 percent in 1980 to 3.5 percent in 1985.

The next important source of government revenue came from sales and excise taxes on goods and services. Their share showed a rising trend from about 20 percent of total revenue in the late 1970s to 30 percent in 1985. Presently, these sales and excise taxes are undergoing changes; a value added tax system has replaced them since January 1986. The full implementation of the value added tax, its revenue performance, and likely economic effects remain to be seen. A minimum two-year experimentation is foreseen by government officials.

Taxes on income and profit showed a declining trend from more than 27 percent of total revenue (3.6 percent of GDP) in 1977 to about 20 percent (or 2 percent of GDP) in 1985. The trend seems to reflect declining economic activity. Although a number of fiscal measures instituted since 1984 have been aimed at increasing tax revenue from this source, the potential revenue performance from the reform measures in this area have yet to be fully realized.

### Budget Deficit

The rising current and development expenditures, together with stagnant revenue, contributed to the large budget deficits of the late 1970s and early 1980s. In 1981, the budget deficit on a commitment basis amounted to

### INDICATORS OF FISCAL AGGREGATES

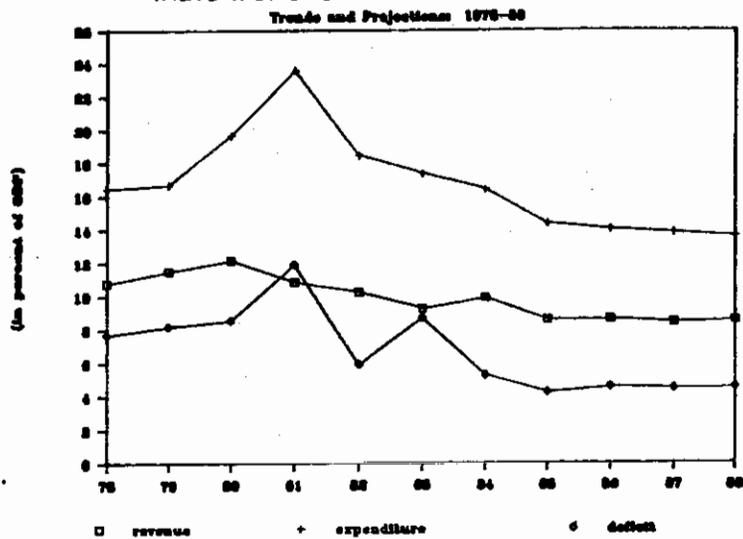
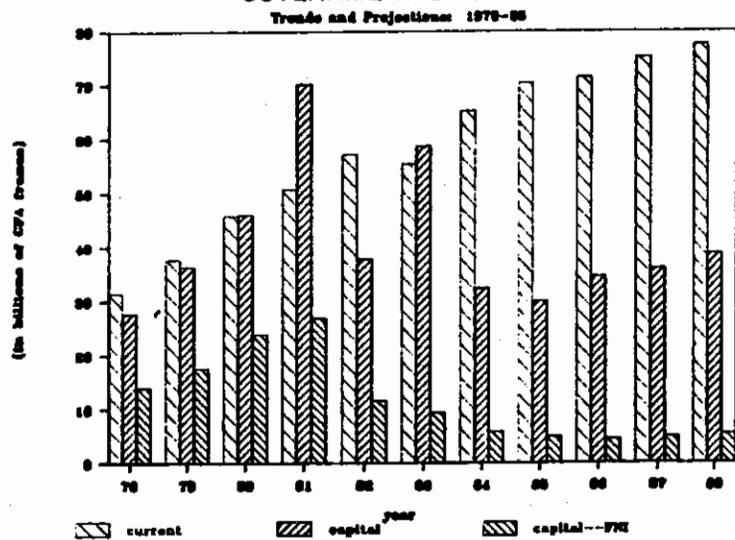


FIGURE 7

### GOVERNMENT SPENDING



### CURRENT EXPENDITURES

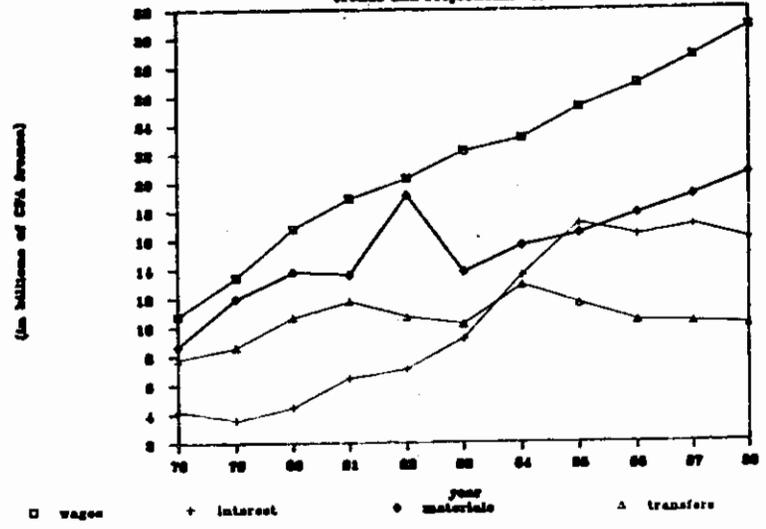


FIGURE 9

### COMPOSITION OF GOVERNMENT SPENDING

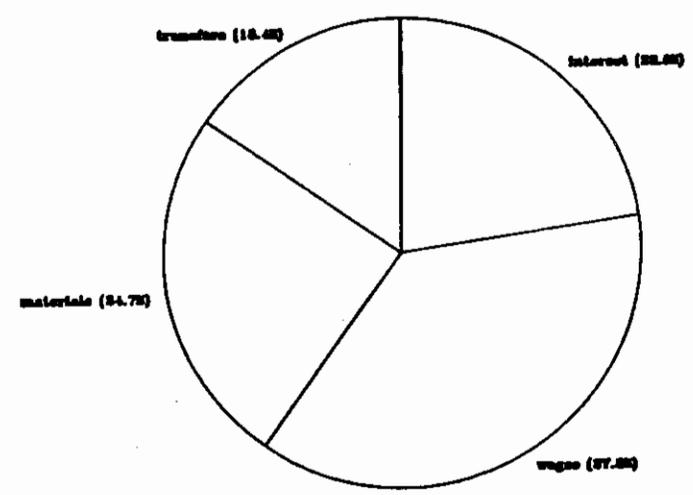
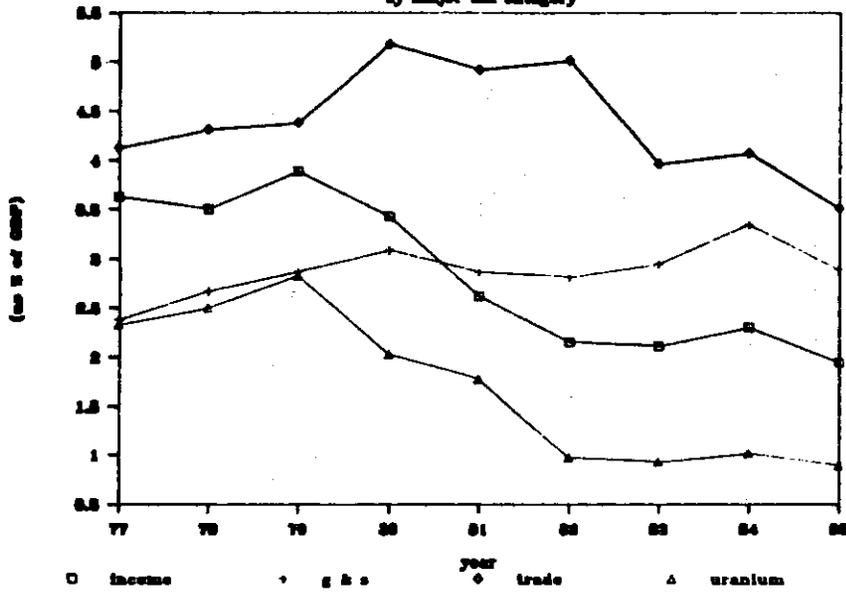


FIGURE 10A

GOVERNMENT REVENUE TRENDS, 1977-85

by major tax category



13b

FIGURE 10B

GOVERNMENT REVENUE TRENDS, 1977-85

by major tax category

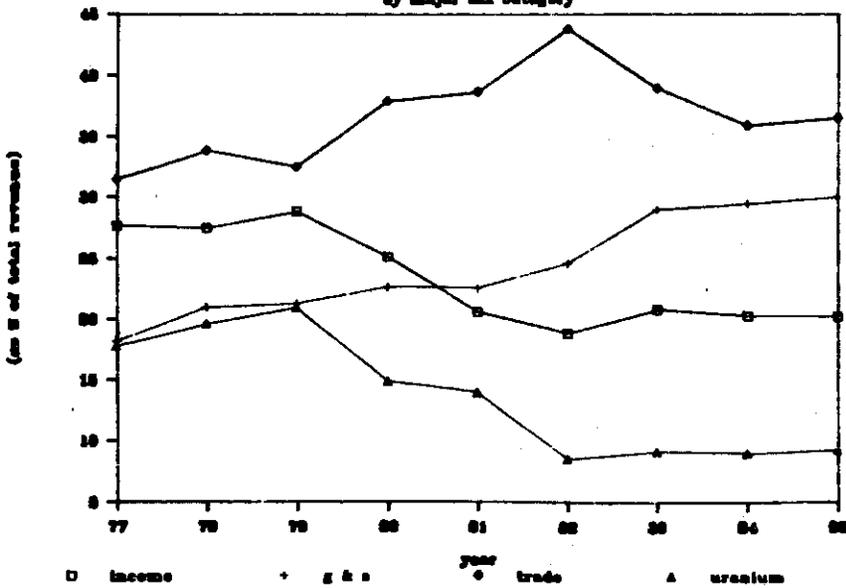


FIGURE 11A

ACTUAL PUBLIC INVESTMENT SPENDING

DURING 1979 - 1983

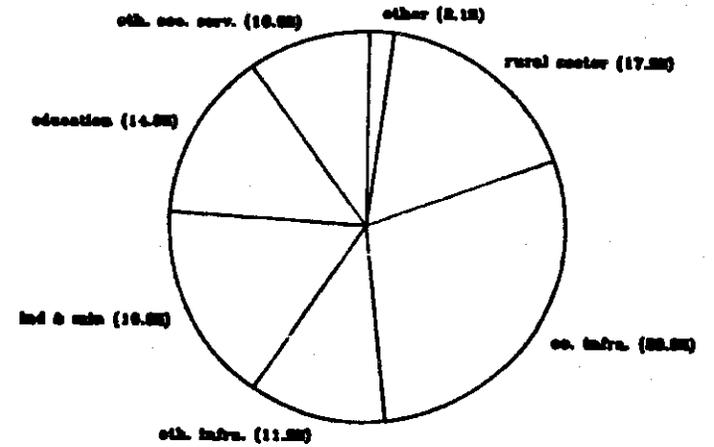
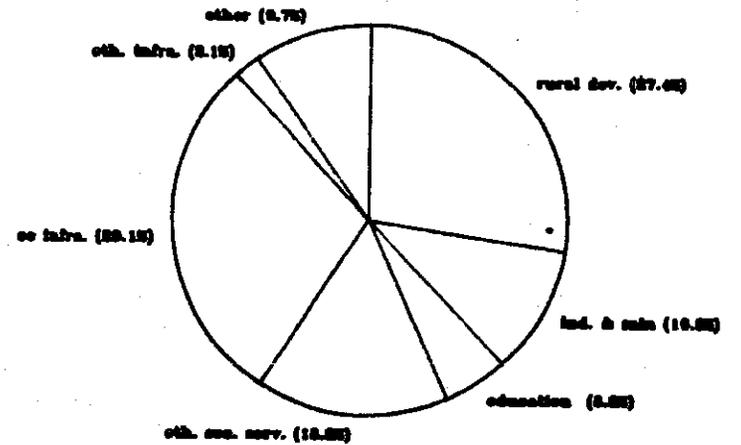


FIGURE 11B

PUBLIC INVESTMENT SPENDING, 1984 - 1985

INTERIM PROGRAM OF CONSOLIDATION



64 billion CFA francs (10.8 percent of GDP). The inability of the government to finance such a deficit resulted in a substantial increase of arrears, estimated to be more than 14 billion CFA francs in fiscal 1982. Following the pursuit of austerity measures, the deficit has been cut in half. In fiscal 1985, it was estimated at 33 billion CFA francs (4.7 percent). By the end of fiscal 1985, almost all arrears had been eliminated.

Prior to 1984, between two-thirds to 80 percent of deficit financing came from foreign borrowing with the remainder financed by domestic sources and budgetary assistance from donors. Since 1984, about one-third of the financing has come from foreign borrowing, more than 40 percent from debt relief, and the remainder from domestic sources.

## B. Outlook

During the last two fiscal years internal financial imbalance has been contained largely through the IMF stabilization program together with the debt relief and some budgetary assistance from other donors. While a number of revenue-increasing measures have been executed, the prospect of fully achieving the anticipated revenue increase remains doubtful, at least for the next three years. The uranium outlook, according to most observers, is still dim for the next three to five years. The need for restraining current spending is evident; but to encourage recovery and renewed growth, development expenditures will have to resume. The recently concluded agreement with the World Bank for a structural adjustment credit program, together with the IMF stand-by arrangement, will provide the overall framework for public expenditures over the next three years.

Table 4 below provides the projections of government revenues, expenditures, and budget deficits for 1986-88 based on the prospects summarized above with considerations given to recent historical trends (1978-85). Over the period, government revenues are expected to grow at an average annual rate of 6 percent--slightly above the 1978-85 trend growth. Total government spending is projected to grow at an average of 4.6 percent per year, significantly below recent historical growth.

On current expenditures, the rate of growth of the government wage bill will be cut by almost half, from more than 12 percent during 1978-85 to 6.6 percent. Subsidies and transfers payments are expected to decline by an average of 4.6 percent per year, and, assuming there will be debt rescheduling over the next three years, interest payments are expected to decline by a modest rate of 2.2 percent per year. Spending and maintenance shows the highest growth during the period, at an average of 7.6 percent. This reflects the policy of improving the material-wage spending ratio to correct the imbalance between the two categories of expenditures, and the inadequate funding for maintenance spending, particularly in infrastructure. The growth of materials and maintenance spending is below the historical trend of 9.1 percent, which is largely due to big increases in the late 1970s.

The overall level of development expenditures for the next three years is set by the agreement between the Nigerien authorities and the World Bank under the SAC. The 1986-88 period will reverse the declining trend of the past few years, which showed an annual average of more than a 30 percent reduction. A renewed growth effort will be initiated together with an attempt to improve

TABLE 4

PROJECTIONS OF GOVERNMENT FINANCE  
(in billions of CFA francs)

	P R O J E C T I O N S 1/				Average annual rate of change	
	1985	1986	1987	1988	1986-88	1978-85
I. TOTAL REVENUE	68.0	72.6	76.0	81.50	6.0%	5.7%
of which uranium-related	(6.0)					
Tax revenue	60.7	65.3	68.0	73.50	6.4%	6.4%
Nontax revenue	7.3	7.3	8.0	8.00	3.1%	0.7%
II. TOTAL EXPENDITURE	101.4	105.7	111.2	116.30	4.6%	7.7%
Current expenditure	70.4	71.4	75.2	77.50	3.2%	11.5%
Interest payments	17.1	16.3	17.0	16.00	-2.2%	20.0%
Wages and salaries	25.3	26.9	28.8	30.80	6.6%	12.2%
Materials, transp. & housing	16.4	17.8	19.1	20.00	7.6%	9.1%
Subsidies and transfers	11.6	10.4	10.3	10.10	-4.6%	5.6%
Development expenditure	30.0	34.5	36.0	36.80	6.6%	1.1%
Budget--FMI	5.0	4.5	5.0	5.50	3.2%	-14.8%
Extrabudgetary	25.0	30.0	31.0	33.30	9.6%	8.7%
Other expenditure	1.0					
III. BUDGET DEFICIT (I-II) (commitment basis)	-33.4	-33.3	-35.2	-34.80	1.4%	13.0%
IV. CHANGE IN ARREARS (- decrease)	-4.1					
V. OTHER ADJUSTMENTS						
VI. BUDGET DEFICIT (III+IV+V) (cash basis)	-37.5	-33.3	-35.2	-34.80	-2.5%	14.6%
DEFICIT FINANCING:	37.5	17.2	17.2	19.60	-21.6%	18.5%
External financing	10.5	12.8	9.2	14.70	11.2%	-4.5%
Drawings	30.0	33.3	35.0	39.00	6.7%	12.4%
Repayments	-19.5	-20.5	-25.8	-24.30		
Domestic financing	10.0	4.4	8.0	4.90	-23.8%	-3.0%
Banking system	9.0	4.0	8.0	2.90	-37.8%	11.2%
Other--nonbanking system	1.0	0.4		2.00	23.1%	-37.4%
Nett relief	17.0					
FINANCING GAP		16.1	18.0	15.20		

1/ Mission projections based on information from Min. of Planning and Finance.

**TABLE 5**

**NIGER: STRUCTURE OF PUBLIC INVESTMENT PROGRAM, 1986-88**  
(in percent)

SECTOR	Budget	Projections		Total
	1986	1987	1988	1986-88
<b>DIRECTLY PRODUCTIVE SECTORS</b>	45.0	45.0	45.0	45.0
Agriculture and rural development	38.0	38.0	38.0	38.0
Mining, industry and others	7.0	7.0	7.0	7.0
<b>SOCIAL SERVICES</b>	28.5	31.0	31.0	30.2
Education and training	5.6	7.0	7.0	6.5
Health	1.8	4.0	4.0	3.3
Housing and urban development	5.5	5.0	5.0	5.2
Water Supply	15.6	15.0	15.0	15.2
<b>INFRASTRUCTURE</b>	26.5	24.0	24.0	24.8
Roads and transport	11.1	15.0	19.0	15.0
Telecommunications	6.0	3.0	1.0	3.3
Administrative infrastructure	9.4	6.0	4.0	6.5
<b>Total (in percent)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Total (in billions of CFAF)</b>	<b>80.0</b>	<b>92.5</b>	<b>103.0</b>	<b>275.5</b>
<b>Total as percentage of GDP</b>	<b>10.6</b>	<b>11.5</b>	<b>12.0</b>	<b>11.4</b>

Source: USAID/Niger's calculations based on data from Ministry of Planning.

investment planning, budgeting, and choice of projects. An average annual growth of 8.6 percent is planned for development expenditure outlays. The portion of the Investment Budget to be funded by the Treasury will show a modest increase of 3.2 percent per year over this period. This assumes that the Treasury will be able to find supplemental financing from donors in the form of non-project assistance, such as the sector assistance provided by A.I.D. in 1984/85 under its Agriculture Sector Development Grant. The level of development expenditures in the budget will reach approximately 39 billion CFA francs (of which 5.5 billion CFA francs will be Treasury-funded--previously known as the FNI) in 1988, as compared to the 1985 level of 30 billion CFA francs.

The composition of the development expenditure program for 1986-88 will also change. The program puts more emphasis on agriculture/rural development, less on administrative infrastructure and telecommunications, and more spending on road maintenance and infrastructure rehabilitation in general. The planned spending allocation under the 1986-88 program is as follows: 45 percent to the directly productive sectors (38 percent for agriculture/rural development, the remaining for mining, industry, and energy); 30 percent for social services (6.5 percent for education and training, 3.3 percent for health/population, 5.2 percent for housing/urban development, and 15.2 percent for water supply), and 24.8 percent for infrastructure (15 percent for roads and transport, 3.3 percent for telecommunications, and 6.5 percent for administrative infrastructure). The 1986-88 program will also incorporate the concept of a rolling development plan. Table 5 shows the allocation of the 1986-88 development expenditures by major economic sectors. To see the changes in the compositions of development expenditures, Tables A.15 and A.16 in the Appendix provide, respectively, the spending patterns under the 1979-83 Development Plan and the 1984/85 Interim Program of Consolidation.<sup>1/</sup>

The budget deficits (on a commitment basis) over the next three years are projected to increase at an average annual rate of 1.4 percent. The 1986 budget deficit remains at about the same level as in 1985 (4.7 percent of GDP). This is due to planned larger development expenditures. The 1988 budget deficit is expected to be 1.4 billion CFA francs larger than the 1985 deficit. As a percentage of GDP, it represents a small decline from almost 5 percent to 4 percent of GDP. The larger deficit reflects a modest resumption of development expenditures under the World Bank SAC program. A financing gap in the neighborhood of 15-18 billion CFA francs per year is expected over the next three years. A large portion of the financing gap (85-90 percent) is likely to be covered through debt relief.

#### IV. TRADE AND BALANCE OF PAYMENTS: TRENDS AND OUTLOOK

##### A. Recent Developments and Trends

Three major macroeconomic factors determine Niger's balance of payments developments and the position of its external sector:

<sup>1/</sup> For a more detailed discussion of the 1979-83 Plan and the 1984/85 consolidation program, see K. Toh (1984): An Analysis of Niger's Interim Plan, 1984-85.

- uranium exports and terms of trade,
- international capital flows and foreign assistance,
- debt service payments.

The dramatic turn of Niger's balance of payments situation occurred in 1982 when the overall deficit reached a record high of \$141 million (7.2 percent of GDP). Prior to 1978, the balance of payments had small surpluses (\$18-30 million). The surplus situation turned into small deficits (less than 1 percent of GDP) in 1978 and 1979. In 1980, the deficit grew to \$71 million (2.8 percent of GDP); but in 1981, it showed a small surplus of \$7 million.<sup>1/</sup> Following the adjustment measures and the IMF assistance, the balance of payments deficits were reduced to approximately \$20 and \$10 million in 1983 and 1984 respectively (less than 1 percent of GDP). The 1984 drought which raised cereal imports and lowered exports of livestock and cowpeas contributed to a larger balance of payments deficit in 1985, estimated at \$61 million (3.7 percent of GDP).

In the current account, with the rapid growth in uranium export earnings (an increase of five-fold between 1975-80), imports quadrupled from less than \$200 million in 1976 to almost \$800 million in 1980. Most of these imports were for the expansion of mining and related activities and public development programs, as well as imports of petroleum products. Imports of invisible items (i.e., non-factor services--interest and dividend payments) and private transfers also increased significantly. The deficit in the goods and non-factor services account grew from less than \$75 million in 1975 to almost \$400 million in 1980. It was partially offset by increases in unilateral transfers (mostly official grants). During this period, they increased by an average annual rate of 12 percent. The current account deficit (including official transfers) increased from slightly more than \$20 million in 1976 to almost \$300 million in 1980 (11.4 percent of GDP).

Until 1982, the current account deficits were adequately financed by surpluses in the capital account. These surpluses reflected net international capital inflows, mainly foreign direct investment, borrowing, and project related capital flows associated with uranium mining and related activities as well as public development programs. Net capital inflows increased five-fold between 1976 and 1979 from less than \$40 million to \$200 million, with public capital representing 77 percent of these inflows. With the exception of 1980, these capital inflows were large enough to keep the balance of payments in equilibrium.

Since 1981 the three factors mentioned above have contributed to the changed balance of payments situation. In addition to the decline in uranium export volume in 1982, there has been deterioration of Niger's terms of trade. The export price index of its main exports, uranium, has fallen by more than

<sup>1/</sup> The balance of payments figures as reported by the Nigerien authorities as of August 1985 are somewhat different especially for 1980-82, from those reported in the most recent IMF document (Niger - Recent Economic Developments, June 1985). For the purpose of this report, the figures from the Nigerien authorities are used whenever they are available and appropriate as there are reasons to believe that these figures are more up-to-date than those made available to the IMF for its June 1985 report.

25 percent since 1980, whereas the import price index during the same period has increased by 7.7 percent. Consequently, Niger's terms of trade deteriorated by 28 percent during 1980-84. Export earnings declined by \$116 million in 1982. Uranium export earnings alone accounted for more than 70 percent of the total reduction.

Compounding the falling export earnings was a much lower level of net capital inflows in 1982 and higher debt service payments. Net capital inflows decreased from \$191 million in 1981 to \$22 million in 1982. Net public capital inflows were reduced by more than half from \$137 million in 1981 to \$59 million in 1982. There were also net outflows of private capital amounting to \$36 million. The reduced level of net public capital inflows and the emergence of net private capital outflows were due to increases in amortization of previous loans and a reduction of projected-related disbursements. The capital account fell far short of the level capable of financing the current account deficit resulting in a large overall balance of payments deficit. The large and unsustainable balance of payments deficit depleted Niger's foreign exchange reserves. At the end of 1982, gross official reserves at the end of 1982 reached a level equivalent to approximately three weeks of imports.

Following the adjustment measures adopted in 1983, the balance of payments situation improved significantly. This was accomplished largely through cuts in imports, refraining from non-concessional borrowing, debt reliefs and other austerity and reform measures described in Section II above. However, during this period there were reductions in the unilateral transfers account, in particular public transfers fell by more than 25 percent. The trend toward an improved balance of payments situation was interrupted by the 1984 drought and the Nigerian border closure which caused the balance of payments deficit to be much larger in 1985. Figures 12, 13, and Table A.17 show the trends of key aggregate indicators of balance of payments.

#### B. Medium-Term Outlook

Table 6 below and Figures 14A and 14B present projections of Niger's balance of payments situation over the next five years (1986-90). The projections are based on the assumption that present adjustment and reform efforts continue. The balance of payments situation will be sensitive to a number of factors, particularly, growth of exports and imports, uranium price and terms of trade, official assistance and international capital flows are shown. To account for this sensitivity, two projections based on two different sets of assumptions regarding exports, imports, terms of trade, and capital flows. The assumptions of each scenario are summarized below, together with two historical trends, one from the period 1975-85 and the other 1982-85.

Scenario A reflects in general a slower adjustment and recovery process than Scenario B. Scenario A assumes a lower growth of export earnings, a higher growth of imports, a lower rate of increase of uranium price and less favorable terms of trade, and a lower growth of public capital. Both assume a trade pattern and capital flows of a situation without substantial food aid.

Under Scenario A, the overall balance of payments deficit will be reduced gradually (at a modest average annual rate of 11 percent between 1986-90). The current account deficit will decline by an average of less than 2 percent per year. By the year 1990, there will still be an overall balance of

TABLE 6

BALANCE OF PAYMENTS PROJECTIONS  
(in billions of CFA francs)

	Scenario A						Scenario B				
	P R O J E C T I O N S						P R O J E C T I O N S				
	1985	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
I. CURRENT ACCOUNT, NET	-33.6	-24.9	-27.4	-27.8	-26.1	-23.1	-24.9	-22.0	-17.8	-10.2	-2.1
Trade balance	-48.4	-21.3	-23.7	-24.9	-26.9	-27.7	-21.3	-18.3	-14.9	-11.0	-6.7
Exports, f.o.b.	124.6	129.0	134.8	141.5	148.0	157.5	129.0	138.7	148.4	158.7	169.9
(of which: uranium)	(104.0)	107.1	108.2	109.3	111.4	113.7	107.1	112.5	118.1	124.0	130.2
Imports, c.i.f.	-173.0	-150.9	-158.4	-166.4	-175.5	-185.2	-150.9	-156.9	-163.2	-169.7	-176.5
Net Services	-41.3	-42.3	-43.1	-43.0	-41.7	-40.5	-42.3	-43.1	-43.0	-41.7	-40.5
Goods and services, net	-89.7	-63.6	-66.8	-67.9	-68.6	-66.2	-63.6	-61.4	-57.9	-52.7	-47.2
Net Transfers	56.1	38.7	39.4	40.1	42.5	45.0	38.7	39.4	40.1	42.5	45.0
Private	-11.5	-15.0	-15.4	-15.8	-16.2	-16.6	-15.0	-15.4	-15.8	-16.2	-16.6
Public	67.6	53.7	54.8	55.9	58.7	61.6	53.7	54.8	55.9	58.7	61.6
II. CAPITAL ACCOUNT, NET	9.3	3.4	4.8	6.2	7.7	9.3	3.4	5.1	7.1	9.1	11.6
Public (net)	13.8	7.2	8.3	9.5	11.0	12.6	7.2	8.6	10.4	12.4	14.9
Private (net)	-4.5	-3.8	-3.5	-3.3	-3.3	-3.3	-3.8	-3.5	-3.3	-3.3	-3.3
III. ERRORS AND OMISSIONS	-1.5										
IV. OVERALL BALANCE	-25.8	-21.5	-22.6	-21.5	-18.4	-13.8	-21.5	-16.9	-10.7	-1.0	9.5
FINANCING:											
Net foreign assets	8.0										
Banks											
BCEAO	8.0										
of which: IMF	(6.4)										
Debt Relief	17.8										
MEMORANDUM ITEMS											
Exchange rate (annual average)											
CFA francs per U.S. dollar	420.0	380.0	380	360	380	380	360	380	380	380	360
CFA francs per SDR	432.6	416.0	418	418	418	418	418	418	418	418	418
Trade balance (deficit -)	-6.7%	-2.8%	-2.9%	-2.9%	-2.9%	-2.7%	-2.8%	-2.3%	-1.7%	-1.2%	-0.7%
Current account balance	-4.8%	-3.3%	-3.4%	-3.2%	-2.8%	-2.3%	-3.3%	-2.7%	-2.1%	-1.1%	-0.2%
Overall balance	-3.7%	-2.8%	-2.8%	-2.5%	-2.0%	-1.4%	-2.8%	-2.1%	-1.2%	-0.1%	0.9%

Source: Central Bank (BCEAO)  
and Ministry of Planning

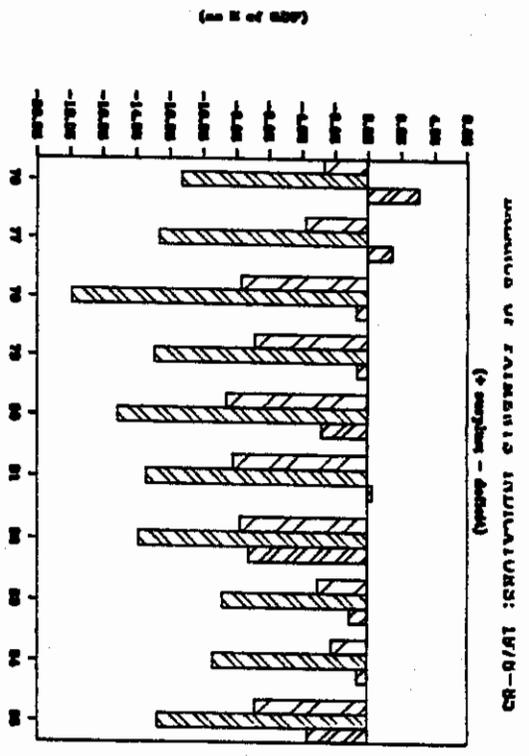


FIGURE 13

INDICATORS OF EXTERNAL TRADE  
(1970 - 1985)

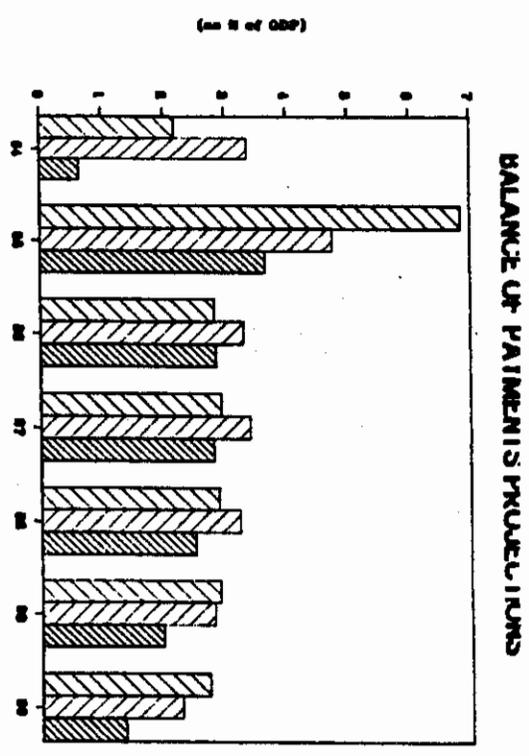
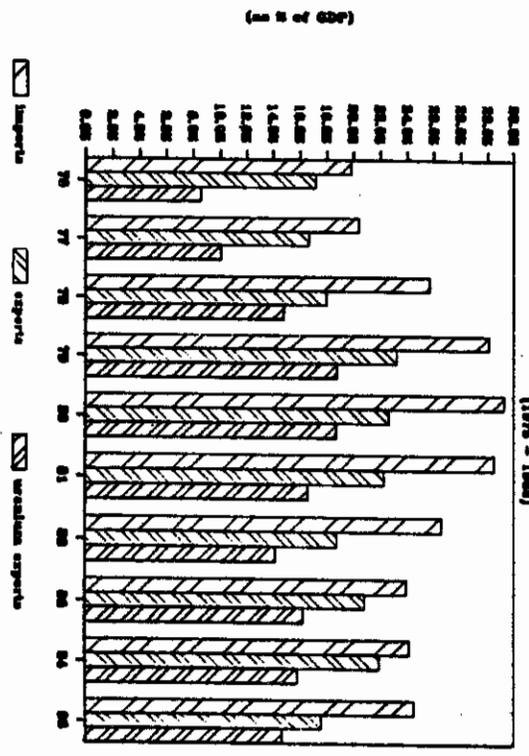
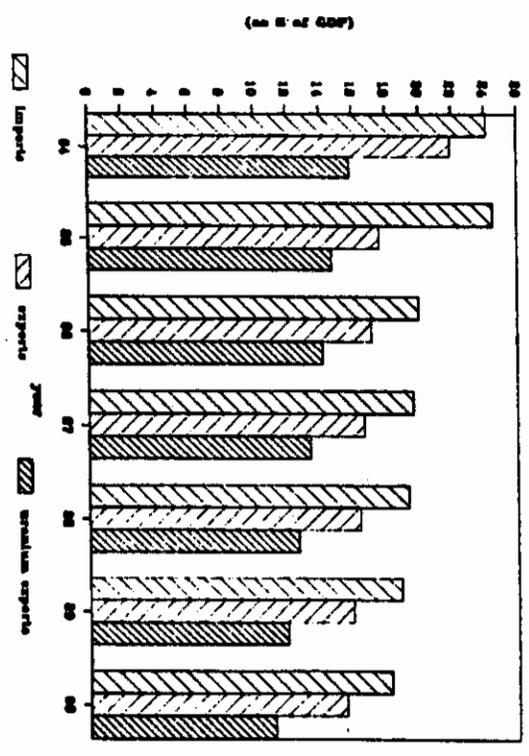


FIGURE 14B

BALANCE OF PAYMENTS PROJECTIONS



Alternative Assumptions for the Balance of Payments Projections

	Average Annual Rate of Change (in percent)		Average Annual Rate of Change (in percent)	
	<u>Scenario A</u>	<u>Scenario B</u>	<u>1975-85</u>	<u>1982-85</u>
Exports	4.7	6.8	14.3	0.9
Imports	5.9	3.9	17.0	0.4
Uranium Price	1.5	5.0	--	--
Net Services	-0.4	-1.1	11.2	1.9
Interest Payments	-11.2	-14.0	--	--
Unilateral Transfers	3.8	3.8	14.1	15.6
Private	2.5	2.5	11.9	-2.5
Official	3.4	3.4	13.7	11.8
Net Capital Flows	25.1	30.7	2.4	8.1
Public	14.0	18.2	12.9	-11.4
Private	-2.8	-3.5	24.0	-33.0

payments deficit of \$36 million and a deficit of \$60 million in the current account.

