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MANAGEMENT AND

PROGRAM FOOD AID IN NIGER

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Natural Resources Management and Program Food Aid in Niger

An Initial Analysis of Linkages

Submitted to USAID/Niger

Agricultural Policy Analysis Project, Phase II

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GLOSSARY OF ACRONYMS AND TERMS

A.I.D.	Agency for International Development
A.I.D./R&D/AGR	Agency for International Development, Bureau for Research and Development, Office of Agriculture
APAP II	Agricultural Policy Analysis Project- Phase II
ASDG II	Agriculture Sector Development Grant- Phase II
CARE	Cooperative for American Relief Everywhere
CILSS	Comité Permanent Interetats de Lutte contre la Secheresse dans le Sahel
CLUSA	Cooperative League of the United States of America
DPM	Disaster Preparedness and Mitigation Project
DRU	Disaster Relief Unit
EEC	European Economic Community
FAO	Food and Agriculture Organization of the United Nations
FED	Fonds Européan de Developpement
FEWS	Famine Early Warning System
FFW	food-for-work
FLUP	USAID/Niger funded Forestry and Land-use Planning Project
GIS	geographic information system
GON	Government of Niger
GTV	gestion de terroir villageois
GTZ	Deutsche Gesellschaft Fur Technische Zusammenarbeit- German Agency for Technical Assistance
IMF	International Monetary Fund
IFPRI	International Food Policy Research Institute
LOE	level-of-effort

NEFA	non-emergency food aid
NGO	non-governmental organization
NRM	natural resources management
PAAD	program assistance appraisal document
PASP	Projet Agro-Sylvo-Pastoral
PBVT	Projet Basse Vallée de la Tarka
PFA	program food aid
PMAE	Programme de Mesures Anti-Erosives
PNLCD	Plan National de la Lutte Contre la Desertification
PVO	Private Voluntary Organization
SMIG	Salaire Minimum Interprofessionel Garenti
SOW	Scope-of-Work
UNDP	United Nations Development Programme
UNC	Union National des Cooperatives
WFP	World Food Programme

PREFACE

Food aid has been used for decades as a basic humanitarian response for feeding hungry people. Over the years, food aid has provided a lifeline for millions of people throughout the continent of Africa, saving lives from famine and its debilitating consequences. On the other hand, program food aid has also become an increasingly important part of the development resources being tapped in non-emergency situations. It is being used to promote change and foster development and the long-term resolution of the technical, social and economic problems which underpin, among other things, the continent's continuing susceptibility to food deficits.

New concepts and understandings about food aid and development are emerging which question the basic tenants of these food security, food aid programs and their effectiveness on the ground. In addition, there is a rising level of fatigue and frustration within the donor countries about the enduring failure to avert recurring famines and reduce the vulnerability of poor people to hunger and starvation. Among both donor and host countries, there is now a growing consensus about the importance of avoiding dependency on food aid and, in situations where it is clearly required, of the need to better harness it as a development tool.

The dual objectives of program food aid, i.e., meeting food needs and achieving development impact, have engendered a dichotomy of viewpoints about what is being achieved. Is achievement in either area enough; are these objectives universally or even conceptually or operationally compatible? To what degree have these programs been subject to critical evaluation? Of even greater concern is the possibility that program food aid is achieving neither objective. Given this scenario, it should not be surprising that program food aid has become a controversial suject in development circles. Many individuals hold strong views on the subject.

In Niger because of the country's inherent resource constraints, long-term food security must be based on sustainable natural resources management (NRM). The Agriculture Office (ANP) of USAID/Niger commissioned this study to explore NRM/food aid linkages. This study was also designed to examine whether food aid has come to play a causal role in inducing people to remain on marginal lands. The study focuses primarily on food aid in the form of food-for-work (FFW). FFW has been used extensively throughout Niger over the past 20 years or more as a means to achieving natural resources sector development objectives, primarily through the rehabilitation of degraded lands.

Although other forms of food aid, particularly that destined for relief of short-term localized food deficits, might be having similar effects, earlier studies have treated this concern. Numerous papers address the impact of food aid on agricultural productivity and on farmer/consumer motivations. However, little, if any, work has been done previously on the specific linkages between food aid and natural resources management. Innovation in this area of study thus is particularly pertinent because it would be highly significant to find that programs designed to achieve environmental rehabilitation were, in fact, having the opposite effect.