With a more favorable set of assumptions under Scenario B, the analysis shows a quicker adjustment process with the balance of payments reaching equilibrium in 1989. A modest surplus of \$25 million is projected for 1990. This is quite a contrast from the projections made under Scenario A which actually shows increases in the current account deficit for 1987 and 1988. It is not until 1989/90 that a downward trend is predicted. Under Scenario B, the current account deficit is projected to fall below \$60 million--a level which is predicted for 1990 under Scenario A.

## V. EXTERNAL DEBT: PROBLEM AND PROSPECTS<sup>1/</sup>

### A. Current Situation

Niger's outstanding and disbursed external public debt grew from less than \$100 million at the end of 1975 (less than 12 percent of GDP) to almost \$800 million at the end of 1985 (approximately 47 percent of GDP). Most of the increases in debt took place between 1979 and 1982. Public debt (outstanding and disbursed) tripled from \$200 million to \$600 million during this period. There were also significant increases in private debt, reaching the peak of \$471 million in 1982. Private debt has, however, declined since 1983 to an estimate of approximately \$177 million by the end of 1984. The country's

<sup>1/</sup> For a more detailed discussion and data on Niger's external debt, see K. Toh (1986): Niger's External Debt: Legacy of Uranium-Led Growth Strategy.

total indebtedness, public and private, was estimated at about 54 percent of GDP in 1985. Niger's external debt also includes "non-monetary liabilities" owed to the IMF. The total use of IMF credit facilities is estimated at \$73 million (24 million SDRs from the Compensatory Financing Facility, 47.48 million SDRs from three IMF stand-by arrangements, and \$13.2 million from the Trust Fund).

In addition to the rapid accumulation of external debt, there were also changes in the structure and terms of debt. The share of bilateral loans in Niger's debt declined from 70 percent in the mid-1970s to less than 45 percent in 1985. Multilateral loans have increased in importance and represented 41 percent of the public debt in 1985. The most significant change in the debt composition is the role played by international financial markets. The share of financial market credits went from 4 percent of the total debt in 1976 to almost 32 percent in 1982. Approximately 60 percent of the debt outstanding and disbursed by the end of 1985 was contracted with French financial institutions or guaranteed by France. About 72 percent of the debt owed to London Club creditors (mainly private financial institutions) at the end of 1985 was from French institutions.

Since the early 1980s, the terms of debt have become harder as a result of the change in the structure of debt toward a larger share of credits from financial institutions with shorter maturities. The average level of grant element of public debt declined from almost 80 percent in 1975 to 40 percent in 1983. The average rate of interest from all sources increased from less than 1 percent in 1975 to about 7 percent in 1983. The terms of loans from multilateral sources remain highly concessional, while loans from bilateral sources have become less concessional. The average grant element of loans from the largest bilateral source, France, decreased from 33 percent in 1979 to 19 percent in 1983.

Niger's debt servicing difficulty reached an unmanageable level in 1982, with debt service obligations amounting to 30 percent of export earnings or 50 percent of government revenue. There were also significant arrears, estimated at \$43 million by the end of fiscal 1982. The liquidity shortage and emerging debt crisis led to debt rescheduling through the Paris Club in November 1983 followed by a London Club debt renegotiation in March 1984. The Paris Club debt rescheduling was repeated in 1984 and 1985. The total effect of the 1983 and 1984 debt reliefs on debt service is estimated at between \$104-109 million during 1983-85. They lowered debt service payments by \$52 million and \$40 million in 1984 and 1985 respectively. Table 7 shows the debt service profile for public and publicly guaranteed debt and projections of Niger's debt servicing indicators.

## B. Prospects

Tables A.19 and A.20 together provide a profile of future debt service based on outstanding and disbursed public debt as of the end of 1985 and the assumption of continuing drawdowns of debt already contracted. The levels of future debt service remain as high as the 1982 crisis level for the next three years (above \$100 million and as high as \$122 million in 1987).<sup>1/</sup> Debt service levels are projected to fall in 1990; and by 1993 they are expected to

<sup>1/</sup> The 1986 debt service payments do not take into account the effect of the debt relief obtained in November 1985. The effect of the 1985 debt rescheduling is preliminarily estimated at \$30-35 million.

Table 7

NIGER: Flows of External Public Debt, 1976-1985  
(in millions of U.S. dollars)

Year	Debt Out-standing and Net Disbursed Flows		Debt Service		Net flows of public debt as % of			Debt service as % of			Interest payments as % of			
	Disbursed	Net Flows	Prin- cipal	Inte- rest	Fixed In- vestment	Gov. Ex- penditure	Budget Deficit	Export Earnings	Gov. Revenue	GDP	Export Earnings	Gov. Revenue	GDP	
1975	91.8	23.2	5.8	2.3	2.8	13.5	25.4	....	5.8	7.7	1.0	1.6	2.2	0.3
1976	111.6	20.2	6.7	2.4	2.0	11.1	18.6	....	5.2	7.9	0.9	1.4	2.1	0.2
1977	129.8	22.9	6.1	3.1	1.9	9.6	16.4	....	4.6	6.0	0.8	1.6	2.0	0.3
1978	118.2	65.6	5.5	3.8	4.1	16.3	25.0	107.2	3.2	4.6	0.6	1.3	1.9	0.2
1979	197.2	102.1	6.4	6.8	4.9	19.3	29.3	152.9	2.7	4.7	0.6	1.4	2.4	0.3
1980	262.8	153.9	22.8	16.1	6.1	23.8	30.7	100.1	6.7	11.2	1.5	2.8	4.6	0.6
1981	398.8	254.9	29.3	33.8	11.7	53.3	49.8	108.2	13.0	22.8	2.9	6.9	12.2	1.6
1982	604.7	48.0	66.6	44.5	2.5	13.1	13.3	35.1	30.0	49.5	5.7	12.0	19.8	2.3
1983	629.2	90.6	23.5	40.6	5.1	37.7	29.4	71.0	17.0	35.5	3.6	10.8	22.5	2.3
1984	694.7	84.9	14.8	38.5	6.0	45.5	36.7	118.9	16.3	33.3	3.8	11.8	24.0	2.7
1985	790.3	30.8	18.4	35.6	1.8	12.3	12.8	38.7	18.3	33.4	3.2	12.1	22.0	2.1
( P R O J E C T I O N S )														
1986	824.4	38.7	70.4	44.3	2.0	....	13.9	44.1	33.6	60.0	5.8	13.0	23.2	2.2
1987	841.9	49.2	80.8	41.0	2.3	....	16.8	53.1	34.3	60.9	5.7	11.6	20.5	1.9
1988	830.1	58.7	78.9	36.6	2.6	....	19.2	64.1	31.0	53.9	5.1	9.8	17.1	1.6
1989	756.8	-30.2	73.2	31.4	-1.2	....	....	....	26.6	46.9	4.3	8.0	14.1	1.3
1990	688.3	-28.4	68.4	25.7	-1.1	....	....	....	22.6	40.6	3.5	6.2	11.1	1.0
1991	629.0	....	59.5	20.7	....	....	....	....	....	....	....	....	....	....
1992	566.9	....	62.2	16.4	....	....	....	....	....	....	....	....	....	....
1993	515.3	....	51.6	12.4	....	....	....	....	....	....	....	....	....	....
1994	468.9	....	45.5	9.7	....	....	....	....	....	....	....	....	....	....

Export earnings include exports of goods and nonfactor services.

Source: USAID/Niger's calculations based on data from Ministry of Finance, the World Bank, and the IMF.

FIGURE 15

**DEBT SERVICING INDICATORS, 1979-1990**  
(principal and interest payments)

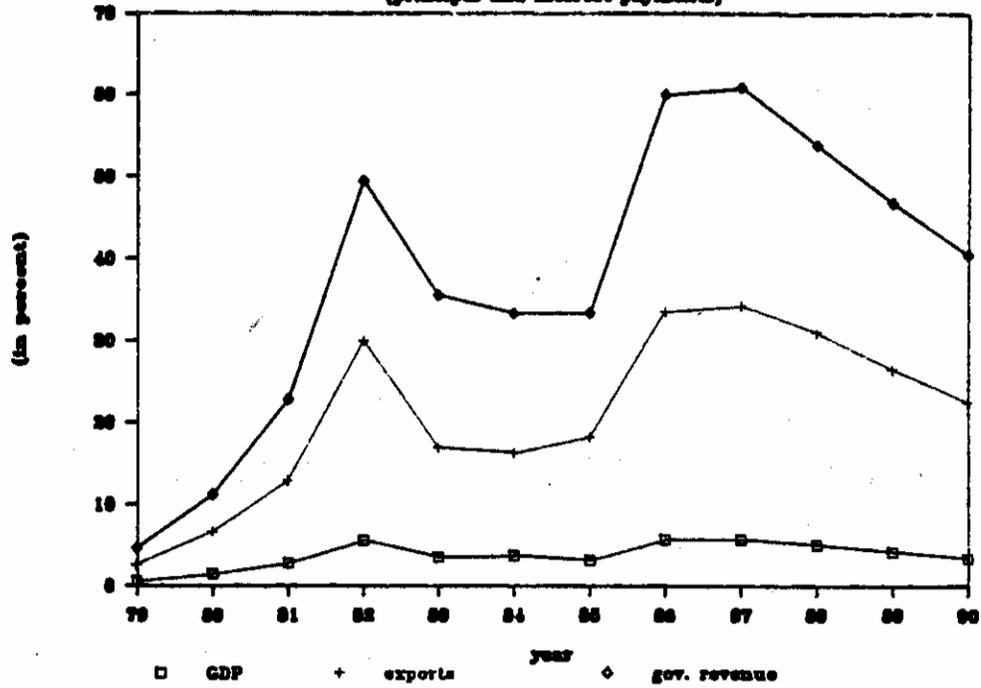
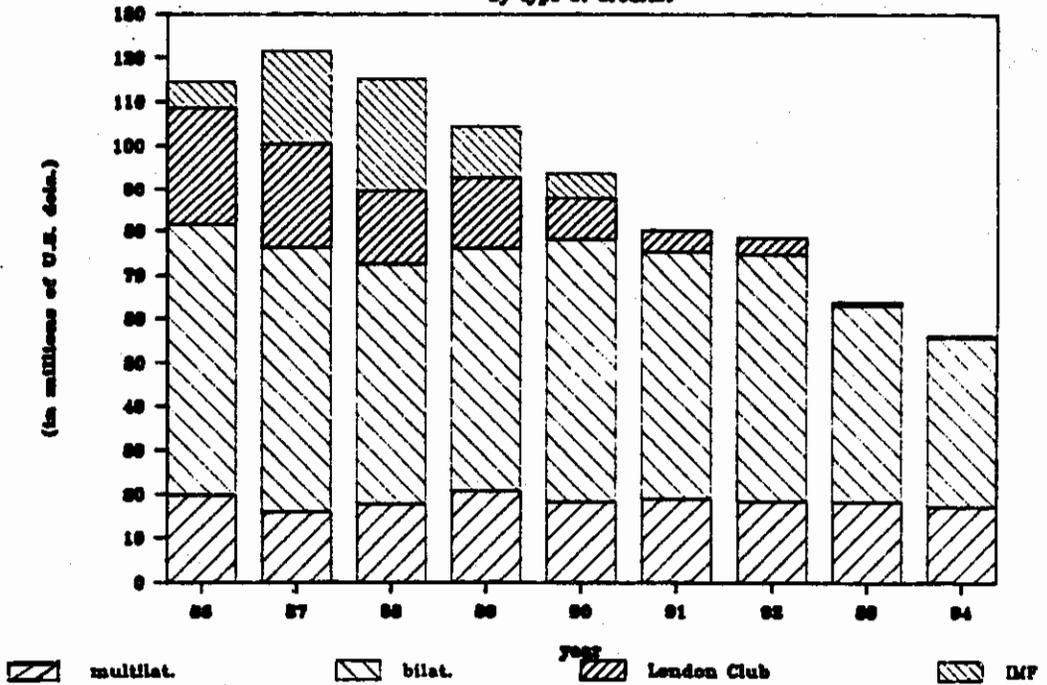


FIGURE 16

**FUTURE DEBT SERVICE, 1986 - 1994**  
by type of creditor



be at the 1985 level. Between one-fourth and one-third of the debt service payments from 1989 onward is accounted for by debt previously rescheduled.

Debt service payments to Paris Club creditors will account for 40 percent of total debt service during the period of 1978 to 1989. Its share will go up to more than 50 percent from 1990 onward as the previously rescheduled debt becomes due. The share of debt service payments to other bilateral creditors not participating in the Paris Club (mostly Arab countries) will increase in the future, from 7 percent in 1978 to 17 percent in 1992, and will continue to rise to more than 20 percent by 1994, approximately \$20 million and \$10 million in 1983 and 1984 respectively (less than 1 percent of GDP).

Debt service payments to multilateral lending sources will account for approximately one-third of total debt service payments during the 1987-89 period. Repurchases and charges for the use of the IMF resources will also represent a sizeable portion (11-22 percent) of debt service payments during this period. If the use of the IMF resources continue in the near future at the average of previous stand-by levels (\$16 million), the net resource flows from the IMF will be negative for 1987 and 1988 at the present repurchase schedule.

The prospects for Niger to service its scheduled debt obligations are poor, Niger's debt servicing capacity is very limited because its exports are concentrated in one commodity whose prospects for recovery during the next five years are not good. There are also limited opportunities for increasing government revenue, even with the fiscal reform already adopted in 1984 and 1985 and the institution of a value added tax system in January 1986. The ratio of debt service to exports, in the absence of debt rescheduling, remains high (about 31-34 percent) relative to the country's debt servicing capacity over the next three years. Debt rescheduling is almost inevitable if Niger is to maintain international credit-worthiness, at least for the next three years.

## VI. MACROECONOMIC CONSTRAINTS AND IMPLICATIONS FOR A.I.D. DEVELOPMENT STRATEGY

The above analysis suggests four major macroeconomic constraints. These constraints are:

- a high level of debt service obligations relative to the country's debt servicing capacity;
- a weak economic management and public administration together with an excessive demand on public sector resources, particularly from a number of public enterprises;
- a concentration of foreign exchange earnings in one commodity export, which is highly susceptible to international commodity boom and bust and uncertainty of the nuclear energy industry;
- a limited possibility for increasing resource mobilization, both from the public and private sectors;

The debt servicing and economic management constraints require immediate attention. It is near certain that Niger will have to restructure its debt during the next two to three years. While debt rescheduling has its limitations, it does provide a short-term solution to the liquidity problem and

allow the country to pursue more smoothly its adjustment effort and at the same time avoid a confidence crisis both internally and externally. But in order to obtain the needed debt relief, there must exist an appropriate macroeconomic policy framework. Niger has made substantial progress in addressing these two constraints during the last two years and it is continuing to do so. The economic and financial stabilization objective has been achieved mainly with the IMF stand-by arrangements and the debt relief which followed them.

A.I.D.'s contributions to the stabilization objective is through an agricultural reform program and the resources which accompanied the reform effort. In addition to helping the Nigerien Government implement necessary policy changes and in rethinking agricultural policy directions during the past two years, A.I.D.'s assistance has provided resources for the sector while the macroeconomic adjustment process proceeds. Through the A.I.D. Agriculture Sector Development Grant, Niger has been able to continue a number of development activities under an austere climate of budgetary restraints imposed by the macroeconomic situation.

However, demand management alone will not be sufficient to improve economic management and address the protracted payments imbalances and the resource mobilization constraint; some structural changes in the economy will also be required. Three priority areas for structural changes were identified: (1) public resource management, (2) reform of state-owned enterprises, and (3) agricultural policy changes and re-orientation of this sector's investment toward an expanded opportunity for increasing rural income and wealth. The World Bank will be the lead donor agency in addressing these constraints through its recently concluded SAC program. The adopted privatization policy and reform of state-owned enterprises together with technical assistance provided by the World Bank and the IMF in the areas of fiscal and debt management are positive steps in addressing the economic management constraint at the macro-level.

The opportunities for export diversification and increased resource mobilization are limited and any attempts to address these constraints must be considered with a long-term perspective. Uranium exports will continue to be the most important source of export earnings, followed by livestock and other agricultural products (mainly cowpeas, onions, and some vegetables). As a long-term strategy for lowering the country's dependence on uranium as a source for economic growth and development finance, it would be necessary to promote export growth in agriculture and livestock. A re-orientation of investment toward the development of agriculture and livestock, to bring about export diversification and viable import substitution in foodstuffs, is desirable.

As a prerequisite for export diversification, the food self-sufficiency goal in agriculture has to be interpreted more broadly. Food self-sufficiency is a goal that grew out of the drought experience. If it is interpreted narrowly, it implies that a country should be totally independent with respect to food production. In reality, however, there are various means of achieving self-sufficiency which does not imply local production of total cereal consumption need. In terms of economic efficiency and growth opportunities, it is more appropriate to aim for a dynamic agricultural sector with maximum overall production from a combination of agricultural commodities. These commodities may be sold internally or they may serve as a source of foreign exchange earnings. A dynamic agricultural sector would also generate marketable surplus, a necessary condition for any sustainable increased participation from the private sector or cooperatives.

With an economy dominated by subsistence agriculture and a large informal sector, the opportunities for expanding the country's tax base and resource mobilization from the private sector are limited. Despite a strong effort by the Nigerien Government to strengthen its tax administration and introduction of new fiscal measures, recent experience indicates that any increases in government revenue in the near future will be modest. The resource mobilization effect of the new policy direction toward privatization remains to be seen. In order to increase resource mobilization from the rural sector, an agricultural productivity increase is essential for the generation of surplus to allow the transformation of the subsistence economy to a more market-oriented economy in which private sector can play a bigger role.

As an overall strategy for addressing Niger's short and medium-term financial constraint imposed by the debt service obligations and the management constraint, A.I.D. assistance will focus on supporting policies which are conducive to structural changes in the priority areas mentioned above. Niger's present macroeconomic policy environment is generally sound and, to most observers, it is one of a few sub-Saharan African countries where serious and sustainable policy dialogue has been productive as evidenced by USAID's existing Agriculture Sector Development Grant. With an acceptable macroeconomic policy framework, A.I.D.'s efforts will be concentrated in addressing sectoral policies and adjustments with the objectives of better public resource management and increased efficient use of resources in the chosen sectors, as well as expanding opportunity for resource mobilization from the private sector. Improved public resource management and more efficient use of resources implies restructuring spending in the current budget and better investment planning and choice of projects. Increased opportunity for more resource mobilization from the private sector means less government regulations and controls, and a better economic incentive system.

USAID has chosen two important sectors under the policy-cum-structural change strategy: agriculture/rural sector and health/population sector. The agricultural/rural sector is chosen because of its importance both in terms of potential future growth and because a majority of the country's population depends on agricultural production. The health/population sector is chosen because good health is an important part of human capital accumulation, an essential component for long-term growth and development. Good health is a prerequisite for other economically productive activities. Sound population policy has important policy implications on the demand for the country's limited future resources and on Niger's fragile natural environment.

Policy and structural adjustment also require institutions which can implement the reform measures as well as monitor and evaluate the effects of such reform. Developing policy analytic capacity is also important for future policy formulation and modifications if necessary. It will also contribute to better resource planning and management. The lack of policy analytic capacity may have contributed to some of the delays in adjustments in the past. Strengthening institutions in the agricultural and health/population sectors in the areas of policy analysis and resource planning and management will be an important part of the policy-cum-structural change strategy.

The emphasis on policy factors across the sector suggests that a more appropriate and efficient A.I.D. assistance modality be in the form of non-project sector assistance. Resources from sector assistance will be programmed for support of reform and policy-related institutional strengthening

objectives. The local currency from sector assistance will be used for conditional support of Niger's development budget in the chosen sector. USAID's conditional support of local currency in the development budget could also provide opportunities to assist the Nigerien Government in rationalizing and restructuring public investment priority in the sector. USAID's experience under the Agriculture Sector Development Grant indicates that such a non-project sector assistance approach is an effective delivery mechanism of A.I.D. assistance, and is appropriate for Niger under present macroeconomic and financial constraints.

Beyond the above broad strategy to address the short- and medium-term macroeconomic constraints, there are also long-term obstacles to economic growth at various sectoral levels. The most important of these relate to: (1) low productivity in agriculture due to a poor resource base and a lack of effective technologies; (2) growing population pressure on Niger's fragile resource base; and (3) limited employment opportunity.

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STATISTICAL APPENDIX

TABLE A.1

NIGER: SUPPLY AND USE OF RESOURCES AT CURRENT MARKET PRICES, 1976-1985  
(in billions of CFA francs)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
SUPPLY OF RESOURCES:	239.9	308.6	374.9	483.3	602.8	733.6	807.9	849.7	869.3	794.9	911.1
Gross domestic product	180.4	237.9	288.8	359.1	443.2	536.2	589.9	642.7	674.6	615.4	705.1
Imports of goods and nonfactor services	59.5	70.7	86.1	124.2	159.6	197.4	218.0	207.0	194.7	179.5	206.0
USE OF RESOURCES:	247.8	321.6	382.3	493.2	611.5	740.4	807.4	796.5	816.7	794.4	933.4
Consumption	186.0	226.9	268.8	332.8	393.1	489.7	606.4	590.3	631.6	682.1	744.8
Private	162.3	198.8	237.7	298.7	352.1	435.7	541.9	579.4	639.6	639.7	665.0
Public	23.7	28.1	31.1	34.1	41.0	54.0	64.5	71.0	77.2	79.3	89.0
Gross fixed capital formation	36.7	43.6	65.8	90.7	112.8	136.7	130.0	120.5	91.2	81.6	105.4
Private	20.9	28.5	42.1	66.3	80.5	89.5	65.0	56.4	46.6	38.7	47.9
Public	15.8	15.1	23.7	24.4	32.3	47.2	65.0	64.1	44.6	42.9	57.5
Changes in stocks	6.3	19.1	17.7	22.9	28.2	32.4	-6.0	18.2	-14.0	-73.4	6.7
Exports of goods and nonfactor services	34.6	47.1	53.7	71.2	109.7	128.8	142.0	131.6	152.5	147.0	134.0
RESOURCE GAP (deficit -)*	-24.9	-23.6	-32.4	-53.0	-49.9	-68.6	-76.0	-75.4	-42.2	-32.5	-72.0
Resource gap as % of GDP	-13.8	-9.9	-11.2	-14.8	-11.3	-12.8	-12.9	-11.7	-6.3	-5.3	-10.2
Gross fixed capital formation as percentage of GDP	20.3	18.3	22.8	25.3	25.5	25.5	22.0	18.7	13.5	13.3	14.9

\*Resource gap is the difference between exports and imports of goods and nonfactor services.

TABLE A.2

NIGER: GROSS DOMESTIC PRODUCT AT CURRENT MARKET PRICES, 1976-1985  
(in billions of CFA francs)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Rural Sector	88.6	121.4	145.7	166.1	188.7	228.1	269.3	299.5	311.5	268.2	332
Agriculture		64.5	78.1	87.3	96.5	120.8	145.0	156.6	159.7	153.1	207
Livestock		42.4	52.5	61.4	72.2	89.0	104.1	120.8	128.0	92.7	100
Forestry & Fishing		12.5	15.1	17.4	20.0	18.4	20.2	22.1	23.8	22.4	24
Mining	10.6	10.6	17.2	37.0	63.1	67.4	52.0	49.8	55.5	53.6	59
Industry and Energy	14.7	15.5	16.2	16.4	19.4	22.2	27.0	32.4	36.9	35.7	38
Construction & Public Works	5.1	6.8	10.2	17.1	24.6	32.1	26.6	24.8	23.9	19.2	23
Commerce, Transport, & Services	39.5	54.6	66.9	84.1	103.2	125.5	147.6	159.1	169.0	161.9	171
Commerce		29.7	33.6	40.7	51.1	62.1	69.1	72.0	78.2	75.6	79
Transport		8.7	10.4	14.6	18.0	22.6	24.3	28.5	28.3	26.9	30
Services		16.2	22.9	28.8	34.1	40.8	54.2	58.6	62.5	59.4	61
Government	16.0	18.8	20.9	22.8	25.1	33.8	39.6	45.8	49.8	52.8	54
GDP at factor cost	173.5	227.7	277.1	343.5	424.1	509.1	562.1	611.4	646.6	591.4	680
Import Taxes & Duties	6.9	10.2	11.7	15.6	19.1	27.1	27.8	31.3	28.0	24.0	25
GDP at current market prices	180.4	237.9	288.8	359.1	443.2	536.2	589.9	642.7	674.6	615.4	705
Modern sector	130.8	170.7	203.3	246.6	285.4	345.8	404.0	449.6	474.4	433.7	497
Traditional sector	49.6	67.2	85.5	112.5	157.8	190.4	185.9	193.1	200.2	191.7	211
Implicit GDP deflator (1976=100)	96.0	100.0	115.4	133.9	144.1	164.0	182.1	199.9	215.5	234.3	251
GDP at constant 1976 prices	209.8	237.9	250.3	268.2	307.6	327.0	323.9	321.4	313.0	262.7	286
Annual rate of growth of GDP		13.4	5.2	7.2	14.7	6.3	-0.9	-0.8	-2.6	-16.1	6
Annual rate of growth of GDP deflator		16.3	15.4	16.0	7.6	13.8	11.0	9.8	7.8	8.7	7

Sources: MINISTRY OF PLANNING

TABLE A.3

NIGER: GROSS DOMESTIC PRODUCT AT CURRENT MARKET PRICES, 1976-1985  
(ANNUAL PERCENTAGE CHANGE)

	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85
Rural Sector	37.0	20.0	14.0	13.6	20.9	18.1	11.2	4.0	-13.9	23.8
Agriculture		21.1	11.8	10.5	25.2	20.0	9.0	2.0	-4.1	35.5
Livestock		23.8	17.0	17.6	23.3	17.0	16.0	6.0	-27.6	7.9
Forestry & Fishing		20.8	15.2	14.9	-8.0	9.8	9.4	7.7	-5.9	9.8
Mining	0.0	62.3	115.1	70.5	6.8	-22.8	-4.2	11.4	-3.4	10.6
Industry and Energy	5.4	4.5	1.2	18.3	14.4	21.6	20.0	13.9	-3.3	7.8
Construction & Public Works	33.3	50.0	67.6	43.9	30.5	-17.1	-6.8	-3.6	-19.7	23.4
Commerce, Transport, & Services	41.8	22.5	25.7	22.7	21.6	17.6	7.8	6.2	-4.2	6.0
Commerce		13.1	21.1	25.6	21.5	11.3	4.2	8.6	-3.3	5.0
Transport		19.5	40.4	23.3	25.6	7.5	17.3	-0.7	-4.9	13.4
Services		41.4	25.8	18.4	19.6	32.8	8.1	6.7	-5.0	3.9
Government	17.5	11.2	9.1	10.1	34.7	17.2	15.7	8.7	6.0	4.0
GDP at factor cost	31.2	21.7	24.0	23.5	20.0	10.4	8.8	5.8	-8.5	15.0
Import Taxes & Duties	47.8	14.7	33.3	22.4	41.9	2.6	12.6	-10.5	-14.3	4.2
GDP at current market prices	31.9	21.4	24.3	23.4	21.0	10.0	9.0	5.0	-8.8	14.6
Modern sector	30.5	19.1	21.3	15.7	21.2	16.8	11.3	5.5	-10.7	16.5
Traditional sector	35.5	27.2	31.6	40.3	20.7	-2.4	3.9	3.7	-4.2	10.3
Implicit GDP deflator (1976=100)	16.3	15.4	16.0	7.6	13.8	11.0	9.9	7.8	8.7	7.5
GDP at constant 1976 prices	13.4	5.2	7.2	14.7	6.3	-0.9	-0.8	-2.6	-16.1	6.6

TABLE A.4

NIGER: STRUCTURE OF PRODUCTION, 1975-1985  
(in percent)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Rural Sector	49.1	51.0	50.5	46.3	42.6	42.5	45.7	46.6	46.2	43.6	47.1
Agriculture		27.1	27.0	24.3	21.8	22.5	24.6	24.4	23.7	24.9	29.4
Livestock		17.8	18.2	17.1	16.3	16.6	17.6	18.8	19.0	15.1	14.2
Forestry & Fishing		5.3	5.2	4.8	4.5	3.4	3.4	3.4	3.5	3.6	3.5
Mining	5.9	4.5	6.0	10.3	14.2	12.6	8.8	7.7	8.2	8.7	8.4
Industry and Energy	8.1	5.5	5.6	4.6	4.4	4.1	4.6	5.0	5.5	5.8	5.5
Construction & Public Works	2.8	2.9	3.5	4.8	5.6	6.0	4.5	3.9	3.5	3.1	3.4
Commerce, Transport, & Services	21.3	23.0	23.2	23.4	23.3	23.4	25.0	24.8	25.1	26.3	24.3
Commerce		12.5	11.6	11.3	11.5	11.6	11.7	11.2	11.6	12.3	11.3
Transport		3.7	3.6	4.1	4.1	4.2	4.1	4.4	4.2	4.4	4.3
Services		6.8	7.9	8.0	7.7	7.6	9.2	9.1	9.3	9.7	8.8
Government	8.9	7.9	7.2	6.3	5.7	6.3	6.7	7.1	7.4	8.6	7.8
GDP at factor cost	96.2	95.7	95.9	95.7	95.7	94.9	95.3	95.1	95.8	96.1	96.5
Import Taxes & Duties	3.8	4.3	4.1	4.3	4.3	5.1	4.7	4.9	4.2	3.9	3.5
GDP at current market prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Modern sector	72.5	71.8	70.4	68.7	64.4	64.5	68.5	70.0	70.3	69.8	70.0
Traditional sector	27.5	28.2	29.6	31.3	35.6	35.5	31.5	30.0	29.7	31.2	30.0

Source: TABLE 2

TABLE A.5

NIGER: INDICES OF PRODUCTION, YIELD, AND OFFICIAL PRODUCER PRICES  
OF PRINCIPAL AGRICULTURAL CROPS, 1976-1985  
(1976 = 100)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
<b>Millet:</b>									
Production	100.0	110.9	110.2	123.2	133.9	128.9	126.9	130.0	76.4
Average Yield	100.0	102.7	101.4	106.5	110.1	107.3	104.0	104.8	63.8
Official Producer Price	100.0	120.0	160.0	160.0	160.0	280.0	320.0	320.0	400.0
<b>Sorghum:</b>									
Production	100.0	117.1	129.3	122.3	128.2	112.2	124.4	126.1	83.6
Average Yield	100.0	98.4	99.4	104.9	102.7	70.3	67.3	69.6	46.8
Official Producer Price	100.0	125.0	175.0	175.0	175.0	250.0	350.0	350.0	500.0
<b>Rice:</b>									
Production	100.0	93.1	110.3	82.8	106.9	137.9	141.4	148.3	175.9
Average Yield	n.a.								
Official Producer Price	100.0	100.0	115.4	115.4	141.0	179.5	217.9	217.9	217.9
<b>Cowpeas:</b>									
Production	100.0	94.5	124.2	138.8	121.5	121.9	124.2	122.8	89.0
Average Yield	100.0	109.0	109.2	123.1	92.0	83.9	75.8	66.1	49.6
Official Producer Price	100.0	100.0	150.0	150.0	150.0	0.0	283.3	300.0	400.0
<b>Groundnuts:</b>									
Production	100.0	103.8	126.6	112.7	159.5	129.1	111.4	93.7	39.2
Average Yield	100.0	97.8	98.9	127.4	137.7	101.3	96.1	96.6	45.0
Official Producer Price	100.0	112.5	125.0	125.0	125.0	125.0	225.0	225.0	250.0
<b>Cotton:</b>									
Production	100.0	53.4	61.6	42.5	39.7	24.7	27.4	54.8	89.0
Average Yield	100.0	50.1	72.0	36.7	33.7	16.5	13.1	30.3	34.1
Official Producer Price	100.0	117.0	131.9	131.9	131.9	170.2	255.3	255.3	255.3

Source: USAID/Niger's calculations based on data from Min. of Agriculture,  
Min. of Commerce, and Min. of Planning.