As in many development fields, the experience gained using this FFW/NRM assistance modality may be more valuable for the future than the physical achievements to-date. There is much to be learned in Niger by examining the wide array of on-going programs, both in terms of course corrections for the present programs as well as for long-term programming considerations.

The study team must duly acknowledge a debt of gratitude to many individuals who have generously used their time and energy for a frank exchange of information and ideas, without which this report would not have been possible. They are especially grateful to the members of the USAID/Niger working group for the confidence in the team's abilities implicit in the very high level of professional and collegial inputs furnished throughout the study period. The team sincerely hopes that this report will add in some small measure to the present high level of concern, interest and understanding about natural resources management and program food aid.

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This study on the linkages between natural resources management and program food aid was carried out by a team fielded by Abt Associates Inc. at the request of USAID/Niamey. Funding from USAID was channeled through its ongoing buy-in to the centrally funded (A.I.D./R&D/AGR) Agricultural Policy Analysis Project, Phase II (APAP II).

The objective of APAP II, one of A.I.D.'s important agricultural policy instruments, is to strengthen sector policies and policy analysis capabilities in developing countries. In the decade of the nineties, natural resources management and economic liberalization are considered vital keys to both sector and national development throughout the world. Hence, the particular fit between this study in Niger and the objectives of APAP II.

EXECUTIVE SUMMARY

An Introduction to the Study

The purpose of this study is: to explore and establish the linkages between natural resources management (NRM) and program food aid (PFA), and to examine the sustainability of these activities. This study is not an examination of the overall strengths and weaknesses of food aid. Its primary focus on food aid is based on the supposition that this assistance modality will continue to be an important resource used by the development community in Niger over the near to medium term. There is, however, broad consensus that if food aid is to continue, better use will have to be made of it while, at the same time, avoiding dependency and linking it more closely to development.

The study team sought to narrow the analytical framework so as to be able to draw more salient conclusions regarding cause and effect. The study focused on the most common food aid arrangement in Niger: food-for-work (FFW) activities targeted at land rehabilitation and soil and water conservation. Direct and indirect impacts have been examined. The direct impacts are those specifically aimed at land rehabilitation, soil and water conservation, and improved land-use patterns. Food aid also has indirect impacts that affect the household economies and food security situation of those who receive it. These effects alter the relationship between the people and how they use natural resources.

Of equal importance is the issue of sustainability: Are these FFW/NRM activities becoming lasting parts of the land-use management mosaic of the study areas in Niger? Although recurrent cost issues are a primary consideration, the study also looks at the institutional, social and technological dimensions of sustainability.

Food Aid in Niger Today

The present situation in Niger highlights important circumstances which add resonance to the concerns about improving the use of food aid. Political uncertainties, serious economic difficulties, persistant drought, and the stagnation of the agricultural sector all underscore the fact that foreign assistance must be more carefully targeted if it is to address rural sector development, on which the country will be dependent for years to come. Niger's continuing vulnerability to drought is exacerbated by the pervasive degradation of the natural resource base by a growing population forced to seek sustenance, using rudimentary farming methods, from inherently limited soil and water resources.

New understandings of the central importance of the natural resource base to the future of the nation represent key elements of the blueprint for development in the years to come. More participatory and integrated approaches to natural resources management policy and strategy bode well for the future. There is a recognition across the country that natural resources management is no longer simply the purview of the forestry sector, but rather one of the basic tenets of land use. This study examines how food aid activities are contributing to the implementation of these new sector strategies.

Food aid is a troubled area of endeavor. The literature examining food aid raises serious concerns about the motivations behind it, the processes used to program it, and about its impacts. Food aid flows still seem more directly linked to the disposal of food surpluses in the donor countries than to needs in the recipient countries. The costs of food aid incurred by donors are normally incremental to their foreign assistance budgets. However, recipient countries are increasingly having to absorb in-country transport and handling, and program administration costs from internal resources. Serious

criticism has been leveled at food aid as enabling recipient governments to avoid necessary policy changes, thereby helping to maintain the "status quo" in many poorer countries. Long-held views of the production disincentives, the dependency syndrome, and impacts on commercial markets continue to be voiced and debated. These criticisms are stimulating changes in many countries about how and when food aid is used.