TABLE A.6

NIGER: INDICES OF HERD SIZE, 1976-1984  
(1976 = 100)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Cattle	100.0	111.0	116.8	121.9	125.6	128.0	130.6	131.8	66.0
Sheep	100.0	112.1	116.4	121.5	126.3	135.4	140.8	146.5	n.a.
Goats	100.0	110.0	112.7	115.6	118.4	119.7	122.7	125.8	n.a.
Camels	100.0	129.7	132.5	135.3	138.2	141.0	143.8	146.6	121.6
Other	100.0	119.0	121.4	123.6	126.1	128.7	130.9	133.3	101.9

NIGER: RATES OF GROWTH OF HERD SIZE, 1976-1984  
(in percent)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Cattle		11.0	5.2	4.4	3.0	1.9	2.0	1.0	-50.0
Sheep		12.1	3.8	4.4	4.0	7.2	4.0	4.0	
Goats		10.0	2.4	2.6	2.5	1.1	2.5	2.5	
Camels		29.7	2.2	2.1	2.1	2.0	2.0	2.0	-17.1
Other		19.0	2.0	1.8	2.1	2.0	1.7	1.8	-23.6

Source: USAID/Niger's calculations based data from Min. of Planning.

TABLE A.7

## NIGER: URANIUM PRODUCTION AND EXPORTS, 1975 - 1985

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Production (in tons)	1306	1460	1441	2061	3615	4132	4360	4250	3400	3274	3390
Exports:											
Quantity (in tons)	1548	1498	1463	2216	3421	4255	4686	3800	4000	3300	3500
Value (in billions of CFAF)	11.9	20.5	29.2	53.4	83.6	100.8	98.0	91.5	110.0	97.7	104.0
End-of-year stock (in tons)	....	....	271	296	603	777	173	598	511	5	...
Price (CFA francs/kg.)											
Minegate	10000	14000	20000	23500	24500	24500	20000	24000	27500	29250	29500
Unit value of exports	7687	13685	19959	24097	24437	23690	20913	24079	27500	29606	29714
Uranium exports as % of total merchandise exports	40.1	50.0	60.5	82.3	81.0	82.8	74.4	75.6	77.9	72.2	83.5
Uranium exports as % of GDP	6.6	8.6	10.1	14.9	18.9	18.8	16.6	14.2	16.3	15.9	14.7
Uranium receipts as % of domestic revenue	....	....	17.9	19.7	21.0	14.9	14.0	8.6	9.2	9.0	9.3

Source: USAID/Niger's calculations based on data from Min. of Planning.

TABLE A.8

NIGER: INDUSTRIAL OUTPUT, VALUE ADDED, AND TURNOVER, 1978 - 1984  
(in millions of constant 1978 CFA francs)

	1978	1979	1980	1981	1982	1983	1984
Output	7780	11566	10313	12587	12464	16312	27726
Value added	2908	4825	4577	5202	5294	5482	8136
Turnover	9658	15755	14411	16117	16149	15860	26200
Investment	1080	2066	3535	2182	2029	2658	1322
Rate of growth							
Output		48.7	-10.8	22.0	-1.0	30.9	70.0
Value added		65.9	-5.1	13.7	1.8	3.6	48.4
Turnover		63.1	-8.5	11.8	0.2	-1.8	65.2
Investment		91.3	71.1	-38.3	-7.0	31.0	-50.3

NIGER: INDICES OF INDUSTRIAL OUTPUT, VALUE ADDED, AND TURNOVER, 1978 - 1984

	1978	1979	1980	1981	1982	1983	1984
Output	75.4	112.1	100.0	122.0	120.9	158.2	268.8
Value added	63.5	105.4	100.0	113.7	115.7	119.8	177.8
Turnover	67.0	109.3	100.0	111.8	112.1	110.1	181.8
Investment	30.6	58.4	100.0	61.7	57.4	75.2	37.4

TABLE A.9

NIGER: CAPACITY UTILIZATION OF SELECTED INDUSTRIES, 1975 - 1984  
(in percent)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Vegetable oil	50.8	21.6	11.4	22.9	...	1.8	1.2	2.1	3.4	1.2
Flour	20.0	60.0	17.5	37.5	33.3	9.1	27.3	3.0	...	...
Rice processing	21.0	60.0	54.0	23.0	73.0	31.5	28.5	25.5	28.0	37.0
Cotton ginning	39.5	55.5	35.5	...	26.7	20.0	17.0	10.9	11.5	20.0
Cement	33.6	70.4	71.6	81.6	84.8	100.0	91.0	36.8	76.0	63.0
Erickmaking	100.0	89.3	90.0	89.3	54.8	54.8	54.8	12.7	21.5	2.5
Textile	94.0	90.0	57.0	...	100.0	84.9	100.0	100.0	95.4	84.3
Tannery	56.9	52.2	...	...	59.0	86.3	71.0	68.6	87.2	100.0

Source: USAID/Niger's calculations based on data from Min. of Planning.

TABLE A.10

NIGER: CENTRAL GOVERNMENT FINANCE, 1978 - 1985  
(in billions of CFA francs)

	1978	1979	1980	1981	1982	1983	1984	1985
I. TOTAL REVENUE	45.8	59.9	73.3	75.2	73.8	68.8	70.0	68.0
of which uranium-related	(12.2)	(12.7)	(11.2)	(10.8)	(7.0)	(5.5)	(5.6)	(6.0)
Tax revenue	38.8	51.1	65.2	64.1	65.9	62.6	61.1	60.7
Nontax revenue	6.9	8.8	8.1	11.1	7.9	6.2	8.9	7.3
II. TOTAL EXPENDITURE	59.2	74.1	105.8	139.2	118.8	117.4	101.2	101.4
Current expenditure	31.5	37.7	45.8	50.8	57.2	55.4	65.2	70.4
Interest payments	4.2	3.6	4.5	6.5	7.1	9.2	13.6	17.1
Wages and salaries	10.8	13.5	16.8	18.9	20.3	22.2	23.1	25.3
Materials, transp. & housing	8.7	12.0	13.8	13.6	19.1	13.8	15.6	16.4
Subsidies and transfers	7.9	8.6	10.7	11.8	10.7	10.2	12.9	11.6
Development expenditure	27.7	36.4	46.0	70.2	37.9	58.7	32.4	30.0
Budget--FMI	14.1	17.6	23.9	26.7	11.7	9.5	5.9	5.0
Extrabudgetary	13.6	18.8	22.1	43.3	26.2	49.2	26.5	25.0
Other expenditure			14.0	18.2	23.7	3.3	3.6	1.0
III. BUDGET DEFICIT (I-II) (commitment basis)	-13.5	-14.2	-32.5	-64.0	-45.0	-48.6	-31.2	-33.4
IV. CHANGE IN ARREARS (- decrease)		1.9	2.7	2.8	14.4	-1.7	-12.4	-4.1
V. OTHER ADJUSTMENTS						1.9	0.9	
VI. BUDGET DEFICIT (III+IV+V) (cash basis)	-13.5	-12.4	-29.8	-61.2	-30.6	-46.4	-42.7	-37.5
DEFICIT FINANCING:		12.4	29.8	61.2	30.6	46.4	42.7	37.5
External financing		13.8	18.2	40.4	20.2	42.3	18.6	10.5
Drawings		14.3	22.1	43.3	26.2	49.9	32.9	30.0
Repayments		-0.5	-3.9	-2.9	-6.0	-7.6	-14.3	-19.5
Domestic financing		-1.4	11.6	20.8	10.4	6.1	8.2	10.0
Banking system		-2.0	5.1	11.3	5.9	1.7	5.3	9.0
Other--nonbanking system		0.6	6.5	9.5	4.5	4.4	2.9	1.0
Debt relief							15.5	17.0
FINANCING GAP								

Source: MINISTRY OF FINANCE and MINISTRY OF PLANNING

TABLE A.11

NIGER: FUNCTIONAL CLASSIFICATION OF CURRENT EXPENDITURE  
FISCAL 1980-1986

	1980	1981	1982	1983	1984	Budgeted		Average	Average
						1985	1986	annual rate of change	annual rate of change
								1980-84	1980-86
(in millions of CFA francs)									
Agriculture	2,656	2,672	2,968	3,163	3,564	2,393	2,317	7.4%	-2.3%
Mining	657	705	632	486	473	213	191	-8.2%	-20.6%
Roads	1,247	1,635	1,506	1,446	1,448	1,470	1,336	3.7%	1.1%
Transport and Communication	1,070	1,071	1,115	1,124	1,555	1,569	1,680	9.3%	7.5%
National Defense	3,219	3,631	3,792	4,203	4,428	4,711	4,956	8.0%	7.2%
Education	11,409	11,652	14,316	15,078	16,039	13,446	13,548	8.5%	2.9%
Health	3,143	3,386	3,625	4,018	4,290	4,833	5,077	7.8%	8.0%
Other Social Services	551	571	576	652	669	772	781	4.9%	5.8%
General Public Services	13,086	13,020	13,106	12,985	13,402	13,396	14,128	0.6%	1.3%
Other Unallocable Expenditures	8,758	12,407	15,639	12,286	19,332	27,597	27,387	19.8%	19.0%
of which: interest payments	(4,545)	(6,500)	(7,097)	(9,240)	(13,600)	(17,100)	(16,300)	27.0%	
Total Current Expenditure	45,796	50,750	57,275	55,441	65,200	70,400	71,400	8.8%	7.4%
(as % of total current expenditure)									
Agriculture	5.80	5.27	5.18	5.71	5.47	3.40	3.25		
Mining and Industries	1.43	1.39	1.10	0.88	0.73	0.30	0.27		
Roads	2.72	3.22	2.63	2.61	2.22	2.09	1.87		
Transport and Communication	2.34	2.11	1.95	2.03	2.38	2.23	2.35		
National Defense	7.03	7.15	6.62	7.58	6.79	6.69	6.94		
Education	24.91	22.96	25.00	27.20	24.60	19.10	18.97		
Health	6.86	6.67	6.33	7.25	6.58	6.87	7.11		
Other Social Services	1.20	1.13	1.01	1.18	1.03	1.10	1.09		
General Public Services	28.57	25.66	22.88	23.42	20.56	19.03	19.79		
Other Unallocable Expenditures	19.12	24.45	27.31	22.16	29.65	39.20	38.36		
of which: interest payments	(9.92)	(12.81)	(12.39)	(16.67)	(20.86)	6.46	6.37		
Total Current Expenditure	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Source: IMF, Ministry of Finance, and USAID/Niger's estimates

Table A.12

NIGER: FUNCTIONAL CLASSIFICATION OF BUDGETARY CAPITAL EXPENDITURE  
FISCAL 1980-1986

	1980	1981	1982	1983	1984	Average annual rate of change 1980-84
(in millions of CFA francs)						
Agriculture	2,711	2,553	1,752	486	602	-37.6%
Mining and Industries	2,503	2,006	227	406	408	-45.3%
Water and Electricity	1398	1685	822	1026	275	-40.7%
Roads	1,238	1,934	516	1,436	1,361	5.8%
Other Economic Services	3,378	3,971	1,105	626	219	-68.4%
National Defense	815	679	422	82		

NIGER: CENTRAL GOVERNMENT REVENUE  
(in millions of CFA francs)

	1977	1978	1979	1980	1981	1982	1983	Prel. Estimates		Av. annual
								1984	1985	rate of change 1980-84
<b>1. TAX REVENUE</b>	30,307	38,810	51,070	65,230	64,134	65,863	62,575	61,453	60,590	-1.5%
1. Income and Profit Taxes	10,458	12,592	17,267	18,402	15,478	13,898	14,295	14,184	13,720	-6.5%
Industrial & commercial (of which: mining)	6,266 (4900)	8,358 (7422)	12,722 (8311)	12,758 (3959)	10,009 (1813)	7,994 (230)	7,434 ....	6,676 ....	....	-16.2%
Professional income	6	13	16	20	24	48	57	69	....	31.0%
Wages & salaries	1,305	1,538	2,109	2,687	3,044	3,191	3,434	3,708	....	8.1%
Property income	1,397	1,614	1,734	1,313	1,036	857	990	1,164	....	-3.0%
General income*	1,484	1,069	686	1,624	1,365	1,808	2,380	2,567	....	11.4%
2. Payroll Tax (Employers)	50	88	72	119	141	109	149	199	300	12.9%
3. Property Taxes	1,025	993	1,506	2,326	2,491	1,431	1,384	1,346	1,350	-13.7%
4. Taxes on Goods and Services	6,885	9,638	12,779	16,615	16,954	18,147	19,953	20,631	20,420	5.4%
Turnover taxes	3,384	5,900	7,198	9,405	9,892	10,810	10,581	10,167	10,000	1.9%
Excise taxes (of which: mining)	3,145 (1511)	3,279 (1259)	5,107 (3165)	6,748 (4477)	6,517 (4130)	6,744 (4094)	8,729 (4525)	9,808 (4525)	10,450 ....	9.3%
Other	356	459	474	462	545	593	643	656	656	8.8%
5. International Trade Taxes	11,889	15,499	19,446	27,768	29,070	32,278	26,794	25,093	24,800	-2.5%
Import duties	9,972	13,325	16,900	24,360	24,881	28,126	21,904	20,233	20,000	-3.7%
Export duties (of which: mining)	1,680 (283)	1,945 (288)	2,299 (611)	3,148 (996)	3,920 (1186)	3,865 (816)	4,625 (1012)	4,265 (1114)	4,200 ....	6.1%
Stamp duty	237	229	247	260	269	287	265	595	600	16.6%
<b>11. NONTAX REVENUE</b>	7,410	6,940	8,800	8,063	11,085	7,938	6,236	8,520	7,390	1.1%
<b>TOTAL REVENUE</b>	37,717	45,750	59,870	73,293	75,219	73,801	68,811	69,973	67,980	-0.9%
<b>MEMORANDUM ITEMS:</b>										
Uranium revenue	6,746	9,019	12,587	10,932	10,529	6,311	6,311	6,311	6,311	-11.0%
Non-uranium revenue	30,971	36,731	47,283	62,361	64,690	67,490	62,500	63,662	61,669	0.4%

Source: Ministry of Finance, IMF, and USAID/Niger's estimates

NIGER: COMPOSITION OF GOVERNMENT REVENUE  
FISCAL 1977-1985

	1977	1978	1979	1980	1981	1982	1983	1984	1985	
								Prel. Estimates		
								1984	1985	
	(as percentage of GDP)									
Taxes on income and profit	3.63	3.51	3.90	3.43	2.62	2.16	2.12	2.30	1.95	
Taxes on goods and services	2.39	2.68	2.88	3.10	2.87	2.82	2.96	3.35	2.90	
Taxes on international trade	4.13	4.32	4.39	5.18	4.93	5.02	3.97	4.08	3.52	
Taxes on property	0.36	0.28	0.34	0.43	0.42	0.22	0.21	0.22	0.19	
Revenue from uranium	2.34	2.51	2.84	2.04	1.78	0.98	0.94	1.03	0.90	
	(as percentage of total revenue)									
Taxes on income and profit	27.73	27.52	28.84	25.11	20.58	18.83	20.77	20.27	20.18	
Taxes on goods and services	18.25	21.07	21.34	22.67	22.54	24.59	29.00	29.48	30.04	
Taxes on international trade	31.52	33.88	32.48	37.89	38.65	43.74	38.94	35.86	36.48	
Taxes on property	2.72	2.17	2.52	3.17	3.31	1.94	2.01	1.92	1.99	
Revenue from uranium	17.89	19.71	21.02	14.92	14.00	8.55	9.17	9.02	9.28	

TABLE A.15

NIGER: COMPARISON OF ACTUAL AND PLANNED INVESTMENT EXPENDITURE  
DURING THE FIVE-YEAR PLAN, 1979-1983  
(in billions of CFA francs)

SECTOR	Plan targets for public investment 1979-83	Actual Spending in current prices					Total spending in constant 1979 CFAF 1979-1983	Ratio of actual to planned spending 1979-1983	Actual spending allocations (in Z) 1979-1983	Planned investment allocations (in Z) 1979-1983
		1979	1980	1981	1982	1983				
I. DIRECTLY PRODUCTIVE SECTOR	175.98	27.64	36.85	42.55	31.50	35.40	140.09	0.80	38.49	45.78
Rural sector	92.04	9.81	13.32	16.74	15.54	18.31	58.22	0.63	15.99	23.94
Mining, energy, and industry	70.21	12.88	19.70	17.10	11.50	15.10	62.12	0.88	17.07	18.26
Commerce & tourism	13.73	4.95	3.83	8.71	4.46	1.99	19.76	1.44	5.43	3.58
II. ECONOMIC INFRASTRUCTURE	67.76	17.98	28.37	32.34	23.50	18.42	97.77	1.44	26.86	17.62
Roads & transport	48.55	13.65	24.25	15.61	20.16	16.88	73.14	1.51	20.09	12.63
Telecommunications	12.77	4.33	4.12	16.73	3.34	1.54	24.63	1.93	6.77	3.32
III. SOCIAL SERVICES	114.44	11.44	24.18	25.99	25.25	14.49	81.16	0.71	22.30	29.77
Education	65.86	7.58	14.20	14.49	15.47	6.84	47.26	0.72	12.98	17.14
Health	18.97	1.36	1.26	3.13	2.95	1.04	7.77	0.41	2.13	4.93
Water supply	24.42	1.58	3.41	4.41	5.63	3.19	14.26	0.58	3.92	6.35
Housing & urbanization	5.19	0.92	5.31	3.96	1.20	3.42	11.87	2.29	3.26	1.35
IV. ADMINISTRATIVE INFRASTRUCTURE	26.27	8.28	7.08	13.93	13.09	4.50	37.98	1.45	10.43	6.83
V. OTHER EXPENDITURE		0.59	1.03	0.81	0.87	6.33	7.00	....	1.92	
TOTAL	384.45	65.93	97.51	115.62	94.21	79.14	364.00	0.95	100.00	100.00

Annual percentage changes in GDP deflator are used to convert 1980-1983 spending to constant 1979 CFA francs. The annual percentage changes are as follows: 1980, 13.8%; 1981, 11.0%; 1982, 9.8%; and 1983, 7.8%.

Source: MINISTRY OF PLANNING AND MINISTRY OF FINANCE

Dec. 27, 1985

TABLE A.16

NIGER: PUBLIC INVESTMENT EXPENDITURE IN PROGRAM OF CONSOLIDATION, 1984-1985  
(in millions CFA francs)

SECTOR	Planned Expenditure (in constant 1984 CFAF)			Actual Expenditure (at current prices)			Ratio of actual to planned spending (const. 1984 CFAF) 1984-1985	Allocation of spending (in %)	Allocation planned expenditure (in %)
	TOTAL	1984	1985	TOTAL	1984	1985			
DIRECTLY PRODUCTIVE SECTORS	59,268	27,556	31,712	44,510	21,410	23,100	0.72	38.01	40.30
Agriculture and rural dev.	43,368	21,656	21,712	32,100	16,800	15,300	0.72	27.41	29.49
Mining, industry & energy*	15,900	5,900	10,000	12,410	4,610	7,800	0.75	10.60	10.81
SOCIAL SERVICES	46,391	21,754	24,637	24,580	12,870	11,710	0.51	20.99	31.55
Education and training	10,857	4,152	6,703	6,200	4,100	2,100	0.56	5.30	7.38
Health	5,693	2,551	3,142	2,300	1,440	860	0.39	1.96	3.87
Housing and urban dev.	7,925	3,140	4,785	1,480	1,480	...	0.19	1.26	5.39
Water Supply	21,916	11,911	10,003	14,600	5,850	8,750	0.64	12.47	14.90
INFRASTRUCTURE	39,807	14,878	24,929	36,600	15,180	21,420	0.88	31.26	27.07
Transport	28,900	10,300	18,600	28,900	12,820	16,080	0.96	24.68	19.65
Telecommunications	8,407	3,578	4,829	5,200	1,560	3,640	0.59	4.44	5.72
Government building	2,500	1,000	1,500	2,500	800	1,700	0.95	2.14	1.70
OTHER EXPENDITURE	1,586	662	924	11,400	2,230	9,170	6.78	9.74	1.08
TOTAL	147,052	64,850	82,202	117,090	51,690	65,400	0.77	100.00	100.00

\*including private investment

Source: MINISTRY OF PLANNING, PROGRAMME INTERIMAIRE DE CONSOLIDATION, 1984 - 1985 and  
MINISTRY OF FINANCE.



TABLE A.18

NIGER: BALANCE OF PAYMENTS, 1975 - 1985  
(in millions of U.S. dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>I. CURRENT ACCOUNT, NET</b>	-8.40	-21.34	-95.65	-200.80	-188.98	-289.16	-181.80	-163.71	-71.63	-47.60	-80.00
Trade balance	-9.33	-26.36	-44.36	-122.34	-143.38	-216.17	-178.12	-151.85	-53.79	-30.89	-115.24
Exports, f.o.b.	138.59	171.55	196.58	287.68	485.14	575.76	484.67	368.51	370.51	309.61	296.67
(of which: uranium)	55.53	85.77	118.84	236.70	393.00	477.05	360.65	278.44	288.64	223.57	249.05
Imports, c.i.f.	-147.92	-197.91	-240.94	-410.02	-628.53	-794.13	-662.79	-520.36	-424.30	-340.50	-411.90
Net Services	-59.84	-90.87	-113.03	-162.23	-125.52	-164.69	-112.24	-118.68	-102.34	-101.37	-98.33
Goods and services, net	-72.33	-112.13	-148.15	-284.57	-268.90	-382.87	-290.36	-270.53	-156.13	-132.27	-213.57
Net Transfers	63.93	90.79	52.50	83.78	79.92	93.71	108.50	106.81	84.49	84.67	133.57
Private	-16.33	-16.32	-18.72	-32.36	-43.72	-49.69	-46.37	-37.73	-34.90	-20.59	-27.38
Public	80.26	107.11	71.23	116.13	123.64	143.40	154.73	144.54	119.39	105.26	160.95
<b>II. CAPITAL ACCOUNT, NET</b>	34.06	38.91	120.47	202.57	198.38	242.31	191.73	22.21	55.57	29.52	22.14
Public (net)	17.73	29.71	86.69	160.02	153.25	180.31	137.27	59.03	83.71	44.85	32.86
Private (net)	16.33	9.21	33.78	42.55	45.13	62.00	54.47	-36.82	-28.34	-15.33	-10.71
<b>III. ERRORS AND OMISSIONS</b>	-24.27	13.39	-7.33	-12.85	-23.03	-24.14	-2.94		-3.41	8.92	-3.57
<b>IV. OVERALL BALANCE</b>	1.40	30.96	17.50	-11.08	-13.63	-70.99	6.99	-141.50	-19.68	-9.15	-61.43
<b>FINANCING:</b>											
Net foreign assets	-1.40	-30.96	-17.50	11.08	13.63	70.99	-6.99	141.50	10.76	-39.62	19.05
Banks	3.73	0.84	-1.22	25.71	9.40	76.19	-1.84	76.68	-2.10	-5.95	0.00
BCEAO	-5.13	-31.80	-16.28	-14.63	4.23	-5.21	-5.15	64.82	12.86	-33.87	19.05
of which: IMF					1.9	1.9	3.3	0.9	32.3	14.6	15.2
Debt Relief									8.92	48.97	42.38
<b>MEMORANDUM ITEMS</b>											
Exchange rate (annual average):											
CFA francs per U.S. dollar	214.3	239.0	245.7	225.6	212.7	211.3	271.7	328.6	381.1	437.0	420.0
CFA francs per SDR	260.2	275.9	286.8	282.5	274.8	275.0	320.4	362.0	419.2	457.1	411.6
	(as percentage of GDP)										
Trade balance (deficit -)	-1.1%	-2.6%	-3.8%	-1.7%	-6.9%	-8.6%	-8.2%	-7.8%	-5.9%	-2.2%	-8.9%
Current balance	-1.0%	-2.1%	-8.1%	-12.6%	-9.1%	-11.4%	-8.4%	-8.4%	-4.0%	-3.4%	-4.8%
Overall balance	0.2%	3.1%	1.5%	-0.7%	-0.7%	-2.8%	0.3%	-7.2%	-1.1%	-0.6%	-3.7%

TABLE A.19

NIGER: External Debt--Outstanding and Disbursed, 1985-1994  
(in millions of CFA francs)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL OUTSTANDING AND DISBURSED DEBT	331,928	346,268	353,581	348,628	317,871	289,154	264,189	238,090	216,444	196,923
MULTILATERAL	137,875	157,715	171,805	174,508	164,033	156,384	150,654	144,939	139,025	133,367
BILATERAL	161,112	163,203	163,802	161,329	146,799	129,155	111,632	92,706	77,272	63,556
Paris Club Bilateral	121,710	117,577	112,811	107,097	96,045	82,103	66,283	54,571	44,162	35,307
of which: France	(82,406)	(85,142)	(86,805)	(86,733)	(80,421)	(69,946)	(59,018)	(48,146)	(38,792)	(30,764)
Financial Institutions:	29,481	23,056	17,091	11,791	7,561	4,904	2,743	647	201	
of which: France-guaranteed	(26,579)	(20,433)	(14,769)	(9,720)	(5,981)	(3,768)	(1,989)	(210)		
Other Bilateral	39,402	45,626	50,991	54,232	50,754	47,052	43,349	38,135	33,110	28,249
of which Arab Countries	(29,815)	(34,000)	(37,148)	(38,332)	(35,010)	(31,464)	(27,918)	(24,275)	(20,790)	(17,469)
LONDON CLUB	32,941	25,350	17,974	12,791	7,039	3,615	1,903	445	147	
of which: France	(23,636)	(19,235)	(15,055)	(10,878)	(6,262)	(3,401)	(1,833)	(445)	(147)	
DEBT PREVIOUSLY RESCHEDULED	(44,168)	(43,579)	(42,360)	(41,669)	(36,232)	(26,916)	(17,769)	(8,697)	(3,716)	(387)

## Notes:

1. The years refer to calendar years and the amounts represent end-of-year amounts.
2. The exchange rates used to convert all loans into CFA francs are the average 1985 exchange rates used by Ministry of Finance. For example, following rates are used: 420 CFA/dollar; 430 CFAF/SDR; 346 CFAF/ECU; 583 CFAF/pound sterling; 7.62 CFAF/Beigian franc; 1370 CFAF/kwaiti dinar; 112 CFAF/Saudi Arabian riyal; 140 CFAF/Chinese yuan; 465 CFAF/unit of Af. Dev. Bank; and 429 CFAF/unit of African Dev. Fund.

Source: MINISTRY OF FINANCE

TABLE A.21

NIGER: MONETARY SURVEY, 1978-1986  
(in billions of CFA francs)

	1978	1979	1980	1981	1982	1983	1984	Projections	
	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	1985	1986
	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.
<b>MONEY SUPPLY</b>	54.20	64.51	77.93	94.01	82.98	82.11	100.62	110.21	119.71
Currency outside banks	19.74	27.28	31.05	34.78	35.27	30.95	30.63	....	....
Demand deposits	26.66	29.99	33.54	39.91	35.65	35.02	47.37	....	....
Quasi-money	7.80	7.24	13.34	19.32	12.06	16.14	22.62	....	....
<b>NET FOREIGN ASSETS</b>	17.36	13.49	12.19	22.14	-20.52	-15.76	1.87	-2.43	-3.83
Central bank	23.27	22.28	27.36	29.69	8.78	4.00	18.80	....	....
Commercial banks	-5.91	-8.79	-15.17	-7.55	-29.30	-19.76	-16.93	....	....
<b>DOMESTIC CREDIT</b>	42.36	57.46	82.31	98.97	126.68	125.29	119.79	134.50	147.10
Net claims on government	-11.88	-18.36	-7.49	-2.99	16.33	18.14	21.61	26.90	30.60
Credit to private sector	54.24	75.82	89.80	101.96	110.35	107.15	98.18	107.60	116.50
<b>OTHER ITEMS (net)</b>	-5.52	-6.44	7.12	10.55	3.15	-8.57	-14.25	-6.38	-4.68
	(percentage changes)								
<b>MONEY SUPPLY</b>		19.02	20.80	20.63	-11.73	-1.05	22.54	9.53	8.62
Currency outside banks		38.20	13.82	12.01	1.41	-12.25	-1.03	....	....
Demand deposits		12.49	11.84	18.99	-10.67	-1.77	35.27	....	....
Quasi-money		-7.18	84.25	44.83	-37.58	33.83	40.15	....	....
<b>NET FOREIGN ASSETS</b>		-22.29	-9.64	81.62	-192.68	-23.20	-111.87	-229.95	57.61
Central bank		-4.25	22.80	8.52	-70.43	-54.44	370.00	....	....
Commercial banks		48.73	72.58	-50.23	288.08	-32.56	-14.32	....	....
<b>DOMESTIC CREDIT</b>		35.65	43.25	20.24	28.00	-1.10	-4.39	12.28	9.37
Net credit to government		54.55	-59.20	-60.08	-646.15	11.08	19.13	24.48	13.75
Credit to private sector		39.79	18.44	13.54	8.23	-2.90	-8.37	9.59	8.27
<b>OTHER ITEMS</b>		16.67	-210.56	48.17	-70.14	-372.06	66.28	-55.23	-26.65

TABLE A.21

NIGER: MONETARY SURVEY, 1978-1986  
(in billions of CFA francs)

	1978	1979	1980	1981	1982	1983	1984	Projections	
	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	1985	1986
<b>MONEY SUPPLY</b>	54.20	64.51	77.93	94.01	82.98	82.11	100.62	110.21	119.71
Currency outside banks	19.74	27.28	31.05	34.78	35.27	30.95	30.63	....	....
Demand deposits	26.66	29.99	33.54	39.91	35.65	35.02	47.37	....	....
Quasi-money	7.80	7.24	13.34	19.32	12.06	16.14	22.62	....	....
<b>NET FOREIGN ASSETS</b>	17.36	13.49	12.19	22.14	-20.52	-15.76	1.87	-2.43	-3.83
Central bank	23.27	22.28	27.36	29.69	8.78	4.00	18.80	....	....
Commercial banks	-5.91	-8.79	-15.17	-7.55	-29.30	-19.76	-16.93	....	....
<b>DOMESTIC CREDIT</b>	42.36	57.46	82.31	98.97	126.68	125.29	119.79	134.50	147.10
Net claims on government	-11.88	-18.36	-7.49	-2.99	16.33	18.14	21.61	26.90	30.60
Credit to private sector	54.24	75.82	89.80	101.96	110.35	107.15	98.18	107.60	116.50
<b>OTHER ITEMS (net)</b>	-5.52	-6.44	7.12	10.55	3.15	-8.57	-14.25	-6.38	-4.68
	(percentage changes)								
<b>MONEY SUPPLY</b>		19.02	20.80	20.63	-11.73	-1.05	22.54	9.53	8.62
Currency outside banks		38.20	13.82	12.01	1.41	-12.25	-1.03	....	....
Demand deposits		12.49	11.84	18.99	-10.67	-1.77	35.27	....	....
Quasi-money		-7.18	84.25	44.83	-37.58	33.83	40.15	....	....
<b>NET FOREIGN ASSETS</b>		-22.29	-9.64	81.62	-192.68	-23.20	-111.87	-229.95	57.61
Central bank		-4.25	22.80	8.52	-70.43	-54.44	370.00	....	....
Commercial banks		48.73	72.58	-50.23	288.08	-32.56	-14.32	....	....
<b>DOMESTIC CREDIT</b>		35.65	43.25	20.24	28.00	-1.10	-4.39	12.28	9.37
Net credit to government		54.55	-59.20	-60.08	-646.15	11.08	19.13	24.48	13.75
Credit to private sector		39.79	18.44	13.54	8.23	-2.90	-8.37	9.59	8.27
<b>OTHER ITEMS</b>		16.67	-210.56	48.17	-70.14	-372.06	66.28	-55.23	-26.65

Source: IMF and Central Bank (BCEAD)

NIGER: INTEREST RATES IN THE MONEY MARKET  
(in percent per annum)

Date	Overnight		One-month		Three-month	
	Deposits	Advances	Deposits	Advances	Deposits	Advances
July 1975	7.000	7.125	....	....	....	....
February 1976	6.500	6.750	....	....	....	....
August 1976	7.250	7.500	....	....	....	....
August 1977	7.000	7.250	....	....	....	....
February 1978	7.500	7.750	....	....	....	....
August 1978	7.000	7.250	7.063	7.313	7.125	7.375
March 1979	6.125	6.375	6.250	6.500	6.500	6.750
August 1979	7.750	8.000	7.875	8.125	8.125	8.375
March 1980	10.750	11.000	10.875	11.125	11.125	11.375
April 1980	9.750	10.063	9.875	10.125	10.125	10.375
May 1981	14.750	15.063	14.875	15.125	15.125	15.375
December 1981	14.250	14.563	14.375	14.625	14.625	14.875
February 1982	13.750	14.063	13.875	14.125	14.125	14.375
March 1982	15.250	15.625	15.375	15.625	15.625	15.875
December 1982	13.000	13.313	13.125	13.375	13.375	13.625
March 1983	11.000	11.313	11.125	11.375	11.375	11.625
June 1983	12.000	12.313	12.125	12.375	12.375	12.625
July 1984	11.500	11.813	11.625	11.875	11.875	12.125
October 1984	10.750	11.000	10.875	11.125	11.125	11.375
January 1985	10.625	10.875	10.750	11.000	11.000	11.250
December 1985	9.750	10.000	9.875	10.125	10.125	10.375

NIGER: AVERAGE ANNUAL INTEREST RATES IN THE MONEY MARKET, 1975 - 1985  
(in percent per annum)

1975	7.000	7.125	....	....	....	....
1976	6.875	7.125	....	....	....	....
1977	7.000	7.250	....	....	....	....
1978	7.250	7.500	7.063	7.313	7.125	7.375
1979	6.938	7.188	7.063	7.313	7.313	7.563
1980	10.250	10.531	10.375	10.625	10.625	10.875
1981	14.500	14.813	14.625	14.875	14.875	15.125
1982	14.000	14.333	14.125	14.375	14.375	14.625
1983	11.500	11.813	11.625	11.875	11.875	12.125
1984	11.125	11.406	11.250	11.500	11.800	11.750
1985	10.625	10.875	10.750	11.000	11.000	11.250

Source: IMF and Central Bank (BCEAD)

UNCLASSIFIED

# Country Development Strategy Statement

**FY 1988**

**NIGER**

**ANNEX B**

ASSESSMENT OF  
THE NIGER HEALTH SECTOR



MARCH 1986

Agency for International Development  
Washington, D.C. 20523

UNCLASSIFIED

ANNEX

ASSESSMENT OF THE NIGER HEALTH SECTOR 1/

I. ANALYTICAL DESCRIPTION OF HEALTH SECTOR IN NIGER:

A. Overview of Health Status in Niger and Associated Socioeconomic Factors:

1) Health Indicators:

Niger's health indicators have improved markedly in the past 25 years, however they still remain among the world's poorest. They are similar to those in other developing countries in Africa.

	<u>1960</u>	<u>1985</u>
Life expectancy at birth	36 years	43-47 years
Infant mortality	178/1000	132/1000
Maternal mortality		70/10000
Birth Rate		52/1000
Fertility Rate		7
Crude mortality rate	27/1000	20/1000
Population growth rate		2.7% - 3.2%

Improvement in indices has resulted from a number of factors, including the expansion of coverage by the public health system. However, the infant mortality rate remains high. A country-wide sample of about 1300 mothers and 3000 children by the Ministry of Health (MOH) in early 1985 showed an infant mortality rate of 158. The survey was taken in a severe drought year, however, and probably reflects an unusually high prevalence of malnutrition. Niger's birth rate (52/1000) and population growth rate (variously estimated at 2.7% to 3.2%) are among the world's highest.

2) Major Health Problems in Niger:

The major causes of mortality and morbidity in Niger are similar to those of other neighboring countries. Reliable mortality data are hard to find, as only about 10% of the deaths in Niger are reported. For reported transmissible diseases in 1984, the following causes of death were the most frequently reported:

- Measles
- Diarrhea with Dehydration
- Meningitis
- Malaria
- Pneumonia
- Tetanus

These causes of death, numerically only a small proportion of annual deaths, are largely preventable. Accurate morbidity data are also difficult to obtain. The Annual Report of the Ministry of Health for 1984 lists the "predominant diseases" in 1984. The six most reported categories of illnesses were:

1/ This assessment was assembled from papers prepared for USAID in November 1985 by Robert Lebow, M.D., M.P.H. The accompanying strategy statement was written by USAID/Niger.

"Presumed" Malaria	547,845 Cases
Diarrheal Disease	426,196 "
Bronchitis	276,606 "
Conjunctivitis	250,120 "
Rhinopharyngitis	232,640 "
Wounds	222,651 "

Other diseases of interest reported in 1984 were:

Measles	44,228 Cases
Gonorrhoea	28,307 "
Syphilis	10,223 "
Schistosomiasis	7,231 "

In addition, there are presently about 13,000 known cases of leprosy in Niger. There is a national leprosarium at which cases are treated. The incidence of tuberculosis seems to be falling; there are about 4000 new cases a year. An active tuberculosis program exists with two tuberculosis hospitals and six centers for treatment. It has been estimated that there are about 2500 cases of polio a year in Niger. Other than a few small samples, little systematic work has been done in Niger to define the true incidence of most infectious diseases.

Obviously one of Niger's major health problems is the morbidity and mortality related to pregnancies. The maternal mortality rate, estimated at 70 per 10,000, is one of the world's highest. Because of the high parity of Nigerien women (fertility rate of seven), complications such as ruptured uteri and prolonged labor are common. These high risk pregnancies, of course, add to a high neonatal mortality rate.

### 3) Demographic Factors:

Since 1980 Niger's population has been increasing at a rate of about 3.1 percent per year. In 1980 population was about 5.5 million, and in 1985, 6.3 million. If mortality continues to be reduced by improved health services, and fertility remains at its current level, the rate of natural population increase will grow to 4.5 percent by 2010 (17.5 million people) and to 4.7 percent by 2030 (43.2 million people). Even if fertility levels should drop today to replacement levels (two children for each couple of reproductive age), the population would nevertheless continue to grow for about 40 years. This due to a phenomenon referred to as the "momentum of population growth," characterized by the fact that over the next 40 years, the number of young people entering their reproductive years will substantially exceed the number of older people moving out of that period of life. Even with no more than a 2-child family average, the number of births each year would exceed the number of deaths. It has been estimated that it will take Niger an average of thirty years after a family planning program has been established to attain a replacement level fertility rate. Consequently, given its economic and agricultural constraints, if Niger wishes to designate an optimal population size, measures to limit fertility must be introduced decades in advance. Other factors such as migration and drought will continue to affect the rate of increase as well as the population distribution within Niger, of course, but they are unlikely to cause population decreases of sufficient size to eliminate the strain caused by the current high fertility.

4) Socioeconomic Factors:

The 1985 population of Niger is estimated at 6,330,000, of which about 85% is rural. 47% of the population is under age 15. The 1983 per capita income in Niger was only \$240. In the 1985 MOH study of about 1300 women, only about 4.4% were found to be literate.

The Nigerien economy is predominantly agricultural and pastoral, and usually there has been enough food. The recent severe drought affected the economy adversely and brought severe malnutrition to many. The good harvest in 1985 alleviated the situation for the majority of the population. However, nutritional status of pastoral populations continues to be poor, as many lost their entire herds in the drought and had no alternative livelihood.

5) Effects of Malnutrition and Poor Health Status on Agricultural Production

Like its Sahelian neighbors, Niger suffers from three inter-related forms of malnutrition: seasonal undernutrition, widespread protein-calorie malnutrition, and nutrient and vitamin deficiencies. It is estimated that per capita caloric intake is about 2000 calories per day, which is well below minimum requirements by international standards. During the period of the "soudure" (June to October before the harvest) this sub-standard diet is reduced by another 10-15%. This is the period of planting and weeding requiring maximum energy, but coinciding with the highest seasonal rates of malaria and diarrhea/dysentery. Downtime due to illness affects not only the adult male population, but also women and older children who must remain at home to care for sick infants. Given the limited growing season in Niger, any downtime due to illness during this period represents a serious loss to productivity. In addition to the "soudure", the period from January to May is rife with epidemics of meningitis and measles, the latter in particular leading to high rates of infant mortality. These epidemics coupled with acute levels of malnutrition during drought years (as was the case in 1984-85) perpetuate the cycle the cycle of high morbidity and mortality rates and low health status in Niger.

B. Health Infrastructure and Health Programs in Niger:

There has been much expansion of the health infrastructure in Niger in recent years. Training institutions have been established and expanded; there has been new construction of health facilities, and the Government of Niger (GON) has vigorously pursued the training of health personnel, from physicians to village health agents. New health programs have been initiated as well, including a family planning program in 1984. Foreign assistance has played a major part in the expansion of the health sector.

1) The Health Infrastructure:

At the top of the health infrastructure pyramid are seven hospitals, one in each departmental capital. Two of these, in Niamey and Zinder, are considered "national" hospitals. There is also a completed University Hospital Center at the Medical School in Niamey. Only one 25 bed pediatric teaching ward is open there (since August 1985). The Ministry would like to open the rest but cannot afford it. The Ministry is also interested in building some new tertiary care units, such as a renal dialysis unit and an ophthalmology hospital, in Niamey.

The next level is at the arrondissements, where there are a total of 39 Centres Medicaux ("Medical Centers"), each presently run by a graduate nurse. These have about 12 beds each and an associated maternity unit, but as of yet, do not have any physicians assigned. At the third level are the "Medical Posts" (25), with a few beds, and the Dispensaires Ruraux (Rural Dispensaries). In 1984 there were 215 Rural Dispensaries with 17 more expected to be completed by the end of 1985. At present these are mostly staffed by one nurse who is supposed to be the key person supervising the village health teams.

There are also 53 maternity units nationally, most of which are attached to the Medical Centers, and 28 "PMI" (Maternal and Child Health) units, which are in the larger population areas. The pharmacy system, which also is a virtual government monopoly, consists of 18 "people's pharmacies" (pharmacies populaires), at the urban or arrondissement level, and 40 "depots" for drugs. These latter are small private enterprises which depend on the pharmaceutical parastatal (the ONPPC, or Office National des Produits Pharmaceutiques et Chimiques) for their supply, but provide for wider distribution of drugs. There are a total of 3075 general hospital beds and 779 maternity beds in Niger, for a ratio of 1 bed per 1596 people.

At the base of the pyramid are the village health teams (equipes de sante villageoises), consisting of village health workers (secouristes) and trained birth attendants (matrones). The village health teams have expanded greatly in number, from 1496 teams in 1978 to 3942 teams in late 1985, under the funding of the USAID/Niger Rural Health Improvement Project (RHIP). There are presently 5769 secouristes and 6380 matrones functioning; they all were initially given a two week training program, and have generally been re-trained for ten days every three years.

## 2) Personnel:

The Ministry of Health has a total of about 4000 employees, of which about 2000 are "technically trained". Administratively, there are about 80 professionals at the Ministry of Health. In 1984, there were 147 physicians in Niger (including 59 Nigeriens), and Nigerien physicians are now being graduated from the Medical School in Niamey at a rate of about 20 a year. In 1984, there were also 190 trained midwives (89 of whom were working in Niamey), 366 graduate nurses, and 777 certified nurses (a lower level). The 1984 physician to population ratio was 1:41,831, and the nurse to population ratio was 1:5,380. It is projected that, at the current rate of training, in 1989 Niger will have 281 physicians (of which 173 Nigerien), 365 trained midwives, and 1911 nurses (all types). The village health agents are not considered Ministry employees since they are volunteers and are not paid by the government.

There are three schools in Niger for the training of health personnel. The medical school in Niamey, which opened in 1978, is graduating about 20 physicians a year. Its budget, however, comes from the Ministry of Higher Education. The two schools for training paramedical personnel, ENSP (National Public Health School) in Niamey and ENICAS (National School for Nursing and Social Action) in Zinder, graduate about 300 technicians a year. The Ministry of Health supports these schools, but USAID has been subsidizing the schools through scholarship monies (in 1984 amounting to 33% of the ENICAS budget and 19% of the ENSP budget). All of the graduates of the three schools have traditionally been guaranteed jobs in the Ministry of Health.

Under a new plan, enrollment at ENSP and ENICAS will be reduced starting in 1986, and training of lower level cadres (certified nurses) re-introduced. Such a change is intended to assure continuity of staffing at rural posts (certified nurses are not eligible for regular transfers as are higher level cadres), and to reduce the trend of salary increases over the next several years. The details of the plan have not yet been announced.

3) Curative Health Programs:

The data for the curative programs must be interpreted with caution, as there exist both underreporting and overreporting. In 1984 the seven hospitals reported 47,680 admissions (excluding maternity), and bed occupancy rates varying from 40% (Agadez) to 103% (Niamey). The average length of stay was 13.4 days. There were also 57,801 deliveries done at all levels of maternity units, representing an estimated 18% of all deliveries in Niger in 1984. The data for outpatient services show about 3.3 million "new consults" (0.54 per person) at all levels from the dispensaries through the hospitals, and a total of almost 9 million visits (or an average of 1.5 visits per Nigerien) for "new consults" and "return visits" combined. The figures are probably close to accurate; however, one must keep in mind what a "visit" actually is. Many of these visits are the 60 encounters per morning that a certified nurse has with people who come in complaining of fever and/or headache for which he dispenses aspirin and/or chloroquine.

4) Activities of the Village Health Teams:

There are village health teams in about 45% of the villages in Niger in 1985, compared with 17% in 1978. In 1984, the village matrones did 74,631 deliveries, or about 12 deliveries per trained matrone per year. In villages without trained health teams, untrained matrones would have been doing the deliveries, and it would be interesting to see if there were a difference in the outcomes. Anecdotal information suggests that the training for the matrones has in fact been very successful in reducing maternal and infant problems, especially neonatal tetanus. In 1984, the trained matrones reported sending in to the formal health system 2274 complicated deliveries, or 3.0% of their total. The secouristes reported a total of 4,954,226 "activities" in 1984, or about 859 "activities" per year (72 per month). Seeing a patient with fever, headache, and an earache would count for three "activities", so the data must be interpreted cautiously. In the MOH study done in 1985, of 1130 rural women questioned, 34% reported using the services of a secouriste in the past 12 months. The AID evaluation team gathering data on the VHT's in Diffa in July 1985 found much lower utilization of the village health agents. They found data (incomplete?) indicating an average of 23 "activities" per month per secouriste and 1.6 deliveries a year per trained matrone. There is no doubt at least that there is a wide variation in the activities and utilization of the village health workers from one location to another. There are no data on preventive measures done by the village health teams, and despite the claims that they are doing preventive tasks, it has been the opinion of many observers that they are doing (with a few exceptions) basically curative medicine, often no more than dispensing a few medications. The attrition rate for the village health workers seems extraordinarily low; of the over 14,000 workers trained since the 1960's, 89% were still active at the end of 1984.

5) Special Health Programs:

There are several targeted health programs in Niger which should have impact on the rural sector, but whose effectiveness has been limited to date because of lack of integration into the primary health care system. There is limited coordination between the special programs at this time, and even less contact between these programs and the village health workers.

As with other areas in the health sector, the targeted programs suffer because they have an inadequate number of trained professionals to design, manage and supervise programs. The major categorical programs that have impact on child survival are described below. There are also programs in tuberculosis, leprosy, and the prevention of blindness.

a) The Maternal and Child Health Program (PMI):

In 1984, there were 28 Maternal and Child Health Centers in Niger, all in urban areas or in association with a Medical Center at the arrondissement level. There were also 16 PMI centers associated with Social Centers in urban areas. In addition, there are some limited MCH activities (prenatal care and weighing of babies) at most of the rural dispensaries. A total of 268 locations in Niger offered MCH services in 1984. The 1984 statistics show that 86,551 new pregnancies (or an estimated 27% coverage) were seen at the MCH centers with a total of 214,407 prenatal visits. Also reported in 1984 were 61,659 new children under one year of age for a coverage of 17.4%, and a total of 358,857 child nutrition visits (all age). Ten years before, in 1974, only 19,392 pregnant women were enrolled and 17,532 children under one year of age were seen at the MCH centers. The Niger MCH program resembles closely that in other Sahelian nations, following a model established in the colonial era. In the last ten years in Niger noteworthy progress has been made in increasing MCH coverage, as the number of centers and of trained midwives has expanded. Rural populations remain underserved, however.

The MCH centers also do immunizations, which in 1984 included 40,829 measles, 77,606 DPT-P, 37,862 BCG, and about 21,000 maternal tetanus immunizations.

The MOH survey done in 1985 confirmed that about 25% of Nigerien women receive prenatal care and that about 17.2% of children have "well baby" nutrition visits. But the survey showed that 75% of urban women with prenatal care obtained it at an MCH center as compared with only 20.7% of the rural women. Of course, the data reflects the fact that the 28 MCH centers are basically urban. The MCH program has also undertaken some "social" activities, notably in literacy programs and teaching women to sew.

The MCH program often lacks basic equipment, such as scales; it has some inefficiencies, such as the underutilization of midwives. It also duplicates in part the services of the health clinics and the immunization services. At present the MCH program does not offer family planning services, although gradual expansion of child spacing services to the centers is planned. Since MCH services in general are the cornerstone of child survival programs, Niger's MCH programs need much better integration with other categorical programs.

b) The Immunization Program (DHMM):

The DHMM (Division of Hygiene and Mobile Medicine) has historically depended on mobile campaigns to do immunizations in Niger. This pattern was developed under the French (Service des Grandes Endemies), when there were few fixed centers and limited personnel to cover a widely dispersed population. Immunization coverage in urban areas is largely acceptable, and the DHMM's school immunization programs have received praise, but the program has been inadequate in rural areas, logistics for a mobile strategy being so complex.

Good data on immunizations are hard to come by. However, the reported doses of vaccines given in 1983 and 1984 are as follows:

	1983	1984
Smallpox	29,665	0
Yellow fever	278,560	267,152
Measles	446,162	661,333
Cholera	24,019	25,804
BCG	211,240	236,517
Tetanus	31,513	31,904
DPT-Polio	136,820	250,560
Meningitis A + C	398,972	652,170

These data are hard to interpret; they also are inconsistent with W.H.O. data for 1983 which give the following coverages for infants under one year of age:

BCG	70%
DPT - Polio	5%
Measles	16%
Pregnant women: Tetanus	4%

A 1982 study in Niamey for children aged 12-30 months on a small sample (224 children) showed that only 23% were fully immunized; 32% had been immunized for measles. The 1985 MOH survey found that 82.1% of the urban children and 34.6% of the rural children had received at least one immunization.

Then have been yearly severe epidemics of measles in Niger, as in the rest of the Sahelian zone. The epidemic of 1984 was especially severe, as the effects of drought induced malnutrition led to heavy mortality, and adult nomads, never exposed to measles, joined the case load at camps. Vaccination coverage for this disease is certainly low by all estimates. Contributing factors include inoperative Ped-0-Jets and inadequate cold chain.

Nearly all immunizations are currently done on a "mobile" basis, but a proposed five year immunization program (The PEV, or Programme Elargi de Vaccination) would change the immunization strategy from a ratio of 10% "fixed"/90% mobile to 85% "fixed"/15% mobile. The plan would introduce a cold chain (refrigeration for vaccines) down to the Medical Center, Medical Post and MCH Center levels. The medical center staff would leave the center to immunize all those people 5 km to 15 km from the center, and mobile teams would immunize the target population over 15 km from the centers. The plan postulates widespread use of the expensive DPT-Polio vaccine and widespread immunization for yellow fever, as well as the other non-controversial immunizations.

The MOH has requested funding from the World Bank for the immunization program (projected cost about \$7,000,000). There is the possibility that UNICEF will finance a "blitz"-type immunization program with Italian funds. There is no doubt that an effective immunization program is sorely needed in Niger, and must play a key part in any child survival program. The proposed immunization plan, largely because of its dependence on mobile units, appears inadequate.

c) The Malaria Program:

Malaria is the most reported disease in Niger, and probably the number one cause of morbidity in Niger. However, since outside the cities there is an inability to diagnose malaria definitively, it is usually reported as "presumptive" malaria, and a patient with fever and a headache is given aspirin and chloroquine.

A coordinated national malaria program has been planned since July 1983. The program would institute techniques for prophylaxis and treatment which are consistent with current international standards. Presently there are no uniform methods in Niger for attacking malaria. There is a prophylaxis program for pregnant women and children during the rainy season in certain areas of the country. Under the proposed program only pregnant women would receive prophylaxis.

The main part of the proposed program would continue to be the treatment of cases. In a one year period (1983-84), about 30,000,000 doses of chloroquine were administered in Niger. Fortunately the ONPPC produces chloroquine so there has usually been an adequate supply, and chloroquine is a drug which the secouristes usually have available in good quantities.

The proposed malaria program would improve the diagnosis of malaria by training people and providing materials for its diagnosis. It would also study the feasibility of vector control; very little of this has been done so far in Niger. As far as is known at present, there has been no chloroquine-resistant malaria reported in Niger. There is only one malariologist at present in Niger, and he is currently the director of the malaria program.

d) Program for the Fight Against Diarrheal Diseases:

The Diarrheal Disease program is just beginning its practical activities (notably training of health personnel and mothers in oral rehydration therapy and distribution of ORS), but it has gotten off to an apparently good start.

Packets of oral rehydration salts are being used in the health centers (even being sold there), and it is planned to strengthen the teaching of oral rehydration therapy to the village health workers soon. ORT educational material has already been prepared in several indigenous languages, and radio/TV material is in preparation. Eleven conferences have already been held at the departmental level. In the 1985 MOH study, 14.1% of about 900 rural women queried said they knew the method for making the oral rehydration solution.

In December 1985 the ONPPC received a machine (and materials) from Belgium for making packets of ORS, and it is expected that in-country production of the packets will begin soon. The education campaign to accompany this production appears well planned out.

e) Nutrition Programs:

The Nutrition Unit actually falls within the Directorate of Training and Health and Nutritional Education (DEESN) of the MOH, but because the unit has a small staff, nutritional activities are carried out through the MCH program.

Several surveys have pointed out that malnutrition is a serious problem in Niger. It was obviously especially severe in the 1984-85 drought as referred to above. The MOH 1985 survey of 1,960 children found a 25.1% incidence of chronic malnutrition and a 16.8% incidence of acute malnutrition. A separate national nutritional survey in children aged 6 to 60 months (done Dec. '84-Jan '85) in 3 departments found:

	<u>incidence</u>
Marginal malnutrition (80-85% weight/height)	14.3% - 24.1%
Moderate " (70-79% weight/height)	7.7% - 10.2%
Severe " (less than 70% weight/height)	0.7% - 1.8%

The same survey found a 23% incidence of vitamin A deficiency (which has a direct correlation with high infantile mortality rates), and a 0.4% to 2.4% incidence of scurvy.

The MCH centers do nutrition programs on an inconsistent basis; there is in fact no one trained in nutrition at the departmental levels. Theoretically, the matrones do nutritional education at the village level.

The major nutrition program at present is the "Joint Program: Niger/WHO/UNICEF", which was started with a conference in October 1984. This is a \$4,000,000 project which is a pilot nutrition program designed for (eventually) 60 villages in each of 3 areas in Niger. So far, only 10 villages in each region have been involved. It is an integrated rural development program, based on community involvement, which is extremely open-ended, involving much more than just nutrition. The project runs through 1989.

There are also nutritional recuperation activities going on in Niger under the auspices of nongovernmental organizations such as the Red Cross, CARE and Medecins sans Frontieres. These programs were set up in response to the drought, and continue in areas of greatest need (sections of Tahoua, Agadez, Maradi and Zinder departments). A 16 bed unit is part of the pediatrics department at the Niamey hospital; it is the only formal in-patient nutritional rehabilitation unit in Niger. U.S. Peace Corps volunteers in the nutrition program assist in running informal nutritional rehabilitation units in several areas of Niger and also help with nutrition in the MCH programs.

f) Pharmaceutical Distribution System/the ONPPC:

The ONPPC (National Office of Pharmaceutical and Chemical Products) was founded in 1962. Since 1974, it has had a virtual monopoly on the importation, production and distribution of drugs in Niger. Parastatal in nature, it is affiliated and under the domain of the Ministry of Public Health and Social Affairs.

ONPPC's operation in Niamey is very efficient, and Niger's health sector is fortunate to have such an asset. Compared to other countries, Niger is far ahead with respect to having an organized system for the distribution of drugs.

There are presently 18 "popular pharmacies" in Niger, and it is planned eventually to have one in each of the 36 arrondissements. The ONPPC supplies all the pharmaceuticals to the Ministry of Health. Its sales in 1984 were 3,972,000,000 FCFA, or about 730 FCFA per Nigerien, about equal to the Ministry of Health's per capita expenditure. More than half of sales were over the counter to the consumer through the private and parastatal outlets.

There is a small private sector in drugs: two private pharmacies in Niamey exist, and there are now 40 small depots in the smaller cities which were set up with official encouragement to expand the accessibility to drugs. These are small private enterprises; the entrepreneurs buy their drugs at a 20% discount from the "popular pharmacies" and sell them for the full price. All drugs must be sold at the same price in Niger, no matter the location. The depots carry about 50 different medicines. The lowest level of drug distribution, but the most widespread, is the village health worker. They all have basically aspirin and chloroquine for sale at the village level, although many of them have not consistently replenished their drug stocks. To get a discount, they must replenish their stocks at one of the 18 "popular pharmacies." Unfortunately, their drugs generally are not resupplied at the rural dispensaries, which usually are much more convenient to the village.

The supply of drugs in the public health system is totally inadequate at the rural dispensary and medical center levels; however, the five departmental and two national hospitals seem to have adequate drugs. There is just not enough in the MOH's budget to meet demand for pharmaceuticals.

The ONPPC produces the two most used drugs in Niger: aspirin and chloroquine. They also now have the machinery for producing ORS packets, and production of these is planned for December 1985. The ONPPC handles over 4,000 different drugs, although an objective expressed at a recent conference is to reduce the number of drugs handled to 2,000. It is proposed that a standard drug list be drawn up under funding from the World Bank in 1986.

g) Water and Sanitation:

The Ministry of Health has very little to do with water and sanitation, although sanitarians have been trained under the RHIP program. As of August 1985 none of the sanitarians trained had been placed in the rural areas. The digging of wells is handled by the Ministry of Hydrology. There are several water programs which have no coordination with the Ministry of Health. The overall availability of water in rural areas from wells, pools and other sources appears to be adequate, however, its quality is an unknown. 1984 figures say that water supplies are readily available to 34.2% of the rural and 48% of the urban population. Sanitation coverage is listed at 36% in the urban areas, but only 3% in the rural areas.

h) Family Planning:

Prior to 1984, there existed no systematic family planning service within the MOH's programs. The governmental interest in family planning increased

dramatically with the recent drought when it became apparent that the country's food supply might not be adequate to feed such a rapidly growing population. At the national family planning conference in January 1985, the President of Niger himself endorsed the concept. Financed by the UNFPA, an impressive new National Center for Family Health (Centre National de Sante Familiale) opened in Niamey in November 1984. At present, almost all the family planning services in the country are offered only at the CNSF. The Ministry of Health strategy is to extend the program throughout Niger in a phased manner. The components of the program plans include:

- The legalization of family planning. A decree has already been drafted to replace the 1920 law prohibiting contraception.
- An IEC (information, education and communication) program with community outreach.
- Training of health workers.
- Distribution of contraceptives. Contraceptives are now donated by UNFPA and USAID and are distributed free, but it is planned to incorporate their distribution into the ONPPC system.
- Studies which will serve as a basis for planning strategies, such as the study currently being conducted in Niamey by Family Health International on "vanguard acceptors of contraceptives."
- Spread of program to other departments. An objective of the program is to have midwives trained in contraceptive delivery in five of the seven departments by December 1986.

The program will proceed cautiously, although there does not appear to be any active opposition at this point.

### C. Foreign Donor Support of Health Programs

Niger has had considerable foreign donor participation in the health sector for many years. The relative current importance of the foreign donors' contribution to Niger's health sector can be measured by the fact that the dollar value of the foreign assistance is estimated by the IBRD to be equivalent to 25 percent to Niger's Ministry of Health budget. Foreign physicians, especially from France, have traditionally supplied the majority of physician manpower in Niger. These physicians have usually been in the hospitals, but a few have been in public health. Missionary medicine, with the notable exception of the hospital in Galmi, has played a minimal role in Niger's health sector. Most foreign donors have supplied manpower for specific tasks or given specific equipment (such as vehicles and X-ray machines). Other donors have constructed buildings. More recently, foreign donors (both on a bilateral and multilateral basis) have become involved in financing specific programs in health. The most important of these programs are described below.

a) USAID: USAID's Rural Health Improvement Project (RHIP), budgeted for \$ 15 million, is currently the largest foreign assistance program in health. Beginning in 1978, the RHIP funded the expansion of Niger's village health team (VHT) system (described above). With RHIP funds, the MOH trained 2446 new VHT's between 1978 and 1985, and increased the VHT coverage of Niger's

approximately 8500 villages from 17% to 45% USAID funds also provided for continuing education for the VHT's and costs of their supervision. As part of the program, USAID funded the training of nurses and sanitation technicians at Niger's two paraprofessional training schools: ENSP and ENICAS. Vehicles, vehicle maintenance, and medical equipment maintenance were also included.

Under the RHIP, scholarships for training abroad were financed. Technical assistance (through Tulane University) and computer equipment were provided for the MOH's planning unit, which is presently doing surveys and improving information systems with the object of improving management and planning in the health sector. The RHIP was extended beyond its original projected five years, and USAID is now planning further health sector grants, probably of the same order of magnitude.

USAID has also funded other health sector or health-related activities:

i. Technical Assistance and materials for the CNSF, complementing the assistance from UNFPA, in helping establish a family planning program in Niger.

ii. Technical Assistance for the MOH's Diarrheal Diseases Program in ORT.

iii. Technical Assistance in the Ministry of Plan which has generated several studies related to the health sector.

b) The World Bank: Up to now, the World Bank has not been involved in the health sector in Niger. However, the Bank has done many studies of Niger's health system over the past two years, and a large loan to the health sector is now being negotiated. The Bank's loan is tied in with the Bank's structural adjustment program (SAC) for Niger in other sectors as well and contemplates the strengthening of basic health programs. The Bank's areas of interest in health dovetail with USAID's areas of interest. The projected World Bank health loan includes:

i. The funding of several studies on hospitals, facilities, cost recovery, extension of the drug distribution system, etc., along with the funding of "innovative activities."

ii. No new construction, but the rehabilitation of existing health facilities and their re-equipping (notably in the rural areas).

iii. The majority of the funding is planned for foreign exchange costs of specific preventive programs: malaria control, the diarrheal disease program, strengthening the MCH program, the immunization program, health education, family planning, nutrition, and training programs.

c) Belgian Programs/RESSFOP: The Belgians have been active in health programs in Niger since 1976. Their program is named RESSFOP (Reinforcement of Health Services and Training of Personnel). Until 1985, they had three basic programs: the development of health services, the training of personnel, and the urology service at the Niamey hospital.

The Belgians have been particularly active in the department of Dosso, where there are several Belgian physicians and where they are doing clinical medicine and conducting epidemiological studies in rural health care. The Belgian team participated in the training of the VHT's and in developing

training guides for the matrones and the securistes as well as guides for their supervision. They are now actively involved in the revision of health reporting forms and in the development of protocols for health workers.

One of the ongoing programs under Belgian funding has been the teaching of public health courses at the ENSP and the medical school. Belgium equipped the national tuberculosis center, and has continued to fund materials for the center. Belgian technicians have collaborated with national preventive programs, and helped with conferences. Most recently, Belgium donated \$500,000 in equipment to the ONPPC to enable the ONPPC to make packets of ORS.

The urology program ended in 1985. In the next two years, the emphasis will be on developing operational research projects in primary care (in Dosso), and continuing help in teaching, the national tuberculosis program, various preventive programs, and at the MOH. Currently there are Belgian public health physicians working in the MOH planning unit and with the VHT program.

The Belgian AID program has been a very varied one, has been extremely flexible and has contributed to several aspects of Niger's health sector.

d) F.E.D. (European Development Fund): F.E.D. has been mainly involved with the construction of rural health clinics, although F.E.D. has helped with hospitals and water systems over the past 15 years. Most recently they financed the construction of 36 rural dispensaries, and they are building 14 more, which are scheduled to be completed in 1985. They are also building a new CM (medical center) at Mirriah near Zinder.

In conjunction with the construction program, F.E.D. has funded a four year project which includes a grant for the full operating costs (maintenance, equipment, drugs, vehicles, gasoline, but not personnel) for all the 50 dispensaries it has funded, as well as the CM at Mirriah. The project, funded at about \$4 million, already has the technical assistance of a public health doctor and a sociologist, who are in Zinder department. The project contemplates conducting operational research and developing programs for government and community support that will allow a decreasing F.E.D. participation in operational costs over four years. The feasibility of the project, given the great dispersion of facilities involved, remains unclear.

e) Dutch Health Team (Equipe Medicale Neerlandaise): The Dutch have had programs in the health sector in Niger since 1974, when they came to lend emergency aid during the drought. The 1985 budget for the Dutch program is about \$212,000, and its activities are limited to Niamey department excluding the city. Basically, the program director, who is a public health physician, is functioning as the associate director of the Niamey DDS (Departmental Health Division). The program is involved in a gamut of primary health measures, including the training and retraining of health personnel, building maintenance, various preventive health programs, health education, and family planning. At present, the project will end in 1988.

f) The U.N. Agencies: UNICEF/WHO/UNFPA/UNDF: The largest current health project through a U.N. agency is the "Conjoint Program Niger/WHO/UNICEF" which is an integrated rural development program, focusing on nutrition interventions. It is budgeted at \$4 million over five years, is scheduled to involve 180 villages, and has been started in 30 villages so far. There are

already some plans being made to replicate the program throughout Niger, although the project has barely begun, and seems very complex and costly for the country.

UNICEF also has a "regular" health budget each year, and a program level of \$3,300,000 budgeted for Niger for 1985-89. This includes:

i. Basic Health Care: help with primary health care infrastructure. VHT equipment, vehicles, training of personnel, continuing education and scholarships.

ii. Diarrheal Disease Programs

iii. Immunization Programs, budgeted at \$ 1,2 million, but \$600,000 of this was de-obligated as it wasn't used in 1985.

iv. Research in Medicinal Plants, currently being done in the department of chemistry at the University in Niamey.

UNICEF also provided other materials and aid to Niger in the past year, including \$3 million in emergency nutrition and health aid, packets of ORS, and equipment for the CNSF and MCH programs.

The UNFPA was the major donor in setting up the national family planning center (CNSF); it financed the construction and equipping of the center. The UNDP has participated in emergency aid.

Over the past several years, the World Health Organization has sent students on long term training in a variety of fields, and has provided short and long term technical assistance to the MOH.

g) Other Donors: As mentioned above there are many other foreign donors in Niger. They are primarily supplying personnel, equipment, or a combination of both, as do the Chinese in Maradi, the Belgians in Dosso, and the American missionaries in Galmi. There are many expatriate physicians in Niger, mostly European, but also some from Asia and Egypt. The Japanese have been major donors of vehicles and equipment, and the Italians seem to be eager to finance health programs in Niger. It is Italian financing that is involved in the "Conjoint" nutrition project.