Study Findings

Food aid remains an important element of the assistance cum development picture in Niger. A number of the findings of this study help put the food aid picture in perspective and are worth noting. The country is one of the "top ten" countries in Sub-Saharan Africa receiving emergency food aid and the leading recipient of food aid in the Sahel. The United States is a major food aid donor in Niger, providing 44 percent total of the cereal donations in 1989/90, and 41 percent in 1990/91. These figures do not include the food aid furnished through the World Food Programme. According to WFP/Niamey, the United States provides all of the imported cereals (approximately 70 percent of the total cereals) they distribute in the country in the period 1990-1992 (see Table 2.5).

Although cereals constitute the bulk of the food ration, the total cereal food aid provided is less than 5 percent of overall national cereal production. This puts the difficult and costly operations of importing and distributing food aid in important perspective. At the same time, however, food aid is a very significant resource in some local areas, but not in others. For example, 48 percent of all "rural development food aid" is being used in a single department of the country -- Tahoua. Tahoua and Tillabery Departments (where the field visits for this study were conducted) together account for 71 percent of the total food aid distributed in Niger.

Among laborers, the amounts of food earned in the FFW/NRM activities range from 8 to 75 percent of an individual's total annual consumption needs. In some areas, food aid plays a greater role in meeting community needs than in others, although this seems to be directly related to the size of the project and the quantity of food aid that has been allocated by WFP. In most of the project sites visited, personnel stated that they could have used more food aid, had it been available.

The typical FFW/NRM model is one of workers carrying out land rehabilitation, such as constructing rock walls or digging infiltration trenches on degraded, common uplands. The majority of the project workers are women, although children too take an active part in carrying out the arduous work requirements. A day's work yields a day's ration; that is, the cereal and other commodities necessary to feed five people for a day. Many of these workers come from the lower economic stratum of their communities, are unmarried or have husbands who are away on seasonal migration. As FFW/NRM activities are carried out principally during the dry season, few households have had to diminish their traditional farming activities. Food aid has not apparently had an impact in reducing seasonal migration among men; job opportunities outside Niger remain important factors leading to this migration.

The "public works" view of food-for-work used for NRM activities prevails among the projects studied. Few projects have experimented with alternatives to food aid or with other approaches that might enhance the participation of workers. Relief food aid flowing into the same geographic areas of Niger can serve to complement or compete with FFW. The *chantier* approach of the present FFW/NRM activities is in sharp contrast to the new priorities stated in the GON's *Principes Directeurs*: the promotion of fully participatory approaches to rural development; the disengagement of the state as the

primary sector-actor; strict avoidance of food aid where possible; and the provision of income and credit as means for transforming rural production strategies.

The Impact of FFW/NRM Activities

Most FFW/NRM projects are focused on common lands. Because there has been little promotion of soil and water conservation on farmlands, there has been negligible impact either in slowing the degradation processes associated with traditional farming practices or in improving yields. Similarly, although there has been some work on restoring vegetative cover (and with it fodder resources) on highly eroded sites, there has as yet been little effort aimed at working with pastoralists to avoid over-grazing or improve range management. Plans to put rehabilitated sites back into agricultural production are fraught with difficulties. Land tenure constraints, overall appropriateness of certain land for agriculture, and displacement of village and pastoral herds all suggest that, without more integrated approaches to land-use improvement, the rehabilitation impacts funded with FFW will be only transitory at best.

Although annual FFW/NRM expenditures are equivalent to approximately 50 percent of direct sector investments, the total area treated annually (ten to fifteen thousand hectares) cannot begin to make inroads in the overall area of Niger thought to be in need of rehabilitation. The cost of average treatment currently runs almost $500 per hectare. These treatment costs do not take into account the "real costs" of food aid, i.e., the costs of the food to the donor and its shipment and handling to and in the country.

Of more concern are the unfortunate precedents being established that will affect the way sector activities are undertaken in the future. They include:

- high investment costs on marginal lands;
- inculcation of the notion that soil and water conservation means food aid or jobs;
- only ephemeral efforts at real participation;
- the inequities of the gang labor approach; and
- reinforcement of the belief that land rehabilitation is the purview of the state.

These projects seem like archaic throwbacks to the era of the early-1980s, when the mania for tree-planting was seen as the solution to the problems of desertification.

From a land-use planning point of view, FFW/NRM projects embody only a limited vision of a future land-use mosaic of more sustainable production systems geared to the inherent capabilities of the natural resources base. The preference for work on degraded common lands rather than in active farming areas, as well as the continuing erosion of grazing resources, to which these projects are contributing, are deferring the solution of the major land-use issues in Niger.

Sustainability -- a Key Question

The sustainability of the present FFW/NRM activities can be called into question from many angles: social, institutional, ecological, technical and economic. While the present, high unit-costs of these activities remains a critical constraint to the long-term sustainability of FFW as a sector development strategy, a series of more pervasive issues has emerged in the course of the study.

Employment of workers on a government/donor-driven food-for-work project does little to promote the community organizations now deemed essential to resolving local natural resources management problems in Niger. Although there have been some attempts to foster a more participatory approach to FFW/NRM, local staff are inhibited from doing so because of the demanding quantitative circumstances in which they operate. While completing exacting treatment targets and delivering large quantities of food, staff easily lose sight of the workers as key participants in the local development scene. The workers instead become impediments to getting the job done -- an extension of the view that they are the causal agents of "desertification". These subtle mindsets have important implications for the transformation of the government institutions that are expected to take on more of a service orientation, and assist the population to organize and to find solutions to their problems.

Niger's rural labor force is one of the few resources the country can tap in abundance; nevertheless, it makes little sense to invest it in ill-conceived activities. This is particularly poignant if as in the case with FFW/NRM, the people do not either perceive or receive direct benefits resulting from the NRM interventions they are carrying out.

Niger has been a leader in the Sahel in terms of the development of innovative and participatory approaches to natural resources management problem solving. There is little of this dynamism in terms of sector technology, however, in the choices of technology being used in the typical FFW/NRM project. Although the food aid model is essentially the same, i.e., the food-for-work approach, there are markedly different systems of soil and water conservation engineering being applied on similar sites by different projects. Both rock walls and trenching are extremely intensive activities, in many cases showing little incremental impact in reversing soil degradation from that which might be achieved with less intensive approaches. Reasonable estimates of the amount of land that could require such treatment in Niger suggest astronomical investment costs using this approach, amounts well beyond the capability of the Government, and probably outside the range of commitment from the donors as well.

Study Conclusions

The report offers a series of conclusions and recommendations aimed at both improving the present situation and pointing to larger issues that will require further study and decision making. These conclusions and recommendations may be summarized as follows:

- **Conclusion**: The high emerging concern about "donor driven" development assistance is very applicable to food aid assisted projects. **Recommendation**: A concerted effort by the donor community in examining its own motivations and procedures for providing food aid would be a meaningful commitment to the macro-level changes in socio-economic development strategies being promoted at the developing country level.

- **Conclusion**: The predominantly quantitative nature of FFW/NRM appears to be a distinct return to the olden days of the "fight against desertification". **Recommendation**: FFW/NRM projects should be carefully scrutinized by both government and donors in light of the *Principes Directeurs*.

- **Conclusion**: There are strong parallels between project food aid and the dilemma of the "projectized approach" to development. **Recommendation**: Both the GON and the donors need to take steps towards rationalizing the present project food aid situation in-country by strengthening national capability to program, monitor and evaluate food aid

initiatives. In addition, because of the commonalities of experience between such projects, the need for coordination of such efforts should be added to the present NRM sector policy agenda.

- **Conclusion**: FFW/NRM projects are having only a minimum impact on reversing degradation and almost none on slowing the ongoing processes leading to degradation of the natural resources base. **Recommendation**: Less intensive land rehabilitation techniques will be needed for degraded common areas in combination with substantially increased attention to improved farming practices to achieve better soil and water conservation on private lands.

- **Conclusion**: FFW/NRM activities are adding to the tensions related to the tradeoffs between agriculture and pastoralism in many areas. **Recommendation:** The pastoral dimensions of landuse must be taken carefully into account when planning FFW/NRM programs.

- **Conclusion**: Food aid as a development resource is poorly understood in Niger. FP/Niger and other donors active in food aid (e.g. USAID, GTZ, Italy) could provide additional training and information to key GON personnel involved in FFW/NRM, with particular attention to cost/benefit analysis. At the same time, additional analysis of the true costs of providing food aid in Niger is required. **Recommendation:** USAID should convene a meeting between relevant GON officials and donor representatives to address the issue of ensuring that food aid is contributing to development in Niger.

- **Conclusion**: FFW/NRM projects are currently setting unfortunate precedents which the country will find difficult to reverse in the future. These include: high investments costs on marginal lands; the notion that soil and water conservation means jobs; little effort at real participation; the inequities of the gang-labor approach; and, the belief that land rehabilitation is the purview of the State. **Recommendation:** The precedents above need to be carefully reviewed, particularly in light of the GON's *Principes Directeur*.