D. Health Sector Financing

1. Ministry of Health Budget

Government health services have suffered from perennial financial shortages since the fall in uranium prices in 1981. Niger used uranium revenues to finance investment in the health sector during the mid-1970's, when GDP and GDP per capita real growth was over 5 percent per annum. Niger's economic prospects declined in 1981 with the decrease in the world price of uranium, and return of several years of drought which affected both agricultural and livestock production levels. GDP and GDP per capita real growth turned negative in the early 1980's. The projected rate of GDP growth for the rest of the decade is low.

Under the Five Year Plan for Economic and Social Development, 1978-1983, the GON planned to allocate 5 percent of public investment to the health sector. However, actual public investment in the health sector was only 2 percent of total public investment, and 43 percent of planned spending (a total of 8.2 billion FCFA in constant 1979 prices for the five years). This ratio of actual to planned investment was lower than for all other sectors. The inability of the Government of Niger to reach investment targets may partially explain the current imbalance between infrastructure and peripheral health workers.

Further, even though the GON indicated that it planned to allocate 4 and 5 percent of public investment funds to the health sector in 1984 and 1985, there was no public investment in the health sector in 1984 due to the collapse of the National Development Fund (FNI). This resource allocation decision may in part be due to the current and anticipated availability of external resources for health sector investment.

The recurrent budget for the MOH has remained a steady 6 to 7 percent of total government recurrent expenditure, but since 1980 has remained relatively constant in real terms in spite of increases in the number of health personnel and facilities. Thus, total GON expenditures for the health sector declined in real terms by 32 percent from 1980 to 1984. This downward trend is even steeper when considering GON health expenditure per capita. Real expenditure per capita peaked in 1980 and by 1984 declined by 39 percent. If Niger's population is growing faster than the official rate of 2.7 percent per annum, this decline would be even steeper. The MOH's 1984 budget of 4,451,030,000 FCFA (about \$11 million) allowed only 730 FCFA (about \$1.83) for each Nigerien's curative and preventive health care in 1984.

MOH budget allocations to different categories averaged, in the period 1978-84: personnel, 50 percent; general operating expenses, 11 percent; transport, 9 percent; and medicines and vaccines, 28 percent. These proportions are shifting as an increasing share of available budgetary resources is required for fixed salary obligations. Of the MOH 1984 budget, 54% went for personnel, and 26% for medicines and vaccines. Assuming a continuation of training at the current rate, and given three scenarios for annual budgetary increases, 1.5, 5 and 8.5 percent, personnel will require 66, 57 or 50 percent of the MOH budget in 1989. It should be noted in this regard, that Niger has maintained a low ratio of personnel to other expenses historically. In many developing countries 70 to 80 percent of the public health budget is expended for salaries. The current trend can be interpreted less as a failure of government to keep personnel ceilings and salary levels in line, than as a demonstration of the decreasing real financial resources of the health sector over all.

Approximately one half of the MOH budget now goes to the Niamey and Zinder hospitals and tuberculosis hospitals for curative services and urban populations (51 percent of personnel budget, 43 percent of non-salary operating expenses). An average of 50 percent of each department's health budget goes for hospital-related care.

## 2. Beneficiary Contributions

Nigeriens pay for health services supplied by both the public and private sectors.

Their support for public sector services primarily comes from tax revenues. In addition, hospitals collect fees for a variety of services, village health workers sell medications in their kits, and traditional birth attendants are given payments in cash or in kind for their services. Further, the limited supply of drugs at public health facilities has resulted in a system whereby some patients are given prescriptions to be filled at popular pharmacies or private drug depots. In addition, patients can go directly to those outlets to purchase drugs sold over the counter. Popular pharmacy sales grew by over 20 percent per annum from 1978 to 1982. Before the closing of the Nigerian border in early 1984, large quantities of pharmaceuticals moved across the border clandestinely from Nigeria's extremely open and well stocked distribution system. It is likely that in southern Niger, before the border closing, per capita expenditures on Nigerian products at least equalled official purchases from Niger's popular pharmacies (which were 260 FCFA per capita in 1983).

Although the capacity of individuals to pay cash for medical services may be limited, and seasonally variable, the concept of fee for service in traditional medicine is well established. Payments in cash or in kind are made for the services of traditional healers and of traditional birth attendants (matrones). Unfortunately, there is little quantitative data on per capita expenditures for such services. Anecdotal evidence is that fees for healing are high, the fee in part valorizing the service.

### 3. Cost Recovery

Hospitals in Niger are allowed to charge fees for a variety of services: room fees, surgery, supplies and medicines, obstetrics, specialist consultations, special medical exams, and lab tests. Patients are assigned economic categories (civil servants, small payers, indigents and children), with sliding scales for fees. Charges for officially registered indigents are to be paid by their local authorities. Civil servants only pay 20 percent, with the remaining charges to be reimbursed by their technical service. The current fee schedule was established in 1962. Over the years the system has not been monitored closely, with the result that each division and each technical service within a hospital operates under different procedures. Niamey hospital collected approximately 81 million FCFA in 1984, covering 17 percent of its operating costs. Rigorous application of the 1962 tariff schedule would have yielded about 40 percent cost recovery. A modified tariff schedule was recently rejected by the Council of Ministers as being too radical an increase. If it had been applied in 1984, potential revenues for Niamey hospital would have covered 65 percent of operating costs.

The problem of fee collection goes beyond the MOH, however. Niamey hospital sends bills for civil servant treatment to the Ministry of Finance for reimbursement by other ministries. The Ministry of Finance long ago stopped applying the charges, however. Hence the MOH subsidizes the rest of the government for medical care of cadres. Nor do municipalities actually reimburse hospitals for treatment of indigents in more than a small minority of cases.

The Council of Ministers decreed in June 1985 that the existing 1962 legislation on fee collection was to be rigorously applied. The Ministry of Health has sent instructions to all hospitals to this effect. It is unlikely that any notable change can be effected, however, unless consistent management practices are introduced at all levels of each hospital.

#### 4. MOH Cost Recovery and Cost Containment Policy

National health sector policy dialogues in 1983 and 1984, the Journees of Maradi and Agadez, led to a series of policy recommendations by health professionals which have been accepted by the Council of Ministers. These include community financial responsibility for construction and maintenance of dispensaries, institution of fee for service or annual fee per client systems at all levels, institution of fee collection for medical evacuations, standardization of services and fees at hospitals. Implementation of any of these recommendations will require operational research to assure feasibility and social acceptability, and short-term technical assistance for program development. Under a proposed World Bank project, such assistance is programmed over a five year period.

#### E. The Government of Niger's Goals and Policies in Health and Nutrition:

The official policy and goal of the Government of Niger is the WHO goal of "Health for All by 2000." In 1974, the president of Niger declared "health as a right." The national health conference held at Maradi in March 1983 reaffirmed that the first priority in health was for primary health care services in the rural areas. The Maradi conference also endorsed the participation of the people in their health care programs. The rural health system was to be integrated into community development programs at all levels and then into the National Development Society (Societe de Developpement). It is official policy that people should help pay the costs of their health care as well.

The Ministry of Health's Interim Consolidation Program for 1984/85 restated the goal of "Health for All by 2000." The official mandate for health is clearly in favor of the rural sector despite the de facto imbalance in the distribution of the health budget favoring the urban areas and hospitals. In discussions, officials at the Ministry of Health consistently stress the primary importance of preventive programs. Present policy gives the priority to improving the staffing and training of health personnel at the periphery.

The projected number of village health teams to be trained has been cut back to a projected 250 new teams a year in 1984-85, followed by 200 new teams a year in 1986-89. Slowing the creation of new VHT's was done because the government realized it could not effectively supervise the almost 4000 teams already out there. Improved supervision was made a goal, and the specific object of putting two nurses in every rural dispensary was made to allow for better supervision of the VHT's. The continued construction of new rural dispensaries to strengthen the rural health infrastructure has also been a goal, and this expansion has continued.

For nutrition, the Government of Niger has always placed a high priority on agriculture, and obviously this is where the main thrust should be. Some other general goals in the health sector which have been stated and endorsed in the past three years are "research" in health, the involvement of other sectors in health programs, the study of traditional medicines, and the spread of pharmacy services. In 1985, the president of Niger officially endorsed the establishment of family planning services.

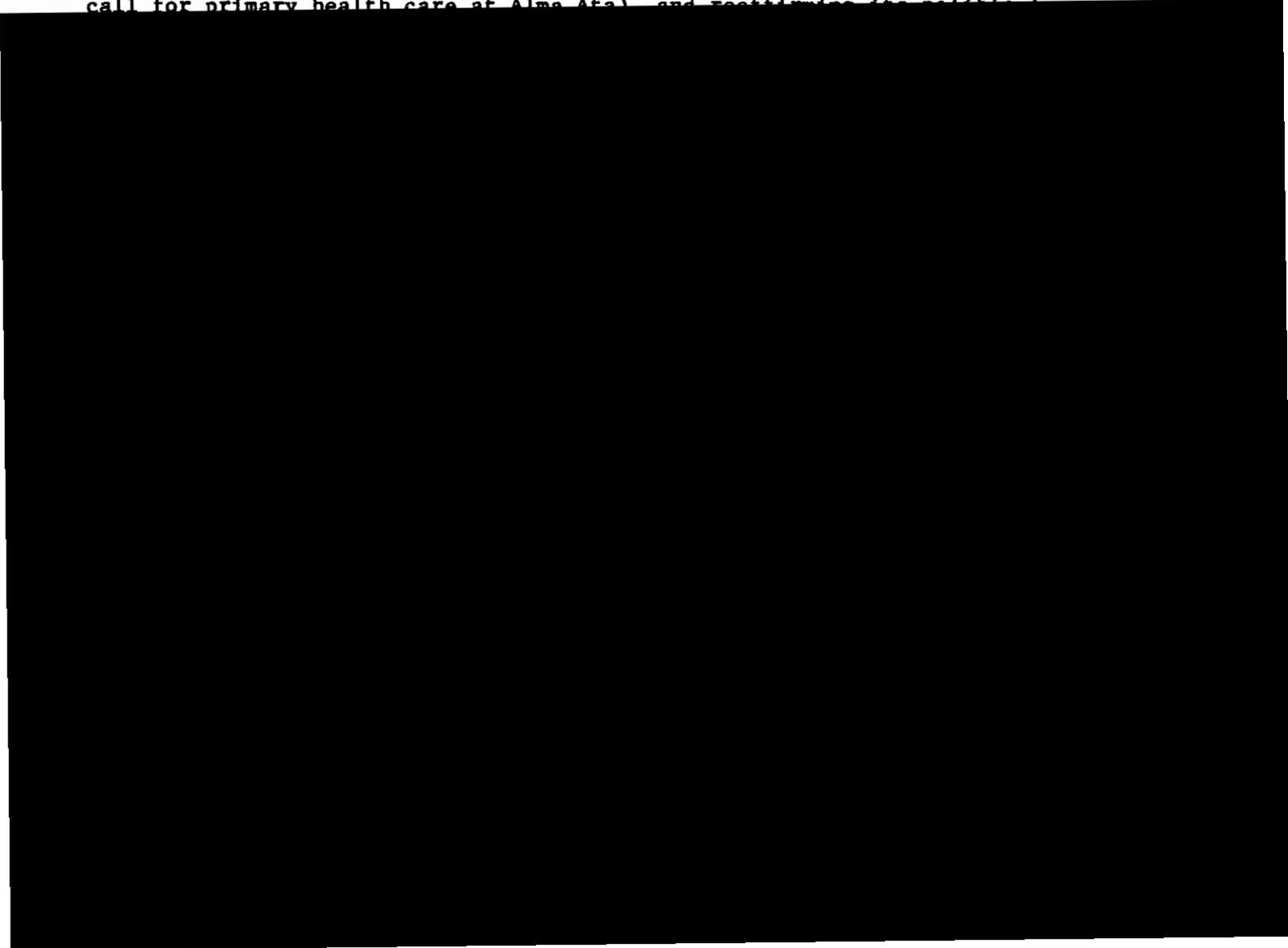
Specific program goals within the Ministry of Health are not well enunciated at this point, as the Ministry does not really have a specific plan beyond 1985. Uncertainty as to the level of funding available to the MOH from all sources beyond this year is one of the factors limiting forward planning. The Ministry does have specific projects which are funded and planned through 1990, and plans for modest infrastructure expansion under the National Investment Budget. The Ministry has presented a series of proposed plans for vertical programs to donors for funding. However, no unified plan now exists for the health services as a whole.

Progress towards meeting the goal of health for all has been made in Niger. There is a rural health infrastructure which exists, if not fully effective. It is of note that nowhere in the statements on health policy in Niger does a statement appear encouraging hospital expansion or the improvement of tertiary care capabilities.

## II. DEVELOPMENT OF A STRATEGY:

### B. Favorable Factors in Niger's Health Sector:

In the area of health policy, the Government of Niger scores high marks, having launched a program of rural care in 1964 (14 years before the worldwide call for primary health care at Alma Ata) and reaffirming its political



health infrastructure and personnel. No other country in Sahelian Africa has such a nationwide program. The impact on health status of the village health program is difficult to assess, lacking baseline data. However, a measure of the program's integration into Nigerien society is the fact that the attrition rate is very low (reported as 11% total over the course of the program), and villages continue to request training for secouristes and matrones.

Good training and retraining programs have been developed for the village health agents, and these could be used when it is appropriate to expand the program to other villages. On the other hand, if these VHT's are not adequately supervised, they will be wasted as a resource. Supervision has been recognized as a priority, and supervisory guides have been developed and are being tested.

3. There exists a viable pharmaceutical infrastructure including purchasing, distribution, and limited manufacture: the ONPPC. Its distribution system has yet to reach very effectively into the rural areas, but it is progressing in that direction with the opening of more private depots. The ONPPC's total sales in 1982 were 3,797,080,000 FCFA, or about 731 FCFA per Nigerien, about equalling the per capita health expenditure by the Ministry of Health. This figure would indicate that people do have some available money they are willing to spend on medicines.

4. Health cadres have taken an active interest in policy reform in the sector. Many of the policy or operational reform ideas promoted under the government's structural adjustment program were earlier articulated at ministerial conferences of health professionals, most notably those of Maradi (1983) and Agadez (1984). Reform efforts will be facilitated by the considerable recent analysis of various aspects of the health sector and by the establishment of a planning section within the Ministry of Health (1984).

5. Family planning has been officially endorsed, opening the way for the development of a generalized family planning program in Niger. And since November 1984, there has been a focal point for family planning in Niger: the National Center for Family Health in Niamey.

6. Niger has adequate schools with good curricula for the training of nurses and other health paraprofessionals, and these schools are supplying a constant stream of necessary workers for the health sector.

7. Foreign donors seem willing to continue support to the health sector, and with substantial amounts of money. They also appear to be willing to cooperate with each other.

#### C. Problems and Constraints in the Health Sector:

The problems experienced by the Niger health sector are common to developing countries, and are shared by its Sahelian neighbors. Humanitarian efforts to provide essential medical services to a largely poor, rural population have met blocks at many points: financial resources are scarce, trained personnel are insufficient or too heavily concentrated in cities, widely dispersed populations are difficult to reach at all. Niger has been able to set up a rural health care infrastructure. Much effort remains for it to be made truly functional.

There are many serious problems in the health sector which stand in the way of developing an effective rural health program. One of the serious constraints is the Ministry's severe lack of operating funds. At an annual budget of 730 FCFA (\$1.83) for each person to be served, programs cannot be too ambitious unless alternate funding can be found, and there is no margin at all for increasing recurrent costs. Other constraints are:

1. Lack of effective management and planning. There is currently insufficient management expertise in the ministry to handle the changing demands of the sector for which it is responsible. Under an administrative model common in Francophone Africa, MOH staffers tend to be doctors, nurses and midwives. Few have received substantive training in any aspect of administration. The problem has been recognized by the government. Academic and in-service training programs now underway, and to be expanded greatly under a World Bank project, may do much to rectify this situation in the next five years. The government is also considering increasing numbers of professional administrators in technical ministries. Decision making in the ministry is also over-centralized, and as such discourages experimentation and variety. This is a problem throughout the Nigerien government.

Financial and program planning are not well institutionalized in the health sector. Being new and lacking autonomy within the structure of the MOH, the ministry's planning unit has little functional influence as of yet. Other services are not required to submit their operational plans or budgets through the planning section, which is directly tied to the office of the Secretary General. There is no published health plan for beyond 1985 at the time of this writing (November 1985). Better data collection and analysis methods must also be established. The MOH is now setting up the statistical base for ministerial planning, through a contract with Tulane University.

At the medical service level of the ministry, poor management of personnel resources and slow cash flow hamper outreach program effectiveness. Personnel now shift frequently from post to post, and often are moved out of areas of expertise. It is the stated intention of the ministry to promote stability in health facility staffing, by training more lower level (certified) nurses, who are not eligible for frequent reassignment, and by placing two nurses in every dispensary. This will take some years to achieve, and will require a reapportionment of the budget.

2. Imbalance in the allocation of funds to the rural versus the hospital sector. Despite the fact that about 85% of Niger's population is rural, and only 15% urban, as much of the Ministry's budget goes to the seven hospitals as to the rest of the health system (not including Ministry administration). 55% of the medicines go to the hospitals, and 70% of the technical materials. In 1985 the national hospitals in Niamey and Zinder will absorb 51% of the Ministry's personnel budget. To quote a study published in April 1985 (Le Systeme de Sante au Niger): "The division of budgetary resources of the MSP/AS does not correspond in its present state to the pursuit of the objectives of the (proclaimed) health strategy."

The pattern shown in Niger is common in post-colonial African health systems, which have often concentrated the majority of resources in the capital city itself. Niger has had a better record than many countries in this respect. The stagnation of the health budget in the last few years has prevented the government from effectively using the rural health

infrastructure it expanded during the uranium boom. Unless cost recovery and cost containment efforts are made, the imbalance in favor of urban centers will only become greater in the future. The MOH is quite aware that rural facilities are understaffed and underfunded, but is naturally concerned that essential hospital services may deteriorate if there is too rapid reallocation of resources before cost recovery of urban facilities can be improved.

3. Inefficiencies and duplication of services. Despite a lack of personnel and services, the health system is full of inefficiencies, including: lack of integration of specialized programs (such as immunization) into health facilities at the rural level, underutilization of midwives and trained lab personnel, forced referral of patients to hospitals because of lack of drugs and equipment elsewhere, lack of coordination with other ministries whose programs are related to health indices and services (water programs and health education, for example).

4. Inadequate supervision. Despite programmed supervision of the rural health system, only a fraction of the projected supervision is actually being done. The village health teams have especially suffered from the lack of supervision, with the result that preventive goals have been set aside. VHT supervision models were developed when the rural health program was small. They have become untenable as numbers of village teams have multiplied. The village health teams were to be supervised by the nurse at the nearest rural dispensary once a month. Most rural dispensaries have only one nurse, and he is usually busy seeing patients. Each nurse has an average of 17 VHT's to supervise; many of these are hard to get to, and so far no really satisfactory means of transport has been found for the nurse. The logistical problems are many (gas, inoperative Mobyettes, bad roads, etc), and the degree of supervision expected is unrealistic, given the personnel and logistical constraints. Innovative approaches to supervision need to be designed and tested. A start has recently been made in Dosso department, but more extensive testing needs to be carried out.

5. Lack of cost recovery measures. There is an archaic and inconsistent pricing system for health services. The government has stated its goal of having the population contribute toward the cost of health care. The pricing system at present is in chaos. Principles of free or heavily subsidized medical care were set when the public health system was much less extensive and the economic facts of service delivery less apparent. The combination of the early 1970's drought and the uranium boom of the late 1970's further reinforced GON reluctance to charge for medical care. Economic realities of the last few years have led to a determination to rationalize the system, in which charges do now exist, but are not consistently applied. Introducing national fee for service policies will require courage, and adequate advance study to gauge payable rates and workable systems for each level of care.

Current pricing practice is as follows:

a) At the level of the VHT's: the secouristes charge a set rate (5 FCFA and up) for each pill they dispense with the purpose of establishing a rotating fund to buy new drugs. The matrones collect for deliveries, as there is a traditional reimbursement system for such services.

b) At the level of the rural dispensaries and health centers all services are free, including medicines. However, pharmaceutical stocks at

medical centers have not kept up with demand, and centers often have almost no medicines. In that case, the patient is given a prescription to buy the medication at a depot or pharmacy. If the patient cannot afford it, he can go to the city and be hospitalized, where he will not be charged for any medicines administered when he is an in-patient.

c) At the hospital level: pricing is based on a 1962 schedule of fees, which is only partially applied. Patients are divided into four economic categories, with different prices applied for inpatient and outpatient services for each. However, collection procedures vary in each national hospital, and many people manage not to pay at all because of breakdowns in management systems. All civil servants get an 80% discount at the hospital, which amounts to the Ministry of Health subsidizing the other ministries. The Niamey hospital does send bills to the Ministry of Finance for reimbursement by other ministries. However, Finance long ago ceased to apply the charges. Niamey hospital did manage to collect over 80 million FCFA in fees in 1984 (17 percent of operating costs), even with this ad hoc and inconsistent collection system.

Changing the present inconsistent pricing system will be a slow process. An immediate fear among health professionals is that people will stay away from health care and get sicker if they know they'll be charged for services. Yet clearly there are many people getting hospital services for a pittance when they could afford to pay more. Getting both providers and patients to accept a different and more rational fee system will require time and patience.

6. Limited access to drugs at the rural level. The ONPPC is the one Nigerien parastatal which has consistently maintained profitability. One of the ways in which it has done so has been by limiting its sales points to high volume areas (departmental capitals and larger towns). The MOH has been responsible for providing drugs at the rural level, through free distribution at medical facilities and sales by VHTs. But the MOH cannot afford to purchase the amount of drugs that the rural centers can consume. The result is that drugs are generally very accessible in urban areas, but there is very limited access to drugs in rural areas.

The ONPPC is gradually allowing wider distribution of its products through the licensing of depots, private outlets in smaller towns. The depot owners purchase their stocks from ONPPC outlets at a 20% discount. The ONPPC fears that proliferation of depots will eliminate the ONPPC profit margin. Hence the expansion of the private distribution system is being carried out slowly.

At the village level, access to pharmaceuticals is largely limited to secouriste stocks. Villages with VHWs who still have drugs do have access to aspirin and chloroquine, for which they might otherwise visit a dispensary.

7. Obsolete laws and codes. The health sector's pricing code, dating from 1962, needs to be re-written. A recent proposal was rejected by the Government as too radical an increase. A compromise solution needs to be found. There is also a 1920 law prohibiting birth control, which is a legal impediment to family planning programs. The latter is in the process of being amended.

8. Lack of community participation. Despite the objective of involving the community in health care and preventive projects, active community involvement in programs like the VHT's has been limited up to now. The selection of the village health workers was not always optimal, and in general the villages were not prepared adequately to select the people to be trained. To quote the 1985 RHIP evaluation: "Villagers have yet to become effective participants in support of the system."

9. There are insufficient incentives built into the system to engender outstanding performance by individuals. Rural health care is a demanding and difficult profession. Incentive systems should be reconsidered. They would not necessarily depend on entirely financial rewards. Institutional incentives are also needed, so that health facilities and programs can be better run.

C. Setting Goals in the Health Sector:

The overall goal of the health sector in Niger is to improve the health status of the people of Niger, with special effort made to reach the rural population, who have had much less access to both curative and preventive services than the urban population. Improving health status means improving the health indices, reducing mortality and morbidity, improving nutritional status, and generally improving the quality of life (related to health). Some specific ways for the Government of Niger to help effect these changes would be:

1. Improving the access to medical care, and assuring that care will be as effective as possible.
2. Provision of preventive health services that will be effective enough to reduce mortality and morbidity, especially in areas of:
  - a) Malaria Control
  - b) Immunization
  - c) Treatment of diarrheal diseases
  - d) Maternal and child health/nutrition
  - e) Water Supply
  - f) Sanitation
3. Establishment of programs in family planning.
4. Improving access to medicines, and assuring that the medicines are used appropriately and economically.
5. The development of alternative financing schemes to offset stagnating government financial resources.
6. Improvement of resource allocation in accordance with the stated priorities and goals for health: i.e., preventive and primary care programs for rural areas.
7. Increased community involvement to give support, both financial and motivational, to the health care system.

8. Optimizing of management, evaluation, and planning in the health sector so that scarce resources can be used to get timely results and real problems can be defined and recognized.
9. Decentralization of the health system to allow variation and experimentation, as well as more local control.

#### USAID Strategy Objectives

The following is a statement of USAID/Niger strategy for the health sector for the period 1986-1992:

The overall objective for assistance to the health/population sector is to improve the health status of the population at large. This means reducing mortality and morbidity, particularly among children; improving nutritional status; expanding access to family planning. It will require restructuring incentives in the health sector as well as improving its institutional base through improving resource availability and allocation. It will necessitate strengthening the primary care system by reducing constraints to increase preventive and promotive health services. Finally, implementation of the strategy could lead to opportunities for enhancing private sector participation in the sector, particularly the distribution of essential drugs, ORS packets, and eventually contraceptives.

#### Strategy elements, priorities and implementation

It is important to stress that the USAID Health/Population strategy will directly support the implementation of policy reforms previously articulated by the Government. The GON recognizes its constraints in the health sector, and has articulated a series of policy reforms. As a result of national debates, most notably those of Maradi (1983) and Agadez (1984). While able to clearly outline the policy reforms it wishes to engage in, the GON currently lacks the resources to implement them. USAID agrees with the policy reforms outlined by the Government, and through the proposed health sector grant will provide the resources necessary to bring about a number of these reforms. Other regional and centrally funded projects will directly support child survival and population/family planning program interventions. Under the health sector grant, USAID will work with the GON to establish criteria for disbursement of funds, and mutually agreed upon measures to gauge success in implementing policy reforms.

Improved resource management can be achieved through strengthening the planning and policy analysis capacity of the MOH and through improved central and local coordination between the various program interventions. Strengthened health services at the dispensaries and medical center levels can reduce excessive demands on hospitals. Re-distribution of personnel and innovative approaches to the supervision of rural health posts and VHT's can reinforce their effectiveness without overburdening administrative mechanisms. Some decentralization in health delivery planning is needed to allow for differing conditions throughout the country. Components include:

- Establish and implement a system of multi year plan for health and population investment and maintenance. Target date 1987. USAID's role will be primarily supportive in policy dialogue and providing some of the

means under the Tulane team (RHIP) and thereafter Health Sector Grant.

- Improve data collection to provide necessary baseline information planning. Target date: 1986. Tulane under RHIP.
- Conduct a wide range of policy studies in coordination with the World Bank, on management and programmatic issues, such as manpower planning, drug distribution, etc, to provide a basis for policy dialogue and informed policy decisions. Target date: 1987. Finance under the Health Sector Grant.
- Improve donor and GON coordination to permit implementation of a broader range of training programs in health and population, and improve the drug supply system. Target date: 1987 RHIP and Health Sector Grant.
- Strengthen managerial systems at the central and local levels through reorganization and/or some decentralization of decision making based on policy studies. Target date: Start 1988. Health Sector Grant
- Test the findings of policy studies through various operational research activities, including personnel management and VHT supervision. Target date: 1989 Health Sector Grant financing.
- Upgrade and strengthen MOH planning and program management staff. Target date: continued. Tulane Contract (RHIP) and Sector Grant.
- Integrate child survival program interventions into the health care system, using the diarrheal disease program as a model. Target date: begin continual process ca 1986. Centrally and regionally funded AID projects and Health Sector Grant.

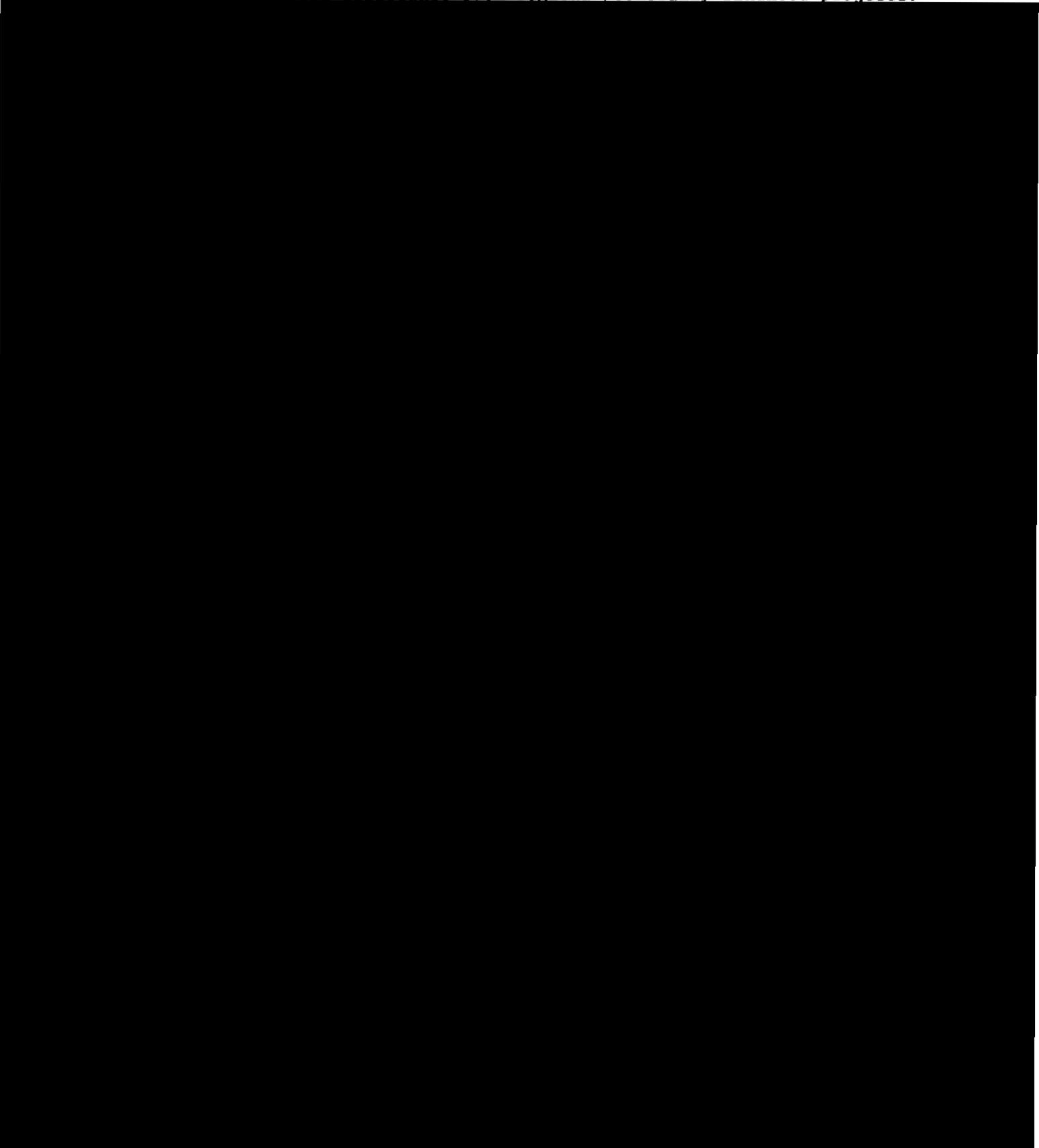
The focus on promoting rationalized MOH planning, budgeting and expenditure will emphasize investment in the preventive system over the curative; stress maintenance/rehabilitation instead of new infrastructure, and reallocate operational expenditures on materials versus personnel, and on local versus central levels. Cost containment policies will integrate programs to reduce duplication and waste. Development and application of appropriate pricing structures for curative services, and user/community financing schemes for village health care should improve health sector financing. Components include:

- Conduct studies on cost containment and recovery, pharmaceutical pricing, etc. to provide basis for informed decision making. Target date: 1988 Means: Health Sector Grant TA.
- Implement cost recovery measures in urban areas, with particular emphasis on hospital services. Target date: 1988. Health sector grant financing of consultants.
- Provide selected local currency support to recurrent costs and support to implementation of MOH primary health care child survival interventions. Target date: on-going Health Sector Grant local currency generations.
- Institutionalize community/user support for health services through financial contributions at all levels of the system, whether subsidized or full rates. Target date: 1990. TA through Health Sector Grant.

At the program intervention level, the strategy promotes improved delivery of primary health services, through expanded coverage and quality of existing child survival activities, and introduction of additional child survival initiatives as appropriate. The urgency of Niger's health and population problems mandate the reinforcement of basic health services including actions

to consolidate and expand the scope of selected child survival and family planning programs. Components include:

-- Integration of program interventions into health care delivery system. Targets ongoing. Local currency support from Health Sector Grant plus technical assistance from regional/centrally financed projects.



-- Extend family planning activities into the Departmental capitals, and eventually into the rural areas, integrated into the overall health care system. Target date: 1987. Means: Technical assistance from centrally and regionally funded activities. Health Sector Grant.

### Assumptions

The USAID's strategy is built on the following assumptions:

- Reasonably strong GON commitment to reform
- Expansion of the health sector's absorptive capacity through appropriate incentives (policy change) and strengthening of MOH planning and management capabilities, particularly through training.
- Close coordination with other donors, to support GON's development of a comprehensive sector approach and minimize duplication of effort.

### Conformity to AID strategy

USAID/Niger's strategy for health and population sector assistance is fully consonant with AID's worldwide health, population and general developmental strategies. Health programming will concentrate on enhancing the effectiveness of health programs through improved program design, management and implementation, introduction of self financing for health programs, and expanded child survival and voluntary family planning activities, all major components of AID's worldwide health strategy.

The population strategy is most appropriate and timely according to AID's criteria. It emphasises policy dialogue in its early stages, combined with expanding service delivery as the country's population policy evolves into a more concrete form.

Promotion of policy reform will be an essential element in the strategy. It includes implementation of reforms enunciated but not yet executed by the Government of Niger and resulting institutional changes. Private sector elements become increasingly important as the GON makes pharmaceutical distribution improvements, including licensing more private sales outlets in rural areas. The entire AID health/population program is being designed and closely coordinated with other donors, especially with IBRD which has mutually supporting policy goals and program plans.

The health strategy takes full advantage of the position achieved by USAID as the major health donor in Niger, through the Rural Health Improvement Project (health statistics and planning, training of VHT and nurses, logistic support and maintenance) and other centrally and regionally funded programs (Pritech, FEDS). AID is currently contributing technical assistance towards family planning through its centrally funded population activities with Columbia University (program management, operations research and policy development); Family Health International (biomedical research); and the Futures Group (policy development and analyses). It includes activities in which AID has a comparative advantage, such as management planning, health statistics, training, certain types of technical assistance in the population field and family planning commodities.

Alternative approaches to the strategy and program modalities.

Regular projects might be used to pursue the policy and program interventions of the strategy. One alternative is institution building at the central government level, which incorporates technical assistance for policy studies that would lead to changes in sector resource allocation. In the Nigerien situation, this approach is not as attractive as a mix of sector assistance with more classic projects, because the preparation of studies which are supposed to lead to policy reform have had limited success unless concurrent funding is provided for implementing recommendations. Non-project assistance can do this best since project modalities do not provide sufficient flexibility. Using a sector grant, a large portion of the funds can be set aside for local currency programming of pilot programs and policy implementation, as well as other mutually agreed-upon activities.

The other option is strengthening service delivery at the rural level, helping the GON to improve, expand, or set up program interventions such as EPI, ORT, nutritional surveillance or family planning. A technical assistance project in child survival would ensure that such programs reach population coverage goals over the medium term. This option would be difficult to implement successfully due to management, planning, and budget problems within the Ministry which are reducing the efficiency of the program interventions, as well as the necessity of direct USAID oversight of each component. The management burden would not be met under current staffing policies if several child survival programs were involved. AID would have the management capabilities to program just one or two of them in Niger. Furthermore, it would be unlikely that a technical assistance project for child survival outreach would have any broad impact on the management planning and resource allocation policies in the sector. Service delivery and policy issues (resource allocation) are intimately related. Experience here in other sectors has shown that it is seldom possible to resolve a range of policy problems through the classic project mode.

USAID/Niger has therefore proposed tackling health sector constraints and improving primary health care through a combination of a Health Sector Grant which begins implementation early in FY 1987, reinforced by appropriate technical assistance (primarily for supporting child survival program interventions) financed under regional and centrally funded projects. This choice of modalities would permit dealing with policy issues while channelling local currencies into preventive service delivery and supporting implementation of IMF-IBRD structural adjustment program regarding health sector recurrent costs. It would increase the likelihood of dramatic changes in health status due to focusing on key sector resource allocation constraints. It provides an opportunity to contribute to the survival of Niger's children, as well as a golden chance for integrating family planning into the overall primary health care system. Although it will reduce Mission management units, it will intensify policy dialogue interaction with the GON and free-up some time previously spent on project implementation. Finally, the Ministry of Health may be able to take policy implementation more seriously if the USAID can combine flexible budget support to discrete services.

Since the Health Sector Grant would only run to 1990 or 1991, the strategy leaves options open for the design of a follow on program, an institution building project or a service delivery project mode.

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# Country Development Strategy Statement

**FY 1988**

**NIGER**

**ANNEX C**

**IRRIGATION UPDATE**

BEST AVAILABLE



**MARCH 1986**

Agency for International Development  
Washington, D.C. 20523

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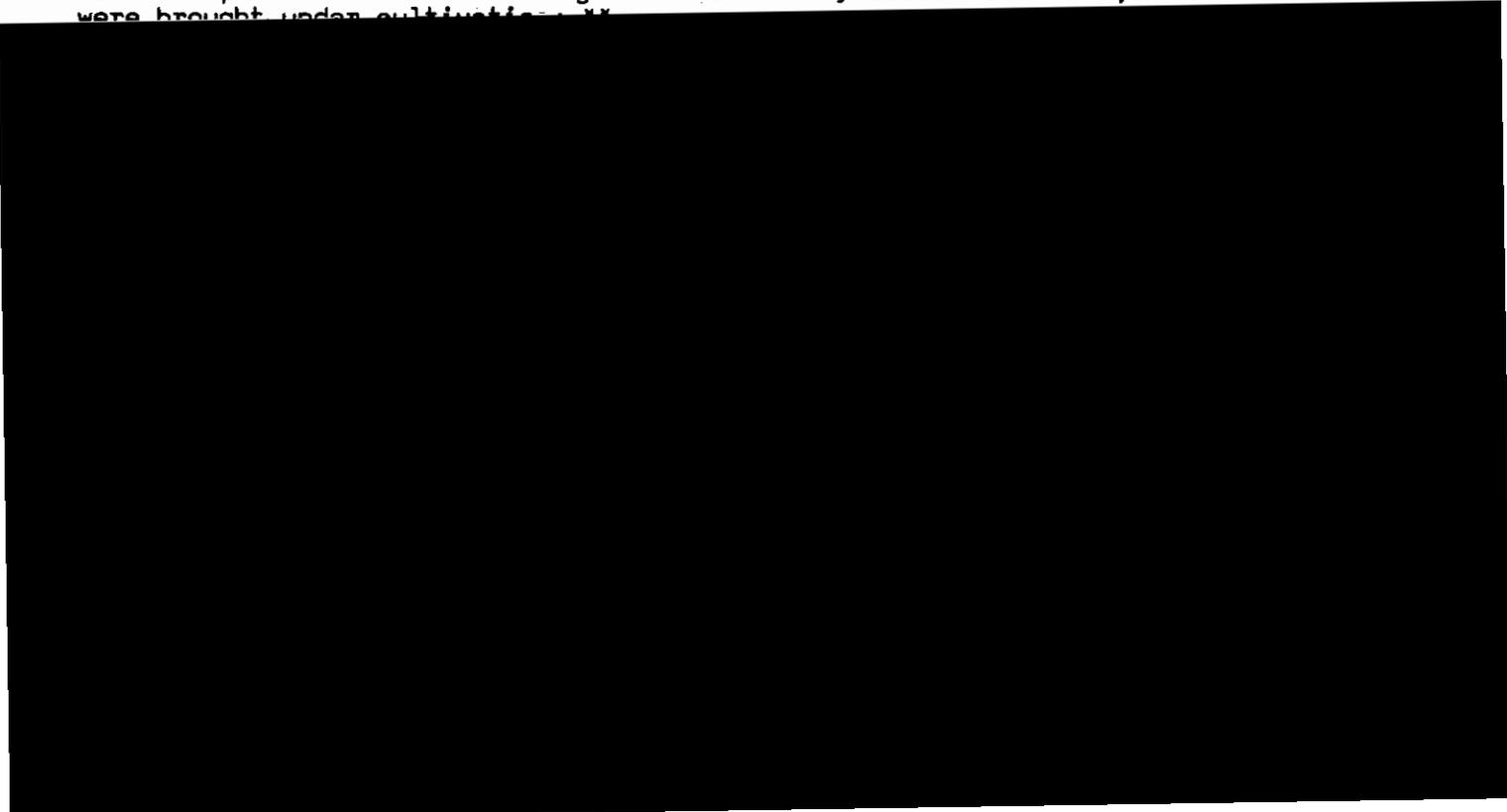
## I. ANALYTICAL DESCRIPTION

### A. OVERVIEW OF IRRIGATION PRODUCTION AND POTENTIAL

#### 1. Current Production and Physical Potential

More than 9,000 hectares of irrigation schemes were established in Niger between 1960 and the end of 1983. As of December 1983, ONAHA (the national irrigation parastatal) listed the cultivable area of perimeters under its control as 9,117 hectares. This area had increased to 9,976 hectares as of the 1985 rainy season. The area actually cultivated during the 1982 rainy season was only 5,738 hectares and it reached only 4,197 hectares in the 1982/83 dry season. The reasons for the low figures were: (1) two big new perimeters had not yet come into production; and (2) large areas of older perimeters had gone out of production due to maintenance and other problems. Up through 1983, about 12 percent of the irrigated land was falling out of production each year, but even the irrigated land that was planted in crops, particularly rice and cotton, was producing well below its potential. By the end of 1985, development projects and rehabilitation activities had increased the rainy season area under cultivation by 3,875 hectares to 9,613 hectares, while dry season production increased by 2,077 hectares to reach 6,274 hectares in 1984/1985 (the drought greatly increased incentives to plant where water was available).\*

The potential maximum irrigation area along the River Niger is probably about 20,000 - 30,000 hectares, without a major investment in dam building. Maximum long-term development in the unlikely case of completion of Kandadji dam and its associated works raises the potential of an additional 110,000 hectares, mostly on terraced lands. There is considerable small-scale potential in the interior. Excluding emergency contresaison activities, there were, prior to 1984/85, approximately 4,000 cement wells, and the total area under such permanent micro-irrigation systems is probably higher than 3,000 hectares, even before the development of additional acreage during the past year. There are probably about 10,000 hectares of inland cuvettes and temporary lakes where uncontrolled water is used in recession agriculture, in Zinder department alone. During the 1984/85 dry season about 70,000 hectares were brought under cultivation.



billion FCFA to GDP, or a realization of only two-thirds of the potential. It also implies underutilization of established processing capacity for paddy and cotton. This figure represents 7 percent of total crop production in Niger coming from less than 0.2 percent of the land under crops.\*

The full exploitation of land already developed for irrigated crop production by the end of 1983 could, under present input-output relationships, produce about 50,000 tons of grain 3,500 tons of cotton, 2,600 tons of potatoes, 85,000 tons of onions, and 60,000 tons of other vegetables annually. Valued at 1984 prices, this implies a potential contribution in a normal crop year of over 16.6 billion FCFA from rainfed agriculture. This irrigated production would require about another 10,000 hectares of double cropped rice perimeters to cover that gap, using current yields involve nearly 11,100 hectares (70 percent double cropped), by comparison to an estimated 5 million hectares of rainfed crops. 10.2 percent of the value of crop production thus comes from about 0.2 percent of crop land under cultivation.

If we assume that by the end of 1987 (or on completion of rehabilitation and with new perimeters already financed), there will be about 14,000 hectares of perimeters that should be under production. In that case, the value of "full exploitation" of perimeters using current technologies, would amount to 21 billion FCFA in the 1984 prices, while rainfed production remains at about 5 million hectares without any major shifts in yields. Irrigated perimeters, excluding micro-irrigation, would thus contribute about 17 percent of value added to production coming from less than 0.3 percent of cropped lands. These figures, it should be noted, are based on the existing technologies and do not take into account the technological shifts resulting from research programs because of the lengthy lead time necessary for the results of research spread fully to farmers.

These extremely rough figures indicate that irrigated lands can easily play a far more important role than suspected in the country's total GDP from crop production, and have the potential for much more rapid increase during the next 5 to 15 years than many had considered. Irrigated crop production, including the micro-irrigation and gardening activities that are left out of the calculations above, would also play an important role in partially mitigating the effects of periodic droughts and in any strategy based on lessening the devastation wrought by drought.

\*This section is based on material contained in Annex D of the Irrigation Subsector Report, which was prepared in March/April 1984. Because of the drought, FY 1984/85 irrigated production levels will be higher, due to: (1) new perimeters coming in; and (2) the incentive of the drought to grow as much as possible where water was available, the late 1980's. Even if all middle-sized perimeters switch to grain production, it is unlikely that the 20,000 hectares will produce more than an average of 8 tons/hectare per year. The current wild price fluctuations are caused by the fact that grain consumption is relatively inelastic, and that the small percentage of grain that is marketed rather than consumed on the farm makes the market vulnerable to sudden gluts and shortages, even if the shift in production is rather small. In the early 1980's Niger imported up to 60,000 tons of rice during a normal year. It would require about another 10,000 hectares of double-cropped rice perimeters to cover that gap for rice alone, using current yields.

The national supply/demand balance for cereals and legumes are such that amounts of rice, sorghum, cowpeas, or peanuts that the perimeters can produce over the next twenty years will not have trouble finding national markets. This is because of the dynamics of high population growth rates and lower growth rates for agricultural production.

The principal vegetables grown under irrigation in Niger are onions, tomatoes, peppers, and, to a much lesser extent, carrots, lettuce and cabbage. During the 1984/85 dry season, wheat, potatoes, sweet potatoes, and cassava were grown. The production of onions in 1980 was about 100,000 tons (including those grown under micro-irrigation), and the yield figures averaged 30 tons per hectare, which is good by any standard.

The national demand for fresh vegetables is growing as fast as the population of Niger's towns. Regional demand is growing even faster. Tomato and onion production has increased by an estimated 13 to 15 percent a year over the past decade (prior to the closing of the border with Nigeria). Demand for onions in the coastal countries is so strong that the coastal merchants consistently come to Niger to pick up supplies. There is also a good demand for dried vegetables, but a lot less is known about this commodity.

The strong demand for vegetables cannot absorb the glut of production that occurs during the principal vegetable production period of December through April. Farmers dry some of their surplus onions, peppers, tomatoes and okra to deal with the gluts, but more perishable crops sometimes rot in the fields. This problem will get worse as three new perimeters stressing vegetable production will come into full production in (1984-85). There appears to be potential for better planning of planting times so as to distribute production over a longer period of time. Available evidence suggests that markets can absorb larger quantities of produce, but more careful study is needed.

Several existing crops offer better potential returns per day of labor than rice and cotton. Dry season peanuts are quite attractive, primarily because of the value of the hay at that time of year exceeds the value of peanuts. High yielding sorghum may do better during the rainy season while helping to avoid the continuous cultivation of rice and the increased problems with plant and human diseases which that causes. During the hot dry season, onions and peppers sell for about twice their fresh vegetable equivalent price during the principal production season. It is hoped that prices for irrigated crops and revenues from irrigated farming can be maintained at current levels, if not increased in real terms over time.

## 2. Types of Irrigation Systems

Niger has four predominant types of irrigation systems involving water control. There are other cultivation methods using uncontrolled water, such as the traditional rice grown during the Niger River's annual flood, and the flood recessional agriculture around the inland mares and temporary ponds. Niger has, by world standards, no large irrigation perimeters; they are all

medium or small sized.\* Namarigoungou (completed in 1984) is the largest river perimeter at 1,550 hectares, and Konni I (completed in 1980) and II (1984) total 2,500 hectares and are the largest perimeters in the interior.

a. Jointly managed river pumping systems

Most of these are located in the cuvettes and on the terraces along the Niger River. The cuvette systems generally cover 100 to 400 hectares (except for Namarigoungou). Dikes control the inflow during the flood season and pumps provide water during the low water season. The soils are usually fine textured and very suitable for rice, which can be double cropped on most perimeters.

Terrace systems are located on the plains above the principal valley of the Niger. They account for about 400 hectares along the river. It is estimated that as many as 110,000 hectares could be developed should the Kandadji dam eventually be constructed. Two terrace perimeters are functioning at present, and a third, Lossa, is used for first generation seed multiplication by the national agronomic research organization. These terraces have coarser textured soils and are more suitable for vegetable and sorghum production than for rice. Because of their elevation, terrace systems require larger pumps that must draw water from the river for both cultivating seasons, resulting in considerably higher operating costs than occur in the cuvette systems. With the decline in the level of the river, several of these terraces no longer have good access to water and have been abandoned.

b. Jointly managed surface dam schemes

The larger surface dam irrigation systems in Niger are found in and near the Maggia valley. ONAHA is currently managing seven operating perimeters that range in size from 30 to nearly 2,500 hectares. Smaller ones (2 to 20 hectares) are found in the Komadougou valley where mares and dead branches of the river are diked by local farmers in order to impound water for dry season cultivation. The Komadougou system appears to be similar to the polder system used on Lake Chad.

The larger surface dams are used primarily for supplemental irrigation of rainy season crops. Limited areas are cropped during the dry season depending on water availability in the reservoir. Rainy season crops are primarily cotton and sorghum, while dry season crops are more varied, including vegetables and large areas in fallow.

c. Jointly managed ground water pumping systems

The best example of this type of system is the Goulbi Maradi perimeter at Djiratawa. Eventually the Maradi perimeter will consist of a series of 40 tube wells emptying into interlinked canals that distribute water by gravity to 500 hectares of crops. The wells range in depth from 16 to 24 meters. The attractiveness of this system is its divisibility and flexibility vis-a-vis

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\*The definition of a "perimeter" is used here to indicate an irrigation system designed by professional engineers with some degree of centralized water control.

perimeter design.

The nearby companion pilot project at Rwana is exploring the economic feasibility of using a single tubewell to irrigate suitable land for a single village. One well is sufficient for seven to ten hectares of crops. Water is distributed from a central reservoir via aluminium pipes with gates, thus reducing the levelling requirements. Because of pumping costs, this system is most suitable for crops that do not require much water.

d. Individually managed micro-irrigation systems

The area covered by individually managed micro-irrigation systems with adequate water control is seriously underestimated. They probably accounted for 3,000 to 4,000 hectares of land under adequate water control. Most of these systems use labor intensive techniques to lift water from two to six meters, or for impounding water from rivers and seasonal waterways. They produce garden products as well as cereals in the Air mountains and in the Komadougou valley. Usually there are three to six wells per hectare, each well has only one owner and usually only the owner uses it. Shallow wells may be unlined hand-dug structures, or have cement linings. Common systems in use in Niger are:

- (1) hand lifting with calabashes;
- (2) shadouf type system of leverage;
- (3) dallou (drawing water with a pulley and animal power using skin water containers);
- (4) small motor pumps (along the Nigerian border).

e. Uncontrolled recession and flood agriculture

Nigeriens speak of 70,000 hectares of contresaison agriculture. This is not in the true sense, irrigated land, in that the water is uncontrolled. It is mostly areas where mares and temporary ponds recede as the dry season advances, as well as the areas in the Niger river, which in years of high water flow, grow 30,000 hectares of floating rice. The 1984/85 drought has had the apparent result of transforming a portion of the uncontrolled water used in recession agriculture into something which resembles the individually (or cooperatively) managed small systems with water control.

3. The State of Irrigation Research in Niger\*

Several institutions engage in research on irrigated agriculture in Niger. A considerable amount of this research has taken place outside the control of the national research institute (INRAN). Except in the case of those production projects that finance it, very little of the applied research gets tested on the farmers' fields, and then into the hands of extension service and other farmers.

\*This section is based primarily on Alain Fournier's compendium on research conducted in Niger, which he completed in January 1986. USAID will be conducting a detailed analysis of the present state-of-the-art, along with a discussion of specific problem areas for applied irrigation research as a part of the PP analysis for the proposed Applied Irrigation Research project.

Irrigated crops and farming systems have received much less attention from researchers than rainfed systems, because fewer resources were devoted to it. Much of the research was conducted outside of INRAN by various agriculture production or perimeter irrigation development projects. INRAN does not yet have a general research agreement with ONAHA. Voluntary agencies, especially Lutheran World Relief, have developed and extended simple applied technologies for well development.

a. Status of Research on Major Cereals Crops.

Regarding rice research, varietal tests have been conducted in Niger since well before independence. Most of the varieties which have been approved for release were developed 10-15 or more years ago. The first IRRI varieties were brought in during 1967-68 dry season, and WARDA trials began in 1975. There are many different activities at present, including varietal improvement, agronomy (fertilizer, cultivation techniques, farm trials and production systems), plant protection and seed multiplication. INRAN's trials are supposed to be conducted at four locations along the river. INRAN has had the reputation of having made relatively little effort to adopt the various technical recommendations to conditions in Niger. One major gap concerns maintenance of soil fertility, fertilizer requirements and appropriate techniques for the extremely heterogeneous soils. It is clear that the recommended dosage of fertilizer is, in many cases, inappropriate and not cost efficient. The GON's rice researcher has identified a more suitable rice variety for the dry season. It goes into remission during cold periods and does not suffer from late transplanting. However, maturity is delayed, so that flowering occurs during a period of hot winds that sometimes impair seed setting, thus reducing yield. Among the most interesting off-station work is a continuation of the ONAHA-run trial program at the IBRD financed Namarigoungou perimeter. This work will continue under the IBRD-Caisse-KFW irrigation rehabilitation project.

Almost all the wheat varieties released for use in country are very old and have, in several cases, been replaced elsewhere by more recent varieties.

The new INTSORMIL program for hybrid sorghum works with ICRISAT and the Sahel Institute (INSAH) cooperative programs. Its objective is to make sorghum production profitable on the perimeters, both in the rainy season with supplemental irrigation and in the dry-season. They are looking for productive short-season hybrids, with good grain quality. They are using sterile male lines obtained from ICRISAT and Texas, and crossing them with the best local improved varieties. On-farm trials being conducted for the first time at Konni indicate some promising results.

b. Other Crop Related Research

The Tarna agriculture research station of INRAN near Maradi started out in 1963 as the experimental station for irrigated agriculture, conducting French financed irrigation research on water and management requirements for dry season wheat corn, cowpea, onion and tomato; rainy season sorghum and cotton; as well as cassava, hot pepper, potato, sweet potato and forage crops. After 1970 its works tailed off, and it concentrated primarily on water requirements for cotton in certain types of soils. Research was done at the farmer training center in the Goulbi Maradi, and then at the pilot irrigation farm at

Djiratowa. Studies were conducted on the problems that farms encountered in applying the recommended practices proposed by researchers and adapting these recommendations for different project zones. The program is very broad and covers supplementary irrigation for rainy season cotton, sorghum, millet, peanuts, cowpeas etc; corn, sorghum and peanut varietal trials for the hot season; cool dry season corn, cowpeas and wheat; sweet potato, potato, okra, tomato, and hot pepper; soil preparation for cotton, sorghum and corn, green manure and organic material trials, windbreaks, fruit trees and forage crops. The future of this activity is clouded by the fact that the Maradi integrated development project is phasing out. The applied research program is well developed and research/development activities are currently practiced on many farms in the Goulbi.

In addition to the INRAN-run activities at Lossa terrace perimeter on the Niger river, the irrigated crops experimental unit is run by CIRAD, a French commercial agricultural research organization that took over from GERDAT-IRAT. It appears to be doing work on its own account, although it has ties with INRAN which started its work at Lossa in 1977. Its objective is to develop and refine intensive small farming systems based on irrigation and animal traction. They examine soil suitability for irrigation, irrigation systems, varietal trials (peanut, cowpea, corn, wheat, sorghum, rice vegetables), forage crops, integration of agro-forestry techniques, fruit trees, etc. They are examining improvements in water management, water requirements and sprinkler irrigation. CIRAD is testing production systems in the farm environment on an experimental farm and four pilot farms, these activities are destined for pre-extension testing.

The German volunteers did some research for vegetable production in the Air Mountains under desert conditions beginning in 1978. The hydro-agricultural project at Arlit was created by the Atomic Energy Commission of France for vegetable and fruit production (1980).

Hot pepper cultivation and recession agriculture are well developed in the Komadougou. There is a seed farm at Diffa under the Agricultural Production Support project, which conducts some trials on rainy and dry season crops. Between 1975 and 1980, irrigation research focused on sugar-cane cultivation at the INRAN station on the Tillakeina perimeter near Tillabery.

The Water Management Synthesis II project is sponsoring Ray Norman's doctoral dissertation field work on the water efficiency of the Adder-Doutchi-Maggia irrigation perimeter and micro-irrigation systems.

Farmers on small-scale and micro-irrigation activities are forced to use varieties (often quite old) developed for dryland production. Vegetable varieties from France are used, with results that might be expected. However, INRAN researchers have been incorporated into the teams that evaluated the contresaison efforts and have come up with many observations.

Despite all these activities on stations, relatively little has been tested on farmers' fields, and still less has been extended to farmers, with

the exception of the Maradi Integrated Rural Development project. More recent research work has been done along the Niger River, but with the partial exceptions of the European Development Fund perimeters and the Namarigoungou, relatively little testing-demonstration has taken place. It should be noted that these activities are all executed outside the formal research organization.

### c. Farming Systems Research

INRAN (under National Cereals project) has begun a farming systems study on three perimeters. This study, when completed and combined with the Ministry of Plan's study of labor requirements on four perimeters, should provide some interesting results regarding socio-economic constraints and others relating to farming systems appropriate to irrigation in different dryland ecological zones.

The NCR study of Niger River farmers, even in its early stages, appears to indicate fairly significant shifts in the physical conditions (on perimeter timing of rainfall) and the combined household and farming operations beyond those reasons connected with soil heterogeneity and fertility on the perimeter, to suggest that farming systems research, even in a rice-rice system, should work towards the development of three or four basic packages to maximize return to the farmer and return on investment. Systems well to the north of Tillabéry are in areas where the chances of good dryland crop production are poor, where livestock feeding and finishing are important, and where farmers need sufficient irrigation allotments to be able to meet most of their subsistence needs. In the extreme downstream area, where rainfall is abundant, rice and irrigated crop production are extra activities in a place where there are a number of other lucrative occupations. The return to labor for rice has to be quite high to make it an interesting proposition. The Tillabéry-Niamey area is an intermediate zone, but still with erratic rainfall, whereas the intensity of farming in the Niamey-Kolo area reflects limited land availabilities access to urban market (truck gardening) and other employment. Rice may not be as interesting a proposition in this area except under very high yields.

## B. PROFILE OF RURAL HOUSEHOLDS AND FARM LEVEL SYSTEMS

### 1. Characteristics of families that produce rice on river perimeters

A The Nigerien household is a conglomerate that engages in several economic activities. This is especially true of families that have access to irrigated land. Thanks to recent studies (Arnauld, Ly Samba and Deuson, Bomans, etc) much more is known about the rice production systems than other systems. In general, irrigation allotments are not large enough to feed a family and make a living off of them. This is particularly true of rice and cotton cultivation. Along the Niger River, irrigation perimeter allotments are small. North of Tillabéry in the transitional zone between livestock and crops, the rice allotments tend to be about the annual equivalent of 0.54 ha. Namari I farmers average about 3.6 ha rainfed land, while Djambala farmers had 2.6 ha of non-rice land. Further to the northwest, near Ayorou, rainfed conditions are so poor that farmers are much more dependent on irrigated land. Immediately north of Niamey, the annual equivalent of 0.46 hectares of irrigated fields per household perimeter holdings averages to 0.4

ha/household, but average dryland cultivation is much smaller (1.1. to 1.5 hectares per household). Just south of Niamey, the average annual area under irrigation per family is only about 0.4 hectares. The amount of land under rainfed crops varies from 2.48 to 3.9 hectares. However, rainfall conditions in the Kolo area are noticeably better than north of Niamey.

Farming is usually directed by the head of household. Dryland farming is often organized three ways. The large common fields are under the guidance of the head of household, other fields are exploited by the sons, and still others by women (who often grow vegetables and speciality crops).

Livestock raising is an important secondary enterprise, especially in the upriver perimeters. Most households have at least two head of cattle, and in the perimeters from Namarigoungou to the north, cattle become more important. Farmers with irrigated land feed the animals rice straw and run small-scale fattening operations, although the first choice is normally to sell straw. Near Niamey, households have higher than average numbers of rams, probably because of small-scale speciality activities that include raising sheep for holidays. Some farmers who own animal traction equipment and draft animals rent their teams out for farm operations as well as for haulage, earning a sizeable income. In one perimeter, sorghum and tobacco raising are cash crops that compete with rice.

Eric Arnould's paper states that about a quarter of the rice growers had some other occupation, the most common being fishing and trading, followed by mat-making, pottery, masonry, carpentry and blacksmithing. The slack season exodus of adult men, because of the lack of remunerative employment can reach 25 percent mostly from the upstream perimeters and from those near Niamey. The development of the perimeters appears to coincide with a reduction of the emigration rate.

Given the reduced productivity of dryland farming north of Tillabery, rice is important in meeting the cereals deficit. The further downstream one goes, the more often rice appears to be regarded as a commercial enterprise just like any other, rather than something vital for family survival. This is especially true in the Gaya area, with its high rainfall and diversity of economic opportunities.

Average household size is usually about eight people on the river perimeters. Although there is an enormous range in household size and the number of active workers, Deuson averages about 5 active workers per holding and men provide somewhat more agricultural labor than women. Arnould's figures, calculated slightly differently, have 4.65 to 4.22 people as the real labor force theoretically available on the river farms.

Farmers work four to five times more intensively on the irrigated land than on millet fields (the range is nearly 9 times at Namarigoungou where rainfall is very low).

A theoretical construction of labor requirements indicates that there is enough family labor to work both the irrigated and the dryland holdings. This does not take into account the acute bottlenecks imposed by cropping cycle and dependence on highly erratic patterns. But the size of holdings varies, as do the number of laborers, which means some households simply don't have labor available. There are bottlenecks in the agricultural season, and severe

competition occurs between irrigated and rainfed farming in June-September. The dry season rice harvest conflicts with preparing on rainfed fields, and the first weeding must be done immediately after a substantial rain and this conflicts with transplanting rice. Family labor and reciprocal arrangement can be pressed into service for planting and cultivation the dryland common household (gandu) fields, but rice is regarded as being outside these traditional arrangements since it is a cash crop. The larger the irrigated area, the more family labor will be used, the more animal traction will be used, but also the amount of paid labor will increase substantially. Hired labor as a percentage of total labor inputs ranges from slightly less than 15 percent at Namarigoungou (with its sparse rainfall) to nearly 30 percent at N'dounga (where rainfed crops are much more important).

Arnould's efforts at regression analysis suggest a number of interesting points:

- Whatever the size of the family, it begins to call on paid labor as soon as labor demand for rice cultivation crosses a rather low threshold.
- Probably those heads of households that use several fields for different crops have more need for paid labor than those have only a few (diversification increases labor demand).
- Since people have several small remunerative occupations according to what turns up, it would be normal to have labor shortages.

Although situations vary widely along the river, between 40 and 60 percent of the farmers have animal traction equipment, about half of it bought on credit and half for cash (Cash purchases are more common for carts). With the exception of Toula perimeter, oxen predominate. Farmers with larger areas of dryland and irrigated land, as well as larger families, are more apt to have equipment and to pay for extra laborers. Those who don't own animal-drawn plows usually pay for plowing, although some farmers lend out their equipment. Much of the equipment needs repair and there is considerable pent up demand on the perimeters, caused by a lack of cash resources and/or credit. Acquiring an animal traction unit requires a considerable amount of accumulated capital. Animal traction is apparently becoming a more integral component of the farming system, but it complements and does not appear to replace labor. It thus augments and supplements production capacity in place of compensating for the weakness of the labor force.

Farmers use fertilizer on irrigated rice; however, the recommended dose may not be the optimal dose in physical and/or economic terms. They also use pesticides.

The average production figures on the perimeters are usually stated as 3.0 to 3.5 metric tons of paddy per hectare in the dry season and 2.5 to 3.0 in the rainy season. The Sogreah Berger report production figures tend to be higher than ONAHA's, and Deuson's 1984 rainy season test samples ran considerably lower than ONAHA's production estimates. According to Deuson's figures were Liboré (Kolo area) averaged 2.4 MT/ha, rising to 2.6 at Djamballa and 3.3 at Koutoukalé. The ONAHA estimates ran from 3.7 to 3.9 mt/ha. The Koutoukalé perimeter receives European Development Fund financing and has benefited from technical assistance and has a strong cooperative movement.

Emmy Simmons' rough analyses (Annex D, Irrigation Subsector Assessment

1984) lead her to believe that rice yields have been less than previously thought and that costs of rice production costs are high, over 200,000 FCFA per hectare. In 1982-83, with the official price of 80 FCFA/kg, farmers' perimeters might have net revenues of less than 50,000/60,000 FCFA per hectare, thus making the return per work day to be as low as that for millet. Redevances (common services fee assessment) have been climbing in ONAHA's effort to recoup recurrent costs. Emmy Simmons' rainy season figures indicate that a yield of 3.0 tons in the dry season and a selling price of 95 FCFA/kg for paddy and 10 FCFA for straw, returned less than 700 FCFA for daily labor (Sufficient data is not yet available from Deuson's work to recalculate costs and returns from 84-85 production).

## 2. "Inland" Perimeters

Much less information is available for the upcountry perimeters, where cotton and sorghum are the major crops. Arnould's work covered Konni, which has some abnormal factors due to being a major trading and market center just north of the border. Ray Norman's fieldwork on the Maggia perimeters is nearly complete, but results will not be available for some time. Arnould has done a study of the Maggia perimeters concerning labor utilization.

Commerce is a very important occupation at Konni, and many farmers with irrigated land are also traders. Konni has a high ratio of producers to consumers and a noticeably lower theoretically available "real labor force" (3.73 per holding). Since 1980, the low rate of male emigration has halved. Konni also has more variation in labor availability per household than the other perimeters.

At Konni, farmers have on the average fewer hectares of dryland fields per household (1.25 hectares) and only 0.41 ha of irrigated land available (Konni had only one crop per year at the time Arnould's research was done). However, the variation of the number of fields per household range very widely from 0 to 10. Konni has a large number of owners who rent out their fields. Half the sample farmers had animal drawn equipment, and two thirds of those rent it out to less fortunate neighbors. Farmers appear to put in an average amount of work into dryland fields, per hectare, but less than average for irrigated land since only one crop is grown. At Konni, paid labor accounts for about 50 percent of work per hectare of dryland fields and about 20 percent of work per hectare on irrigated lands. Konni is different from most perimeters because it probably has a stronger cash economy than most parts of the country. There is a strong positive correlation between number of irrigated and non-irrigated fields, their size and amount of labor hired. Farmers at Konni sell about 40 percent of their production to cooperatives; they keep 35.5 percent, 10.9 percent goes to charity and the remainder goes elsewhere.

Rainfed production in the Maggia has been poor in recent years. Emmy Simmons' tables indicate that the return per day of labor to sorghum is about twice that of cotton (which is only 805 FCFA). In the Maggia valley, farmers were supposed to plant two thirds of the land in cotton during the rainy season but in practice the split is slightly in favor of sorghum. ONAHA has allowed a 50-50 split for Konni. The Government of Niger incurs significantly higher subsidy expenses per hectare for cotton than sorghum, (pesticides) and cotton has historically had a higher priority. Realistic sorghum yields in the Maggia are 2.5 tons/ha, but in Konni it is only about 1.1 tons/ha.

A significant amount of vegetables and grains grown in the Maggia are grown as flood recession crops (valued at nearly 70 percent of irrigated production). Given the limited amount of water storage, most fields remain fallow in the dry season.

The GON plans to use Konni for vegetable and wheat production during the dry season. Sorghum and cotton are planted in more or less equal shares during the rainy season in both perimeters, while peanuts and vegetables dominate the dry season cropping system.

If water storage/management problems are resolved it is probable that cool season crops, including vegetables, wheat, grain legumes and tubers, will increase substantially on all inland perimeters. A major effort was made at Konni to grow dry season wheat in 1985.

### 3. The Air Mountains Systems

In most years, a farm family is said to be able to subsist on produce and income from a half to one hectare of irrigated land. The main crops are wheat, millet and potatoes. The dallou system appears to be quite efficient and has been tried in northern Niamey and a few years ago in the Goulbi Maradi. However, weather and soil conditions in the Air may make the Air situation unreplicable.

### 4. Vegetable-Vegetable systems

There are many variants on this system, starting from the heavier mare type soils, where conditions are too soggy for anything except weeds and sorghum during the rains, and are used for vegetables in the cool dry season. Sugar cane is an extremely popular crop in southern Zinder Department. Gardening, either as recession agriculture or as irrigation using the simple water systems, has always existed around villages with high water tables; there was a veritable explosion in the drought year of 1984-85, with the Government pushing the contresaison effort. A spontaneous double cropping system has developed around Niamey. Larger towns supply vegetables to both the indigenous and expatriate markets, while several decades ago in Galmi an indigenous double-cropped labor intensive onion system started developing. With the development of the Galmi perimeter and the Madaoua area, the "violet de Galmi" has become a well-known onion variety from Abidjan to Lagos. Other crops produced are tomatoes, large squash, sweet potatoes, okra, and green peppers in the Komadougou. During the contresaison campaign, wheat, maize white potatoes, sweet potatoes, cassava and niebe (cowpea) were the most common crops.

Farmers traditionally purchase few inputs, the major cost being digging an unlined well for FCFA 2,000 per season. About five wells with a depth of three to five meters per hectare are needed, depending on recharge rate/water level. Hired labor is common, and women are more likely to use unpaid family members as additional hands. Water lifting is expensive, and up to 600 work days are needed for a hectare of onions. Lutheran World Relief, followed by Africare, have demonstrated how to make cement lined permanent wells. There probably were, about 4,000 such wells by early 1984, before the explosion of contresaison efforts. Fertilizer, improved seeds, permanent wells, pesticides and small gasoline pumps seem to be the inputs most

frequently added. Shadouf and dallou methods of water lifting are common in the Maradi area.

Onions offer the best export opportunity, but despite their good keeping qualities, signs are appearing that the onion market is not one with very rapid long-term growth. It is thought it would grow at about seven to eight percent a year, or the approximate rate of urbanization in West Africa. Galmi onions are apparently capable of 50 ton/hectare yields under good conditions, but 30 tons appears to be the norm. The return to labor on micro-scale onion production appears to be nearly 3,300 FCAF per day, and a gross margin per hectare of more than a million FCAF is possible. While on the perimeter it is nearly 2,500 FCAF per day due to fact that the cooperative pays marketing costs.

There are potential markets for export of traditional dried vegetables to the cities and to the coast, particularly for tomatoes. A grain /vegetable-vegetable rotation is planned for the Niger terrace perimeters, and the results of Tillakeina should be examined. In its first season (cold season 83/84) it had both production and marketing problems, and there is some seasonal glutting already on the Niamey market which is also supplied by small riverside gardens.

### C. Farm level constraints on irrigated production

#### 1. Factors increasing the farmers cost of production.

The factors increasing production costs include the poor design of the water delivery mechanism on some ONAHA perimeters which has reduced the economic life of the perimeter. With very little soil and water information available to them, consultants designed "optimal" water delivery systems. Almost all these perimeters, included in rehabilitation projects were designed to last 40 to 50 years, are less than 15 years old. Some perimeters have been abandoned. New perimeters address the problems in a rather narrow technical sense, such as minimizing maintenance, installing more costly cement structures, installing electric pumps, simplifying water control structures etc. However very little attention is yet paid to soil heterogeneity in designing perimeters, thus incurring higher costs per hectare under cultivation. The technical system design of perimeters will need further adjustment to reflect farmer's interests, particularly in the rice-rice systems where the return to the farmer is low, and the farmer has no control over the costs. Farmers are not enthusiastic about providing labor for canal maintenance. In the past, the response to the labor shortage has been to increase capital expenditure, this may not be what farmers want.

Inefficient water lifting and application mechanisms also increase the cost of production, be they mechanical in origin (pump maintenance, unlined canals in sandy soils, poor leveling, and inability to calculate the amount of water needed by crops or the amount actually applied leads to expensive application).

Inefficient application of fertilizer is perhaps the most costly. Farmers use what types they can locate, and will either apply it in quantities that are too large or at the wrong time. There is also a growing body of evidence which indicates that for the most common package. Some farmers along the river apply double the 15 - 15- 15 required, but this apparently produced less

rice per hectare than the package. The fertilizer application may be either scientifically or economically at the optimum point for returns. It is even possible that with the extreme heterogeneity of the rice soils, farmers in some areas who put less than recommended fertilizer had very high yields in some locations.

Pest attacks increase costs, and the rice/rice cropping system would seem to increase pest and disease outbreaks. Better weeding and more timely application would also reduce costs. Certain spraying techniques, especially for cowpeas, might reduce losses and costs considerably. The microclimates established by the contresaison cultivation and the use of non-resistant plant varieties resulted in an explosion of outbreaks and very heavy losses last year.

Reconstruction of dikes, bunds and channels destroyed in plowing may not increase costs significantly, but these operations require significant labor inputs at a time of year when the competition for labor is very strong. Dryland crop planting and preparation of irrigated fields occur when family labor is stretched to its limits, and the opportunity cost of labor is high.

## 2. Factors depressing the volume of output.

These factors include untimely planting or transplanting, and untimely water application. Niger River perimeter farmers often transplant their rice too late, thus reducing tillering and yield; or, in at least one well-documented case, simply broadcasting the rice, which also reduces yield. Late transplanting occurs because of (1) late arrival of flood waters and delay in irrigation water availability; and (2) competition with weeding millet. There are not enough family hands to get the job done, and cash resources are low at that time of year. Farmers probably broadcast rice because they do not want to incur the extra labor requirements for growing a crop that has a low return to labor. Consequently there is a wide variation of planting/transplanting dates leading to variation of maturity at harvest. Farmers are apt to apply water because it is there when rice is nearly ready to harvest, thus reducing the yields.

There are also, apparently, not enough animal traction units to cover the perimeters in a timely and adequate fashion for land preparation. This combined with lack of animal health support may reduce yields.

Considerable site specific evidence exists of poor weeding and pest control. Since millet yields are very sensitive to delays in weeding, farmers remove labor from irrigation perimeters to weed millet on time. Poor weeding and pest control on the perimeters themselves reduce yields, the major reason appears to be labor constraints.

Poorly adapted or non-adapted varieties are a major problem, particularly for crops other than rice (work has been done on getting more cold tolerant dry season and suitable rice varieties, not all of which are yet ready for extension). There are not, apparently, suitable maize varieties, and work is needed on suitable irrigated sorghum varieties.

## 3. Factors related to financial burden and risk.

In the ONAHA managed perimeters, there has been a continuous reallocation

of financial responsibility, from the state to the farmers, in the form of higher user fees and reduced subsidies. This is likely to continue. It affects both direct and indirect subsidies and shifts a large part of the risk burden of irrigated farming onto farmers, who are growing crops with poor returns to labor. These measures include shifting to farmer-owned animal traction (not enough units, not enough credit), and ONAHA cannot meet the demand. Abandonment of the credit program for fertilizer also shifted a burden to the farmer (the IBRD program will probably include annual production credit). Farmer access to fertilizers had been on a cash only basis which means the farmer used what he could afford (and also used it where return was higher). The result has been an apparent decline in the use of fertilizer on rainfed crops to which the reduction of the subsidy on fertilizer has also contributed. The gradual assumption by farmers (through the cooperatives) of central perimeter management and extension costs will add to the redevances.

These changes should have the effect of making the farmers more efficient users of resources by bringing financial and economic returns into line. However, water use in existing ONAHA distribution systems can only be monitored centrally and there is no incentive for the farmer to be more efficient in water management. This leaves good farmers subsidizing the poor ones.

Second thoughts are needed on cropping systems for the Konni and Maggia valley perimeters: farmers have more incentive to produce sorghum than cotton. Cotton is attractive only because of high subsidies. During the drought, farmers were urged to grow wheat and other crops for subsistence feeding during the cold season. Onions and sugar cane were discouraged to increase food production. This was not particularly effective, and farmers continued to grow sugar cane and onions because of their high return. At the same time, farmers planted additional land with food crops.

#### D. Traditional Social Structure, Cooperatives and the Development Society.

The Niger river area has strong traditional villages with a hierarchical household organization, under a head of household who organizes farming work. The practice of having adult sons work fields in common (gandu in hausa) remains very common in Niamey Department and about 1/2 to nearly 3/4 of the total dryland fields are worked in this fashion. Sons work their own fields and wives will often have their own dryland fields for specially crops and others.

Farmers inherit the use of land for almost all of the dryland parcels. Near Niamey the percentage of borrowed dryland fields is much higher, much more than half of the land is worked by families that started farming it less than 10 years ago. Further away from the city, more farmers have had their land longer. Rented and purchased fields are a minuscule percentage of the total.

Irrigation land is attributed differently on irrigation projects with State-owned land allocated to family groups. Farmers who owned land within the perimeters get irrigated land first, and then it is allocated to others. Usually the allotments were small (sometimes 0.20 hectares per family) with some theoretical adjustment according to family size, but no real adjustment according to quality of land. Allotments are often made by lottery when

demand is heavy. There has been a history of complaints, such as giving rice land to taxpayers of the canton who reside elsewhere, giving it to members of non-rice farming villages and pushing traditional rice farmers aside. Cases are known of women who had plots that were incorporated into the perimeter at Konni and at Say who apparently did not get fields back in compensation. There has also been a history of land claims in Konni, particularly sizeable allotments to town dwellers, and the extreme variation of size of irrigated land allocated to a single family, despite the general rules. Not all that have the labor force have the access, and not all that have access have the right. There has been litigation regarding renters (at Konni) who do not always want to pay the redevance. It appears that there may also be rental of rice fields at Tara.

Households, particularly among the Zarma, have the reputation of "keeping themselves to themselves," not looking too closely at what the neighbors are doing in their fields. This causes some difficulty in the areas of extension and cooperative development. It is not possible to enquire too directly about a farmer's production. However, the Sidikou-Charlick study of local organizations among several ethnic groups in the non-irrigated areas, there are more non-formal groups that play a stronger role than we had thought. Non-structured mutual assistance groups are common, particularly for building grain stores and housing, and about 70 percent of the population participate "frequently."

Other informal groups away from the river include merchants, brickmakers, and mechanics. These are not inherited occupations, but the people in the group may be related. They work together to improve production techniques and to find markets. Some of these are close to becoming small artisanal enterprises. There are also inherited occupations, such as blacksmiths (who would have an important role in equipment repair and manufacture), weavers and butchers. A notable blacksmithing cooperative effort has begun which serves the traditional rice production area and Tillakaina vegetable perimeter near Tillabery. Truck gardening (even outside of formal perimeters) tends to lead towards multi-functional informal cooperative groups. Near Zinder, a mare which is partially fed by springs is the site of a spontaneous cooperative contresaison activity that has been in existence for at least three years. The cooperatives launched under the leadership of the Madaoua "onion king" and supported by Lutheran World Relief has also been an independant cooperative development of micro-irrigation that has reached quite an impressive scale. Marabout sects have also launched informal cooperative efforts, and, Sidikou and Charlick have confirmed the existence of modest rotating "caisses" or tombolas similar to what exists in much of West Africa.

The strongest formal group organization is, however, the revived Samariya. They have very widespread participation and carry out many roles in addition to political relationships with the world outside the village. Their leadership is closely linked to traditional leaderships and they have the ability to mobilize large numbers of people for community work. All sorts of things are done, even up to road repair, in addition to their cultural activities. The members lack formal and practical leadership training. No examples of Samariya activity on Niger river perimeters have been brought to our attention, but the name of the Samariya appears to have been connected with the contresaison efforts in Zinder.

## 2. Cooperatives

Historically, institutions which play key roles in supporting and implementing irrigated agriculture in Niger have not placed high priority on involving farmers in planning and decision-making. Most observers feel that this is one factor explaining the relatively poor performance of Niger's irrigation sub-sector and, indeed, of agriculture in general. Partly in response to this presumption, and as set forth in the Zinder conference resolutions regarding decentralization of services and development of self-sustaining institutions, the GON has embarked on a nation-wide campaign to strengthen cooperatives and make farmers more responsive for management and maintenance of irrigated perimeters.

Efforts to strengthen cooperatives in Niger are not new. The UNCC, which was the agency primarily concerned with cooperative development in Niger, has existed since shortly after independence. During the 1970's its role grew to include marketing of food grains and supplying farmers with inputs. It gave little attention to cooperative education over this period so that UNCC agents had to assume much of the additional work and responsibility associated with these functions. The GON abolished the UNCC and replaced it by a National Union of Cooperatives. However, the Government defines their role and function, and specifies rules and procedures. Cooperatives membership is determined (on rainfed land at least) by place of dwelling rather than group affinity or common interest. This legal requirement undermines the social cohesiveness and group solidarity of the cooperatives. The cooperatives are not, for the most part, allowed to charge membership fees or to assess members for establishing an investment and working capital. With certain notable exceptions, cooperatives have little internal dynamism of their own, although the GON, in its own way, is trying to correct this. Until the farmer groups are given more latitude in determining their own rules and procedures, there is considerable skepticism regarding long-term success. Except for the Tara irrigation perimeter, USAID has had almost no experience with cooperative development outside of rainfed agriculture. The Sidikou-Charlick report indicates that in dryland farming at least, it is the cooperative, a grouping of several groupements mutualistes (GM), or pre-cooperative each one representing a village, that counts. It is regarded more as a supplier of agricultural inputs, etc. than anything else, and this has dwindled as credit availability has restricted. At the present time, GM's have practically none of the characteristics of self-managed cooperative organizations (except if it happens to be the GM of the village in which the cooperative is located). Their role and principles are poorly known. GM's undertake almost no activities, they have very little capacity to manage agricultural inputs and credit. They are not in the position to make real decisions. Many "members" do not even know the reasons why they belong to the group or the process of making decisions and getting the participation of villagers.

At the level of the cooperative, traditional leaders are more apt to be leaders of the cooperative, and are more likely to obtain long-term credit.

Formal cooperative sections on ONAHA-run irrigation perimeters appear to be somewhat stronger than their rainfed agriculture equivalents. They still range from strong to very weak. The cooperatives, divided into groupements mutualistes, have their physical basis in that the members have production rights to land in a specific perimeter. First of all, the cooperatives have a

much larger role in supplying inputs and long-term credits, and they supply marketing services. Secondly, the farmers' fields are cheek-by-jowl with one another and the cropping calendar imposes a certain amount of discipline as to when water is available, etc.

Arnould points out that irrigation cooperatives do not fully exercise their role as a link point between recipients and the technical services. Moreover, farmers recognize so many more failings in social organization of production than the cooperatives can rectify. Despite the weakness of cooperative management capabilities in financial, agronomic and extension areas, the GON has established a policy of turning irrigation perimeter management from ONAHA to the cooperatives in two years. Even with the inputs in cooperative management (especially financial) under the proposed IBRD-Caisse-KFW project, the Irrigation Workshop suggested that larger perimeters especially will need a longer period of time.

The cooperatives on the FED-supported perimeters (which have received more technical assistance than most) appear to be more active than the bulk of irrigation cooperatives. In addition to input supply and marketing, Koutoukalé cooperative engages in grain purchases in cash and against redevance, rice milling, millet grinding, boutique operations, beef fattening, and women's vegetables. The Toula cooperative's purchase price for rice is better than the merchants'. Konni is the only perimeter that provides production credit, according to Arnould, but it probably has a relatively weak cooperative. The Tara irrigation cooperative, supported by Africare, actually excluded a couple of members who habitually did not pay their debts.

### 3. The Private Sector

The private sector is very active in perimeter design and construction, though contracts for larger jobs and more sophisticated services have tended to go European rather than Nigerien firms. One of the big contractors went out of business recently, however. A key question is how to strengthen the competitive capacity of Nigerien entrepreneurs so that they might be able to assume a greater share of the design and general contracting work. The large firms subcontract with Nigerien businesses, jobbers and equipment suppliers to provide services and materials. The suggestions that smaller, simpler perimeters be developed in lieu of large ones to cope with perimeter management difficulties may help Nigerien contractors who probably lack capital for large tasks. ONAHA feels it is not equipped to serve as an effective competitive force to reduce costs much by doing construction on force account.

Despite GON efforts to reduce subsidies, the way that the GON administers its subsidies constrains the private sector from playing a more active role in supplying inputs. Even with the increases in the redevance (which now includes meeting some replacement costs on some perimeters), substantial direct and indirect subsidy elements still exist in fertilizer, insecticides, equipment and pump servicing and repair. Returns to the farmer appear to dominate the decision whether to use fertilizer or not. ONAHA is phasing out its highly subsidized tractor hire program in favor of farmer-owned draft animals.

The private sector supply is important with some inputs, such as fertilizer, and, to a lesser extent rental of tractor hire or ox teams and

plows. Cooperatives are now apparently free to engage anyone for pump maintenance and repair, but some go to ONAHA. Some types of repair can, at present, be done only by private sector. There is no standardization of pumps (it depended on donor developing the perimeter or credit source ) and no dealer in larger pumps in Niger provides any after sales service on pumps that is worthy of the name. The case is different for small pumps. The private sector is already active in supplying smaller pumps to individual farmers or groups of farmers. While the border was open with Nigeria, comparable pumps from there were much cheaper than those distributed by Niamey-based agencies. Farmers appear to be servicing many of these pumps themselves, and the FAO/ADB Small-Scale Irrigation project that concentrates on the Komadougou envisions providing training in pump maintenance and repair. Cooperatives already purchase fuel directly from private merchants, who also deliver fertilizer. The Central d'Approvisionnement (CA) is also a supplier of inputs but with the ending of most annual credit, there is little incentive to use CA unless its sale price is cheaper than the private market.

The private sector also provides masons, well-diggers, mechanics, metal workers, and even ox-drivers and plowing teams. This hands-on informal system should be expanded, on both the ONAHA perimeters and the micro-scale irrigation. The irrigation workshop participants agreed that the private sector has a role in pump manufacturing and repair and in marketing and conserving food products. Input supply is also moving rapidly to "détatisation."

The private sector is very active and will continue to market vegetables and other products from the irrigated perimeters. It is less active in marketing rice. However, there is a need for marketing studies, experiments with storage and drying technologies, even perhaps identifying of marketing opportunities. Donors or the GON may have to provide credit for the construction of drying facilities or technical assistance for quality control and market development; but cooperatives and individuals want to evacuate their produce and market it as effectively and at as high a price as possible. Long-distance trade exists, and it is a small step to supplement this with marketing inputs to provide the kind of information needed to reduce risk and uncertainty while improving the efficiency of the private sector.

There is no reason why many services needed on the perimeter cannot be provided by farmers themselves. The private sector at the present time does not provide extension, the area of private sector extension activities is hard for Nigeriens to grasp.

#### E. Health and the Environment

Irrigation projects, even small ones, have an impact on the environment in several different areas. These include water availability and supply, salinization, erosion, fertilizer and pesticide use, as well as the impact on human health from water-borne diseases. With a couple of notable exceptions, very little attention has been paid to the considerable health and environmental impact of irrigation development in Niger.

### 1. Water Availability and Quality

The ISSA was perhaps overly optimistic on water availability. Niger has a reasonable amount of surface water supplies to meet the irrigation needs of land already developed or under development. Low flows in the Niger river from mid-1983 through mid-1985 have deprived some pumping stations of a water source while heavy siltation of inland reservoirs has greatly reduced their storage capacity. Damming of rivers in Nigeria that pass through Niger has raised concern about the ability of the basin aquifers to recharge themselves. Whether planned investments in infrastructure will be economic is a question that must be approached on a case-by-case basis (Ray Norman's thesis research on the Maggia should be helpful in this regard).

The GON does not know if its easily accessible ground water is a renewable resource. In the Air mountains, the volume of ground water available may restrict expansion. Large tubewell development for irrigation will need very careful evaluation on a case-by-case basis. Even in the case of micro-irrigation development, there is a serious lack of knowledge concerning the recharge rate of water tables.

A key concern in micro-scale operations is that system layout and pumping technologies are of central importance. The 1984-85 boom in micro-irrigation did not pay sufficient attention to this, and a lot of mistakes were made. It is extremely important to incorporate farmers into the conception and design of small-scale irrigation projects. Irrigation perimeter soils are extremely heterogeneous, but are usually well-drained and sub surface drainage is usually not needed. There are some problems for some crops due primarily to poor water management and systems maintenance, although very little is known about soils. Salinization is more of a problem than had been thought, particularly in the Komadougou and the north.

### 2. Erosion and Chemicals

Erosion is a problem, especially on the poorly covered soils of the major north-south drainage basins. Siltation of surface dam reservoirs is so rapid that development and exploitation of surface water becomes problematic. This problem is clearly seen in the Maggia.

At present, fertilizer and pesticide use is low. On some perimeters it is high, but since relatively little water returns as drainage, but percolates into ground water table, there are fewer problems.

### 3. Human Health

The snails that are the intermediate hosts for urinary schistosomiasis are found throughout Niger. It is a major public health problem in communities located near surface water; average infection rates are 10 to 50 percent. In some riverside communities, 5 to 14 year old children have rates of 50-90 percent. There is widespread aquatic vegetation and host snails in the irrigation canals, which is less of a problem in Maggia surface dam perimeters, but causes much more difficulty in double-cropped river perimeters.

In addition to endemic malaria, there are other serious water-borne health problems, such as villagers consuming water from drainage ditches and ingesting dangerous chemicals. It is very important that Genie Rural and ONAHA collaborate with the Ministry of Health from the design stage through the feasibility and implementation stages. Many health problems can be reduced by proper attention to design elements.

## II. Analytical Description (Policy and Institutional Framework)

### A. The Government of Niger: Policy and Economics

#### 1. Policies

The GON has been giving a much higher priority to increasing both the quantity of irrigated land and efficient use of the existing capacity. The long-term strategy is not yet well articulated, beyond the need to provide security of food production in the face of recurrent droughts. Construction of the controversial and costly Kandandji Dam in the Niger valley is the centerpiece (Kandandji and associated works are estimated to cost at least \$700 million). In the near term, the GON would like to bring in about 1,000 hectares a year of new/rehabilitated perimeters, and especially since the 1984 drought, expand and rationalize micro-irrigation development.

The current drought intensified official interest in the already extensive small-scale irrigation activities initiated and managed by private groups or individuals. They had received minimal assistance (outside of last year's emergency in a concerted effort to produce more food and provide activities for people displaced by the drought, but now donors are suddenly waking up to the potential of small-scale irrigation.

#### 2. Economic Concerns

(USAID/Niger intends to conduct an economic study and an analysis of production costs and returns as part of its project development process. It is very clear that construction of medium-size perimeters is a very expensive business, partially because they use a "standard design" which may be over designed. There are very few contractors that take on such work, but constructing on force account is not remarkably cheaper. The tendency is to go for large pumps irrigating sizable areas, which poses problems with water control and in the degree of social organization that larger scale water control units demand. In Niger, it may make sense to go for smaller pumps irrigating smaller areas. While they are less efficient from an engineering/economics point of view, they may be more effective from a socio-economic and canal/pump maintenance point of view.

Separate studies on fertilizers and other subsidies will be done under the Agricultural Sector Development Grant).

#### 3. Agricultural Research

INRAN is the national agricultural research organization. It has not had the resources or the staff to conduct much irrigation research. The result, as described above, is that most irrigation research is done outside of INRAN by the regional agricultural development programs and the IBRD Namarigoungou project. Some of this research has very tenuous linkages with INRAN.

INRAN's research philosophy has begun to change since its transfer back into the Ministry of Agriculture. INRAN has agreed to ISNAR conducting a study of the institution's research management which is a major shift. Within INRAN there is clearly a growing orientation and a growing respect for the behavior of farmers. Until INRAN as an institution evolves a more participatory mode of setting research priorities progress will be slow in getting trials into the farmers' fields.

Linkages between research and extension exist on irrigated perimeters, but they are not strong. INRAN lacks both the manpower and the necessary financial resources to play a more significant role. According to INRAN, it would help to have research parcels set aside on each perimeter. ONAHA employees, on the other hand, insist that INRAN does not use those parcels already put at its disposition. This certainly indicates a lack of effective liaison between research and extension on the perimeters. Participants in the workshop from both services emphasized the importance of incorporating farmers in perimeter-level research and demonstration activities and of establishing research programs largely in accordance with the demands of farmers. On the perimeters in the interior and on micro-perimeters, research-extension linkages are almost nonexistent, although this is beginning to change. INRAN's participation in contresaison and other field evaluations has contributed to a slowly growing respect for the farming skills of peasants among both researchers and extension agents.

The irrigation workshop in early 1985 recommended the creation of research-extension units within the regional directorate of ONAHA, as well as centrally. The role of these units would be to gather research priorities as articulated by farmers, both individually and in conjunction with extension agents and researchers. These units would also supervise field trials and demonstrations on farmers' fields.

## 2. ONAHA (Office National des Aménagements Hydro-Agricoles)

ONAHA is the parastatal that runs irrigation perimeters of more than 20 hectares. Its principal function is to implement, manage and maintain irrigated perimeters in Niger. This included providing extension services (staff on loan from the general agriculture technical services) and supplying inputs to farmers and the cooperatives. Under the Zinder reforms, ONAHA will reduce progressively its presence on the perimeters. After a two year start-up on the new perimeters, during which ONAHA will organize and train farmers, ONAHA will be represented only by the perimeter chief who will serve as a resource person for the farmers.

The poor performance of most of Niger's irrigated perimeters goes beyond the lack of farmer participation. In a very real sense, ONAHA has not been given the necessary means to fulfill its mandate.

The overriding problem is an inadequate budget for undertaking the necessary maintenance, coupled with shortfalls or delays in being able to obtain its budgetary allocations. Historically the Ministry of Agriculture was very reluctant to raise user fees that would generate the necessary revenue for farmers to permit ONAHA to fulfill its maintenance

responsibilities. (This may be changing, redevances appear to be increasing, sometimes steeply). Shifting responsibilities for maintenance to farmers is one way of dealing with this problem without raising user fees directly. Still, ONAHA will not be able to plan its activities, program its resources, and then effectively execute its plan of action unless and until it can count on the government to provide promised budgetary allocations on a reliable and timely basis.

This is compounded by an unwillingness to provide sanctions against farmers who refuse to pay for accumulated redevances and input credit. A condition precedent for the IBRD irrigation rehabilitation loan forces the cooperatives to clean up their financial snarls; whether this applies to the ONAHA operated units as well would be interesting.

ONAHA has had staff imbalances -- too many tractor drivers and not enough accountants, draftsmen, engineers, and mechanics. ONAHA has taken steps to address this by reducing its staff, but almost entirely the contractors rather than civil service employees.

There is also the fact that ONAHA lacks the infrastructure to carry out its job. It has divided authority with Genie Rural for design and construction which reduces its effectiveness, and it lacks a sufficient number of extension agents to carry out its action programs, even if they were well trained and motivated. ONAHA's linkages with INRAN are very weak. ONAHA is treated and has been managed as a civil service department, not as the autonomous institution that it is. Fortunately the top leadership of ONAHA has changed in the past 14 months and the organization is fortunate in the dynamism and skills of its Director General, but he is faced with a lot of accumulated dead wood.

### 3. Genie Rural

Genie Rural has primary responsibility for the design of irrigated perimeters and for supervising construction activities. It usually does not do the construction itself, but will carry out limited construction activities if requested to do so by a farmer or a local authority.

Genie Rural has a tendency to want to overstudy, overdesign and overcontrol micro-scale activities, even though it may lack staff to do an adequate job in the first place.

It should be noted that Genie Rural argues that the absence of pre and post-perimeter construction studies prevents one from concluding that the presence of perimeters worsen the waterborne disease problem (especially when near a permanent water course).

### 4. Other Ministry of Agriculture Services

#### a. Extension Structure

The agriculture service provides seed, plant protection and extension services to both dryland and irrigated systems. The agriculture service (extension) operates or oversees the operation of perimeters smaller than 20 hectares.

Formerly, it provided the principal liaison point with NGO's, many of which actively support construction of shallow wells for vegetable gardening. It used to administer donor credit programs for small garden well construction, such as those in the Dosso and Tahoua productivity projects. While non-governmental organizations and micro-realization responsibility has shifted to the Ministry of Plan, the agriculture service still supports these activities in the field. The agriculture service was pressed into service during the contresaison efforts and appears to have the main responsibility for small-scale irrigation.

b. Extension agents

The participants in the workshop repeatedly noted that the low level of training and the young age of many extension agents on perimeters made it difficult for them to maintain the respect of the farmers. Most of them come straight from the general extension service, have little training in irrigation and are thrown out on the perimeter for a tour of duty. One reason given for selecting extension agents from among perimeter farmers is that the farmers are often more highly skilled in irrigated agriculture than the extension agents. Farmers will still need to have access to training programs, especially in management and literacy. The irrigation workshop concluded that it would appear to be more effective to direct these programs towards the perimeter farmers rather than the extension agents.

Part of the problem may be that the extension agents do not have a package tested on the perimeter to extend. Subtle local variations, caused by exigencies of rainfed agriculture, will require many perimeters to alter slightly (and sometimes substantially) the cropping calendar.

Extension services for micro-irrigation systems were admitted to be all but non-existent. The workshop noted the absence of technical packages and themes relating to these systems.

The large variation in pedagogic approach across the country was noted as a problem by the workshop. A consensus emerged that Niger needs to develop more participatory training methods both within its formal training institutions, and, more noteworthy, for use between encadreurs and farmers everywhere. The workshop participation also recognized the need to give more attention to pedagogic methods. This suggests that some training of both trainers and farmers from irrigated areas in extension methodology and pedagogy may have a quick and substantial pay off in the irrigation subsector.

The workshop recommended that Niger do more to professionalize work in irrigation. The participants agreed that excessive mobility was detrimental, but also expressed concern that competent personnel be confined to a single perimeter because it was functioning correctly.

The Ministry of Plan is responsible for regional planning and small-scale projects, including micro-irrigation. This still remains a cloudy area, and it seems to be more concerned with funding than the design and implementation of projects.

### C. Assistance Interventions

The United States would be a relatively small donor of assistance in irrigation even with the approval of the proposed Applied Irrigation Research project. The list of perimeters attached to this annex gives some idea of the size and range of the perimeters. The largest current and proposed activities are the IBRD-Caisse KFW irrigation rehabilitation project scheduled to begin in 1986. This large World Bank-French-West German undertaking involves rehabilitating 19 perimeters, mostly on the Niger river, where rice is double cropped. The project concentrates upon physical rehabilitation and replacing diesel pumps with electrical ones as well as credit and other programs.

Although considerable effort goes into cooperative management and training, inputs are tightly controlled and the management and production systems do not appear to allow much room for flexibility and development of participatory local organizations. The project includes some production agronomy, but little research. The IBRD financed Namarigoungou project (completed 1984) includes a small research activity.

The European Development Fund (FED) has financed rehabilitation of several perimeters, some of which produce crops other than rice. The projects appear to pay somewhat more attention to socio-economic concerns and have a reputation of possessing stronger cooperatives. The Lomé III program of the FED proposes a massive input of about \$110 million over five years into irrigation, in all areas from new perimeter, construction and rehabilitation to cooperative training and extension, as well as small-scale irrigation.

The Kuwaitis financed the Konni perimeter and the African Development Fund is funding the Kourani-Baria project on the right bank of the Niger. The FAO and African Development Bank have a project for small-scale perimeter development, primarily in the Komadougou. This picks up from a Canadian activity. The Belgians have a small rehabilitation project of a seed multiplication area, and the Italians are active in the Keita area. IBRD-Caisse have provided assistance for the Goubi Maradi development.

The West Germans and the FED are providing some assistance, along with the  
EAC to Senegal Rural Cooperative training programs (including financial

to be primarily related to socio-economic difficulties rather than technical problems, although these, also exist.

1. Of the 9,000 hectares of irrigation perimeters established since independence only 5,500 were in production in 1983. Although the situation has improved considerably over the past two years due to rehabilitation and new perimeters coming into operation, the problems underlying the inefficiencies and under-utilization still exist, and the potential for rapid "drop out" rate remains. Several donors, particularly FED and IBRD/Caisse/KFW, concentrate on rehabilitation.

2. Irrigated cultivation on perimeters is much less efficient than it could be due to a number of the standard problems (weak cooperative management, inadequate research and extension, acute labor shortage at key points of the agricultural calendar) which affect Nigerien agriculture in general. This would suggest that at least some assistance to irrigated agriculture should move into areas of applied research/extension linkages, institutional development, cooperative development, input distribution management and transfer of technology which are the major components of USAID's dryland agriculture programs. Most donors do provide assistance in cooperative development and management, and ensure that inputs get there. The patterns that are often used are rather directive and top-down, often aimed at making the perimeter "profitable."

3. The Government-directed cropping patterns are not those which are most advantageous to the farmer. The GON's research capacity in irrigated agriculture is weak, and it is handicapped by poor linkage with extension. Because a successful model(s) for developing new perimeters does not yet exist, donor efforts need to concentrate on improving existing perimeters (and conducting systems research) before developing new ones. This is in accordance with joint IBRD/Caisse/KFW approach to rehabilitation loan program but it is apparently contrary to the proposed FED program under Lomé III. The other donors look to USAID to do something in agriculture research.

#### B. Selection of Constraints upon which USAID should focus

Given the very tight linkages between irrigated agriculture and dryland agriculture, USAID decided in its analysis of constraints and selection of a strategy, the two should not be artificially split.

It should be remembered that, in general, the Nigerien who participates in irrigated agriculture also has a major stake in rainfed agriculture and sometimes in livestock. At present, farmers living in villages along the Niger river are not permitted to participate in the Niamey Department project, on the assumption that they are growing traditional rice or have access to small-irrigated fields or the perimeters. These farmers are excluded from the benefits of the cultural packages, training and techniques being developed for dryland farming, although they normally have many more hectares of rainfed field allotments than irrigated land. It appears that, the Niger River irrigation projects pay minimal attention to dryland farming. Irrigated agriculture is one more enterprise to which farmers turn to earn cash, and to feed themselves.

#### IV. STRATEGY

##### A. STRATEGY INTERVENTION STATEMENT FOR IRRIGATION

USAID's intervention strategy for the irrigation subsector concentrates on filling the gap in applied irrigation research, particularly in farming systems, water management, soil fertility and small-scale systems. This is complementary to USAID's present agricultural program, takes advantage of economies of scale in research, and fills an serious gap in donor assistance in irrigated agriculture.

The proposed Applied Irrigation Research project contributes to the overall development of irrigated agricultural production, through making irrigated agriculture more productive and taking advantage of underemployed investment in irrigation infrastructure, rather than by constructing new perimeters. As mentioned in Section I, full exploitation of existing resources with technologies already in the field will result in a 50 percent increase in productivity.

Small-scale irrigation research in particular should strengthen private enterprise, through increased vegetable production and contributions to cross border trade.

In its dialogue with the GON in both the agriculture and health sectors, USAID will draw the attention of the GON to take concrete actions through rural health programs in perimeter design and implementation to cope with irrigation related disease problems.

USAID does not have the staff or the operating expenses or indeed the project funds to launch the equivalent of another \$40 to \$50 million "National Cereals Program" for research and extension on irrigated land. Use must be made of existing projects, policy dialogue opportunities and local currency availabilities supplemented by a modest applied research project. Because of the dearth of donors in research and lack of a proven successful "perimeter development package," USAID feels this is the most likely area for additional resources. Another factor is the effective and efficient use of small and micro-scale irrigation as a form of partial drought insurance.

##### B. Relationship with other Aspects of USAID's Agriculture Strategy Objectives

1. The long term objective of USAID's development strategy is the improvement of agricultural production over the next fifteen years. This is in accordance with the Sahel Strategy Statement and with USAID's long-term objective of diversifying and expanding the sources of rural household incomes. Since Niger's rainfed agriculture resource base is so limited, "drought proofing" will require considerable improvement of the efficiency of irrigation capital already developed, and the rational expansion of small-scale and micro-irrigation to supplement the food production capacity of farmers and even of former nomads moving into seasonal wetlands. Most of Niger's efforts have gone into expensive, difficult to manage mid-sized irrigation perimeters to produce cash crops for import substitution. Little research has been done outside this limited area, and there has been almost no systematic research or official investment in small-scale and micro-perimeters as a part of food production stabilization to meet the needs of the rural

population although the GON has responded to emergency situations. In 1984 money was thrown at micro-irrigation as part of the contresaison campaign efforts and food for work when the disaster of the 1984 drought became apparent. Therefore USAID's strategy towards irrigation should be that our efforts should be a component of "drought proofing" agricultural production, and of diversification of farmer's income.

## 2. Relationship with Medium-Term Agriculture Sector Strategy Objectives

The "umbrella" of USAID's program is the Agriculture Sector Development Grant. It is the cornerstone of the structural readjustment strategy objective. Although the ASDG was designed primarily around dryland farming and livestock, most of its policy reform objectives apply at least as strongly to irrigated agriculture.

It was also clear that a project involving irrigation will bring a number of opportunities to carry out, for irrigated farming, the ongoing policy dialogue on issues applied to rainfed agriculture through the Agriculture Sector Development Grant. These are:

- a) The reduction of subsidies on agricultural inputs;
- b) Facilitation of cereals and food marketing;
- c) Expansion and promotion of cooperatives and the private sector; and
- d) Augmentation of cross border trade.

USAID's strategy objectives in agriculture production include the following:

- a) The development of self-sustaining rural organizations through cooperative development and restructuring, extension and seed multiplication efforts.
- b) The development of a national capability for sustained efforts in agriculture research especially plant breeding, farming systems and soils. This includes the development of a national agriculture research plan. The investment in applied research which has, until now, concentrated primarily on dryland agriculture. Although some field work is being done to obtain information on irrigation as a component of farming systems, and on the Maggia valley systems practically nothing exists on micro-scale and soils/fertility problem. Investment in applied irrigation research can also benefit from economies of scale, especially in building on the "critical mass" of human and physical resources for soils/fertility research farming systems and plant breeding.

The proposed Applied Irrigation Research project contributes most heavily to agriculture research, and spills over, with research results, into extension. AID already has large complementary activities in the Niger Cereals Research program, centrally--unded research CRSPS (especially TROPSOILS, peanut, INSORMIL) and work of the International Fertilizer Development Center. The proposed project's applied research, field testing, soils fertility and small-scale irrigation components will facilitate both extension and education subsectors by providing field tested materials and techniques for irrigated crops. This project leads directly to the assembly and use of proven technical packages resulting from research.

### C. Alternative Strategies for Irrigation

At the time of the Irrigation Subsector Assessment, USAID's involvement in irrigation was limited to:

- The Tara agricultural development project of AFRICARE
- Assistance to the Firgoun perimeter rehabilitation activity, first through the Entente Fund and then through ASDG generated local currency funds.
- Old Entente Fund cooperative development and training activities
- A farming systems survey under the Niamey Department Development project.
- Policy reforms under the ASDG which applied to both irrigated and rainfed agriculture.

### 2. Identification

Following the irrigation subsector study in 1984 and the workshop held in January 1984, three broad areas for possible limited USAID intervention were identified for consideration.

- Supporting the creation of an applied research/extension liaison unit to work primarily at perimeter level.
- Supporting in-service training of ONAHA and Ministry of Agriculture extension staff working in irrigation and modified farmer training activities (similar to the village training centers under the Niamey Department Development II project), utilizing more dynamic pedagogic approaches that emphasize training of trainers and participatory training methods (as are being developed under the Agricultural Production Support project's competitive training and extension components); and
- Supporting research and development work on micro-irrigation pumping and water distribution.

A fourth dimension would be supporting specific kinds of applied agriculture research on irrigated crop production under INRAN, if USAID decided to take a leadership role in this important, but neglected area.

After reviewing the results of the subsector process, USAID/Niger was essentially left with two areas in which it might be possible to implement a bilateral project if it decided to do so

- Take over a perimeter and make it work (this would have limited impact, limited beneficiaries, and we don't know if we have yet farming systems that work both agronomically and socio-economically. We do have an approach to extension pedagogy and cooperative development that could be used in irrigated perimeters, with experience gained in other ongoing projects for rainfed agriculture).

- Go into applied agricultural research on farming systems, soils, water management and the whole unexplored area of small-scale irrigation, where farmers are using varieties unadapted to irrigation and much work is needed on water management systems. (This will fill a void in research and permit use of the growing capacity for farming systems research, soils and fertility, etc. Such a project have prompt spin-offs into extension with the identification of promising small-scale irrigation practices, quick screening of varieties under farmer's field conditions, and benefit from systems research that has already begun. For example no one has yet extended the research work done on Air Mountain systems, and both the Lossa and Maradi activities should have technologies ready for extensive testing. In the medium to long term it should have a greater impact per dollar invested than the perimeter alternative, which will be expensive in human and financial resources to replicate).

Given the evolution in ONAHA, the opening up of possibilities in applied irrigation research, and the range of other donor activities, USAID/Niger decides that strengthening applied irrigation research would fill a serious gap as well as enabling USAID to take best advantage of complementarities in the Niger program.

#### D. Detailed Objectives and Modalities

USAID proposes using an approach to the irrigation subsector that combines policy dialogue with bilateral and regionally funded technical assistance.

##### 1. Policy Dialogue on irrigation

a. General matters related to agriculture policy reform which apply to irrigated as well as rainfed agriculture.

- (1) Agricultural input subsidies and delivery systems. As our experience with the dryland oriented policy reforms proceeds USAID should gradually expand its studies and dialogue to include inputs and subsidies on irrigation perimeters. As subsidies on fertilizer and other inputs are reduced, the percentage of the total inputs used on irrigated land will increase. Serious questions have arisen regarding user fees and the inclusion of amortization of equipment into the redevance payments. APS's restructuring of input supply and equipment manufacturing is extremely important for the future of irrigation (which will probably profit first from the reforms).
- (2) Agriculture pricing and marketing. Rice pricing and marketing is a major problem involving RINI, parastatal reform increase in competition and the economic feasibility of the rice perimeters. While this is primarily the IBRD's pigeon, the ASDG's technical assistance may provide a useful boost.
- (3) Agricultural Credit. The study currently under way should be interesting, because with the general drying up of short-term production credit, some investment in animal traction and in inputs has incurred using non-formal sector credit resources. Investment in micro-irrigation for technical improvements using non-formal sources is another interesting study for mobilization of the private sector. The IBRD rehabilitation project has a large credit component.

- (4) Liberalization of border trade. There is already a major export trade in onions to the coast from Nigeria to Ivory Coast. As soon as the Nigerian border opens, there is a need for a thorough study of the coastal market for "traditional vegetables." This could become a major export earner.
- (5) Development of self-sustaining cooperatives and the private sector. Although the irrigation cooperatives are among the strongest in the country, there is still a need for a great deal of improvement in cooperative management and training. The IBRD rehabilitation project is particularly strong in financial management training (this is also part of the FED programs) much less is done about pedagogy and extension methodology. There ought to be spill over from the APS extension and cooperative training programs. There are very substantial opportunities for involvement and expansion of the private sector in repair, service and supply.

b. Research policy dialogue (collaboration with IBRD financed ISNAR study of agriculture research in Niger)

- (1) Establishment of a long-term prioritized program of applied irrigation research, firmly set in a farming systems approach.
- (2) Integration of INRAN, project financed, IARC and regionally sponsored irrigation research into a coherent program.
- (3) Allocation of staff and financial resources according to the priority program.
- (4) Development of an integrated long-term training program.
- (5) Execution of research protocols between INRAN and other participants/projects/agencies in irrigation research.

## 2. Project Activities

a. The Applied Irrigation Research Systems project. This is the main additional item in meeting the strategy objectives.

The goal of the project should be the increased production of food under irrigated agriculture. The subgoals are:

- Development and implementation of applied research on irrigated crops.
- Establishment of institutional cross-linkages between the technical services, research organizations and parastatals, and cooperatives to permit effective implementation of irrigated agriculture production programs; and
- Increased efficiency in production of foodcrops on irrigated land, through increased yields, multiple cropping, better water management, etc., that also increase the returns to the farmer.

The project purpose is to elaborate and make operational a system of applied systems irrigated agriculture production, with linkages into extension which has a special focus on water usage, soil fertility and small-scale irrigation.

b. Other projects

- (1) Support, through the Niamey Department Development II project and counterpart funds, the development of small-scale irrigation in northern Niamey Department.
- (2) Support, through ASDG counterpart funds, to
  - (a) Fingoun perimeter rehabilitation
  - (b) Blacksmithing and other tool making and repair activities of a traditional rice growing cooperative
  - (c) Other programs as presented, particularly small-scale irrigation
- (3) Support, through APS project, to restructuring input supply and equipment manufacturing.
- (4) Support to voluntary agency rehabilitation programs involving small-scale irrigation programs.
  - (a) Africare - Tanout
  - (b) Lutheran World Relief.

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# Country Development Strategy Statement

**FY 1988**

**NIGER**

**ANNEX D**

**PERSPECTIVE ON  
NIGER'S NATURAL RESOURCES**



**MARCH 1986**

Agency for International Development  
Washington, D.C. 20523

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## PERSPECTIVE ON NIGER'S NATURAL RESOURCES

### I INTRODUCTION

The natural resource situation in Niger, as well as in other Sahelian countries is marked by a rapid reduction of the natural resource base (decreasing soil productivity and loss of vegetative ground cover). During the past 20 years about 40 percent of the area under forests has been lost due to land clearing, firewood cutting, uncontrolled fires, drought and overgrazing. The area under cultivation has grown from 3.1 million hectares (ha.) in 1960 to 5.1 million in 1983, but grain production fell from an average 475 kg/ha to 350 kg/ha during the same period. A high population growth rate, estimated at 2.7-3.3 percent per year, and frequent years of low rainfall have significantly increased pressure on the natural resource base and further caused reduced crop yields.

Wood provides 80 per cent of the nation's energy requirements, but the availability of wood decreased an annual rate of estimated between 0.5 to 2.0 percent per year, depending on the source of the estimate. Government regulations on wood harvesting and communal land tenure policies discourage widespread participation of the local population in commercial forest and regeneration activities.

Inexpensive technologies are available, however, which arrest and can possibly reverse the trend. Preliminary results of in-country experiments show cereal production increases of 20 per cent using windbreaks; an internal rate of return in excess of 45 per cent using simple agroforestry techniques on abandoned degraded crop land; and a three-fold increase in biomass production in managed natural areas in comparison with those that are not managed.

Niger made a commitment in 1984 to do everything possible to control desertification (Engagement de Maradi). However, to be successful, efforts need to be inexpensive and of obvious value before the rural population will adopt them. In addition, the GON's natural resource policy must encourage and reinforce these activities. A long-term strategy must guide the process, with environmental actions integrated into all major development activities.

### II ANALYSIS

#### A. THE FOREST AND ITS USES

Nigeriens use forests in a variety of ways. The largest use is for firewood, which provides 80% of the nation's energy needs. A study conducted in 1984 by the Projet Forestier (IDA/FAC/CCCA) determined that wood consumption per person per year amounts to 293 kilograms, or 1.22 steres \* of which 91% (267 kilograms or 1.11 steres) is fuelwood. This results in an annual wood consumption of almost 8 million steres per year. Assuming the productivity of unmanaged natural forests at 0.5 stere per hectare per year (a commonly used figure) or 6.5 million steres for the approximately 13 million ha. of forest area remaining, the Nigerien population is already consuming all the annual growth of its forest and part of the forest capital. In addition,

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\* 1 stere = 1 cubic meter of stacked wood.

the scarcity of firewood is reflected in price differentials of firewood between regions, as indicated in the following table:

1984 Retail Prices For Fuelwood  
(CFAF/stere)

<u>Location</u>	<u>Price</u>
Niamey	3,600
Maradi	4,800
Zinder	5,400

Another major "use" of the forest resource is that it provides regenerative fallow, acts as a green cover crop and prevents soil erosion. Traditional agriculture in Niger is based on a system of shifting cultivation. Under this system, areas are put under crops for three to four consecutive years, followed by being left in fallow for seven or more years in order to recover soil fertility. Population pressure have led to a reduction in the number of fallow years with a consequent reduction of soil fertility and eventual abandonment of the land. In addition, lands that are more susceptible to erosion on steeper slopes or poor sandy soils are being cultivated due to population pressure, and eventually degraded and abandoned.

The Centre Technique Forestier Tropical (France) has estimated that land clearing is reducing the Sahelian natural vegetative area at an annual rate of 0.625 hectares per new rural inhabitant. Assuming there were 14 million hectares of forest in Niger in 1970, by 1985 the area would have decreased to 13 million hectares at this rate. This indicates that an average of 67,000 hectares would have been lost each year over the past 15 years. Total area of forestry plantations in Niger is currently estimated at 30,000.

Bush fires, livestock damage and indiscriminate wood harvesting are probably increasing the rate of forest cover reduction beyond these estimates for land clearance. A study conducted at the Guesselbodi National Forest near Niamey indicated forest cover losses over the past 35 years varying between 35 percent and 60 percent depending on type of forest. Forest cover losses have serious consequences in addition to the wood production and soil stability aspects. These include loss of forage production (especially during the dry season), reduction of secondary food products availabilities, and the protection of prime agricultural lands from gully erosion by stabilizing water flows. The loss of perennial plant cover decreases water infiltration, thus inhibiting water table recharge. A 60 per cent runoff of rainwater is now common in Niger.

#### B. Past and Present Forestry and Conservation Efforts

Throughout the history of Nigerien forestry, conservation efforts have been extremely modest. From the 1930's until independence, population pressure on forestry resources was not perceived as being an important factor and there was no real awareness of land degradation. As a result, forestry efforts were concentrated in establishing national forests (forets classées), which now cover an area of approximately 200,000 hectares, distributed in 65 national forests, in addition to the national game park and two game reserves. Furthermore, some very modest efforts in the field of usage restrictions (mise en defens) and reforestation were undertaken. These modest preservation efforts were pursued during the sixties. In the the early seventies, major soil and water conservation efforts were undertaken,

particularly in Tahoua Department. In addition, in 1971 some plantations were made in national forests, in order to help reconstitute the forests of Niger.

The first foreign aid projects in forestry began in earnest in 1972, and by 1981, most forest service activities were supported by such projects. There has been a total of 35 foreign aid projects in forestry since 1972. Most of these concentrated on reforestation and the total area of forestry plantation in Niger is estimated at 30,000 hectares, at an average cost of \$700/hectare. Total expenditures for these projects amounted to 6.6 billion CFAF, or an average of 507 million CFAF per year. Many of these projects are still in operation, and the total amount of funds committed amount to 14.7 billion CFAF, which means that a pipeline of 8.1 billion CFAF remains. All these ongoing forestry projects are scheduled to end by 1989, which will require a considerable acceleration of the expenditure rate.

Unfortunately, Niger's experience with natural forest management is quite limited. There is no concrete information on natural forest management attempts before 1980. There are only five projects in the area of natural forest management (the Forestry and Land Use Planning Project [FLUP], the Ronier, two Gao projects, the Projet Forestier funded by the World Bank). Most of these activities have begun to yield positive results by 1985. The FLUP Project, through its model sites section, has been a pioneer in this area with its work in the Classified Forests of Guesselbodi (5,000 hectares) and Gaya (10,000 hectares). FLUP's work is being used as an example for natural forest management activities undertaken by other donor agencies. At present, natural forest management efforts cover approximately 50,000 hectares.

Until the implementation of the FLUP project, no serious effort had been made to assess the Nigerien forest resources in terms of total area, major forest types, wood volume, and growth and regeneration potential. Several qualitative descriptions of Niger's vegetational cover exist from the botanical, bioclimatological, and land use perspectives. The FLUP inventory section has now added a quantitative approach in an effort to determine areas and volumes of different forest types in different regions. Their work has concentrated upon forest area and wood volume estimates by vegetation types within circles of 100 kilometer radius around the major urban centers of Niamey, Dosso, Tahoua, Maradi and Zinder. The section has completed its data collection efforts in these areas and is currently working on a methodology to extrapolate the information from the five circles order to estimate forest cover and volume for the nation as a whole. The result should be an estimate broken down by forest type, and administrative unit (Departement, Arrondissement) The analysis should be available in late 1986.

Several projects are active in the areas of conservation, protection and agricultural support. These efforts include dune fixation, firebreaks, live hedges, usage restrictions, surveillance, protection of natural regeneration, water harvesting, protection of stream banks and contour terracing. Some of these activities are often integrated with reforestation efforts and have been quite successful, as is the case of the CARE effort in the Maggia Valley. These efforts need to be multiplied. Some of these activities can yield very favorable economic returns as shown in analyses of the CARE program in the Maggia and by a FLUP project experiment at the Guesselbodi forest.

The only other forestry field with significant projects is extension. Important activities such as research, documentation and planning have only one project each.

### C. CONSTRAINTS

Considering that Niger has no more than 30,000 hectares of planted forests and that many of these plantations have yielded poor results, a shift in emphasis was clearly needed. As of 1981, there had been no major changes in forest policy. The major policy objectives at that time could be described as conserving the national forests and expanding the afforestation efforts to satisfy demands for wood, protect the environment and enhance farmlands. The nature and level of activities is changing at present, due to the impact of successful forest management projects.

There are several problem areas in forestry management. These include:

- An insufficient knowledge of the resource base;
- The limited area of classified forests;
- Insufficient knowledge of management techniques adapted to Sahelian forests and insufficient research; and
- Insufficient knowledge of markets, particularly firewood.

A turning point may have taken place at the May, 1984 desertification conference with the "Engagement de Maradi sur la Lutte Contre la Désertification" organized by the National Development Council. It basically gave sanction to begin the process of national policy evolution. The major elements contained in the conferences' resolution include:

- A clear awareness of the gravity of the debilitating effects of the desertification phenomenon on the land based sectors of Niger's economy.
  - An awareness regarding the weakness of anti-desertification efforts applied to date and the consequent lack of results.
  - A statement of purpose focusing on three major long-term goals:
    - (1) ensure food self-sufficiency;
    - (2) satisfy energy needs;
    - (3) protect, restore and improve the environment.
  - A call for coordination of efforts between the population and the government.
  - A commitment to elaborate a "rural code."
  - A need to increase research and training in forestry and environmental disciplines.
- A commitment to establish a master plan for control of desertification.

The GON and major donor agencies discussed in June 1985 a planning document which defines the broad missions and guidelines for desertification control. The main conclusion was that strategic goals for desertification control as well as action programs must be integrated in global/multi-sector projects, implying collaboration of the various government services involved.

This was reiterated by President Kountche in his annual outline of government priorities. It was also underlined in the official recommendations emanating from the national livestock debate at Tahoua in 1985.

## 2. Land Tenure and Usage Rights

One rather knotty constraint is land tenure and use rights. Historically, village chiefs assigned the use of land to individuals. More recently, these traditional customs were disturbed by norms established during the colonial period, and after independence as well. Under current law, all land, at base, is owned by the State. As cash cropping and government development activities proceed, conflicts arise between traditional practices and modern law. Pressure for individual land ownership (or long-term usage rights) is needed in order to provide incentives for investment in improvement. At present, written law and actual land use practice are clearly in conflict with each other regarding the forest resources. Even in national forests (forêts classées), where usage rights are largely restricted by legislation, these restrictions are ineffective, due to lack of enforcement. One hotly debated question at present is if the State invests in planting windbreaks, and the local population contributed labor, to whom should the proceeds from rational harvesting and thinning of the windbreaks be given.

The GON recognizes that the forestry code and the rural tenure code must be revised to encourage sound resource management.

## 3. Institutional Constraints

One advantage that Niger may have over other Sahelian countries is the existence of a well organized forest service (Direction des Forêts et de la Faune). This is a highly structured organization. Its agents are for the most part quite competent and committed to the service and conservation despite the service's original reputation as a policing organization. Nevertheless, the service's means have been and continue to be insufficient in terms of personnel, equipment and financing.

Another important institutional aspect deals with the relationships between the forest service and other public organizations. Historically, the forest service has had to work with various other services, mainly in the areas of agriculture and livestock. However, this collaboration is rarely sought by the other services dealing with land use who place low priority on problems of natural resource degradation.

# III STRATEGY

## A. General Direction of Strategy and Donor Activities

Nigerien food and energy needs cannot be met without maintaining a healthy vegetative cover. Despite considerable forestry and conservation efforts deployed since independence, and particularly since the seventies, Niger's natural resources continue to deteriorate at an alarming rate. Now that an environment stabilization policy for Niger is stated in the Engagement de Maradi, it is necessary to define promptly a clear strategy and its major action elements that will permit Niger attain specific goals. The strategy should have the following major elements:

- A substantial improvement in the understanding of Niger's natural resources;

- An aggressive program of natural forest resource management;
- A strong reforestation program with very specific orientations;
- A major expansion of soil and water conservation efforts;
- A system of support structures to include training, research studies and planning support activities, and documentation.

The Government of Niger recently compiled a summary of 53 new forestry-related project proposals requiring an estimated 28.2 billion CFAF in addition to ongoing projects. If all these projects were developed and funded, additional expenditures of 5.6 billion CFAF per year would occur in the forestry sector. A total of 35.9 billion CFAF would be scheduled for expenditure between 1985 and 1990. As a result, forestry project expenditures between 1985 and 1990 would have to reach 6 billion CFAF per year, an enormous increase over previous expenditure rates.

In reviewing the proposed projects, the following observations were noted:

1. Reforestation continues to be a very important activity; however, its relative importance is diminished. Current policies demand forestry activities be integrated into related agricultural activities. Natural forest management is expected to receive a considerable increase in funding. Conservation, protection and agricultural support continue to have a high level of importance.
2. The activities in training continue to be limited. Since the most important project in this field is FLUP, activities may diminish considerably at the end of this project.
3. Research continues to be a weakness. However, some improvement is expected, since one of the new projects concerns only forestry research support and orientation.
4. There will be five new projects in the field of studies and surveys. No new projects are planned which include nationwide surveys, either in physical, biological or socio-economic aspects. Only FLUP and the Projet Forestier IDA/FAC/CCCE currently have nationwide studies in the forestry sector. The only project currently involved in documentation is FLUP. Only one new project is expected in this field.
5. No new projects participate specifically in the field of planning. At present, only FLUP is involved in this field. FLUP is now in a position to satisfy certain aspects of planning support, but will not be able to provide full planning support until the end of 1986. In order to establish and implement a long-term forestry policy for Niger, the planning function is indispensable. Considering the insufficiency of properly trained personnel, and the weakness of forest service budgets, it is unlikely that the Government of Niger will be able to fund a forest sector planning unit on its own in the near future.
6. Equipment and infrastructure activities should increase. Aside from projects specifically dedicated to this type of activity, several others

consider infrastructural support as part of their objectives.

7. Past and ongoing projects have treated information dissemination and extension work as secondary elements of their main goals. Several new projects concentrate on this type of activity and the quality of work should benefit.
8. Wildlife conservation and management are expected to become considerably more active.
9. Since the Engagement de Maradi, there has been a great deal of talk about a new rural code to be developed in 1985-86. There is no forestry project directly involved in its preparation, but committee action is progressing.

#### B. INFORMATION BASE

The FLUP project has already done considerable work in building the information base as described above. Although this will be an excellent starting point for the strategic planning process, a substantial amount of additional information will be required to address the overall objective of land use planning and resource characteristics as well as determining the magnitude, cost, value, community participation potential and length of time required to reverse the degradation process even with population pressure. The following questions need answers that will be incorporated into the planning process:

1. What is the growth potential of each natural forest type?
2. What are the characteristics of manageable natural woodlands?
3. Where are the manageable natural woodlands located?
4. How much woodland is actually being cleared per year?
5. How much degraded forest land is there, and where is it located?
6. What are the characteristics of degraded areas which can be recovered for land use (agriculture, forestry, pasture) given certain inputs?
7. Where are these areas located?

The first three questions are currently being addressed by the inventory section. Regarding questions 4 to 7, FLUP should be able to provide a method of analysis and more realistic indicative results, but estimations probably will not be completed before the Project Assistance Completion Date. The process of completing the activity is a long term effort which will require 10 to 15 years of additional work.

The nation-wide forest resource survey that FLUP is conducting is a necessary part of the information base. It will require periodic updating. Up to now, detailed forest inventories for management purposes have been performed only at Guesselbodi (FLUP) and Faira (Projet Forestier IDA/FAC/CCCE). In order to implement the natural forest management program, this type of work will need to be substantially intensified.

#### C. NATURAL FOREST MANAGEMENT

Even though official resource inventory data are imprecise, it is evident that natural forest has previously satisfied the Nigerien society's needs for fuelwood, farmland, forage and soil and water protection. Man-made forests cannot be counted on to replace the natural forest, but they can serve as a

minor, but important supplement for high value products and help provide protection for the agricultural sector's resource base.

As the Nigerien population continues to grow, so does the need for the various forest products and services. Based on growth figures for various types of Sahelian forests calculated by the Centre Technique Forestier Tropical, and assuming current levels of wood consumption, by the year 2000 Niger would need 5.5 million hectares under natural forest management in order to satisfy its fuelwood needs on a sustained basis. If work in this field started immediately, this would require launching management activities on at least 367,000 hectares of forest each year. This is an enormous task considering that current natural forest management efforts are limited and essentially experimental.

In order to define and make projections of the supply and demand balance of Niger's wood economy, studies should explore substitute sources of energy and more efficient uses of fuelwood. Only then will it be possible to make projections of the scarcity patterns and price pressures that will permit the preparation of sound policy decisions on wood supply and pricing. FLUP will undertake the construction of a model of the Nigerien wood economy in 1986. However, refining and updating of such a model should remain an ongoing effort.

A serious planning effort will be required because of the lack of time, the magnitude of the work to be done, and the constraints involved. It will have to define the major strategic orientations of a natural forest management program, analyze various alternatives of management practices (technically, environmentally and economically), determine regional supply and demand balances for wood and other forest products, develop organized marketing systems for such products, determine which areas will be put into management at what time, address the institutional and social aspects of putting millions of hectares into management, and develop proposals to obtain the necessary funding, etc.

To carry out this task, a planning support organization with qualified personnel and analytical capabilities is required, which the Forest Service does not yet have. The FLUP Project will have established a planning office under the Ministry of Hydrology and the Environment by the end of 1986. Nevertheless, donor support will be required for many years to come.

The only nationwide study in the economics of forest products is being conducted by the Projet Forestier IDA/FAC/CCCE. This study addresses mainly marketing channels for fuelwood in Niger's main urban centers and it should be published in early 1986.

#### D. REFORESTATION:

Estimates of Niger's reforested area are about 30,000 hectares, which is only a fraction of the nation's forest resources. However, most forestry efforts in the past have concentrated on this type of activity. Considering the high cost of plantations in the Sahel, it is important that policies and practices regarding reforestation be reviewed. As an example, it is ten times more expensive to produce a cubic meter of plantation wood in the Sahel than in the southern United States. In addition, the revenue that can be obtained from a cubic meter of Sahelian firewood is comparable to that of pulpwood in the southern U.S.

Therefore before implementing future reforestation activities in Niger, a study of past efforts should be made. It should include analysis of costs and benefits (financial and social), tree survival adaptability of species used, quality of planting stock, and stand development (including growth, diseases and man-inflicted disturbances). The study should cover a representative sample of different reforestation types to include block plantations, village woodlots, soil improvement plantations, windbreaks, live hedges, other agroforestry plantations, soil conservation plantations and urban forests. It will then be possible to determine the types of reforestation activities having the highest chance of success and the species (both native and exotic) which are best adapted to various soil and climate conditions. A global study of this nature is being considered by A.I.D. and the FAO. As in the case of natural forest management, economic analysis is essential in the reforestation field.

#### E. SOIL AND WATER CONSERVATION

This is an area in which various donors have financed many projects in the past, and will continue to be involved in the future. The soil and water conservation projects have shown that certain abandoned and degraded areas offer recovery potential through the use of simple technologies. Some of these are micro water catchments, small rock dams for gully control, contour terracing, etc. These technologies, combined with reforestation, and crop production efforts, have given favorable results in various areas of the country. Preliminary analyses also reveal that these combinations of inputs can have substantial economic advantages, and this type of project should therefore be increased.

Future work should concentrate on determining the types of degraded soils that offer best reclamation potential, the extent of such soils and their distribution throughout Niger. In addition, economic evaluations must be undertaken in order to identify the optimal combinations of conservation practices, crops, trees, and intercropping patterns for such activities.

Extension work should begin in test areas so that villagers are encouraged to apply the techniques. These should be the first steps in the elaboration of a land recovery strategy which will require the joint participation of the Forest Service along with other agricultural techniques services involved in land use.

The FLUP Project is involved in these analyses and intends to pursue them. However, they need to be expanded and continued on a permanent basis if Niger is to solve its chronic problems of food supply and environmental instability.

#### F. SUPPORT STRUCTURES

Since a strategy cannot be implemented without a supporting structure that permits the acquisition and management of the information required in the planning process, Niger has several urgent needs for assistance in the fields of training, research, and documentation:

1. Training: Although there are increasing numbers of university level professionals in the Forest Service, at present there are less than 20 such individuals. Training efforts should be intensified to ensure the

success of a forest resource strategy, and personnel training as well as their fields of concentration should be based on strategic priorities.

2. Research: At present, this area is inactive, and a research program should be started. Such a program should respond to specific strategy objectives and support the fields of natural forest management, soil and water conservation and clearly identified aspects of reforestation. The program should have permanent staff and equipment. Some research can be conducted within the framework of academic theses and graduation papers for forestry students, but their work must be supervised by the permanent research staff.
3. Documentation: At present, Niger's Forest Service has two documentation centers. One is located at FLUP and the other at the Direction of the Forest Service. These two units are in the process of organizing their data. Eventually, they should be merged and computerize their catalogs. In addition, a strong acquisition program of books, periodicals and documents should be undertaken, as well as the publication of a Nigerien forestry newsletter. FLUP is currently working on all these activities.