- **Conclusion**: The present FFW model and approach to utilizing food aid for natural resources management do not encourage genuine participation. **Recommendation**: FFW/NRM projects should begin to channel food aid, where necessary, to the target communities using other formulas, delinking food aid and the notion of payment and thereby ensuring greater popular participation.

- **Conclusion**: Many food aid projects are not inherently sustainable. **Recommendation:** Given the level of resources being provided through food aid, urgent attention needs to be given to the links between food aid and development, including the issue of benefit sustainability.

The report concludes by making some suggestions about the next steps towards improving the linkages between food aid and natural resources management in Niger. Because of U.S. predominance in providing food aid to Niger through both bilateral and WFP channels, USAID and WFP are singled out for taking the lead in assisting the GON with rationalizing the use of food aid for achieving sector development objectives in the country.

1. INTRODUCTION

1.1 Study Description

The purpose of this study is twofold: first, to explore and, to the extent possible, establish the linkages between natural resources management (NRM) and program food aid (PFA); and second, to examine the sustainability of natural resources management interventions implemented with program food aid (see Appendix A for a copy of the full scope-of-work [SOW]). The expected outcomes of the study are to include the following:

- a quantitative and qualitative assessment of environmental changes over time in the study areas, with a comparative understanding of PFA and non-PFA sites,
- conclusions as to whether physical changes due to PFA are recognized and internalized by residents, and,
- an identification of how development interventions can maximize the objectives of both natural resources management and program food aid.

A series of questions were posed as part of the conceptual baseline of the SOW. Not all of these questions have or could have been addressed in the implementation of the study. The study team believes that most remain valid and informative for the interested reader. They are recorded in Figure 1.1, and provide an overview of the complexity of the study the team sought to address.

1.2 Placing This Study in Perspective

The prospect of a study of this kind piqued the interests and the expectations of a diverse range of development practitioners, with whom the team interacted during the course of the study. On more than one occasion, the team found it necessary to remind itself and others of the particular and rather narrow focus of the study, that of the linkages between natural resources management and program food aid. A word about what this study does not attempt, however, may forestall similar reactions among readers and thereby put the study in proper perspective as it did for the team.

This study is not an overall examination of the strengths and weaknesses of food aid as an assistance or development tool. Its primary focus on program food aid is based on the supposition that this assistance modality will continue to be an important resource used by the development community in Niger over the near to medium term. There is, however, broad consensus[1] on the need to make better use of food aid, linking it more closely to development and avoiding dependency. Nor does the study examine the full range of natural resources management activities in Niger or the policy decisions behind them. To reiterate then, this study examines the positive or negative role that food aid plays in altering the relationship between rural people and the natural resource base. In particular, the study explores the lessons the rather considerable experience in Niger with food-for-work (FFW) in the natural resources sector might suggest for future efforts.

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[1] Witness the high level of congruency among the GON (*Principes Directeurs*), the CILSS (Regional Food Aid Charter) and USAID/Niger (Disaster Preparedness and Mitigation Program), all of which enunciate similar objectives on food aid.

Figure 1.1: PFA/NRM Questions and Issues

- How does PFA contribute to rehabilitation and/or degredation of the environment?
- What has been the geographical area covered by food aid projects compared to the whole area under study?
- How much food aid has been used (yearly average)?
- How many people are believed to have received food aid and how do these numbers compare with the study area food consumption averages and population?
- What external inputs, other than food, have been provided to the study areas?
- Can a representative selection of new and old sites be found within the same environmental zone?
- What kinds of impact assessments, environmental and otherwise, have been done by FAO, CARE, WFP, GTZ, and others for their food aid-related interventions in the Tahoua area?
- In areas of Niger that have received the most food aid over time, to what extent has there been degradation and/or rehabilitation of the environment and natural resource base?
- What are the effects of NRM/PFA linkages on migration, both seasonal and permanent?
- What methodology can be used to rigorously explore the linkages between PFA and NRM?
- Given the environmental and agricultural production realities in areas of the country where food aid has been heaviest, to what extent, if at all, and how, should production be attempted?
- Where NRM techniques are not being practiced, what prevents potential users from adapting them?
- What other wealth-generating activities are available to/practiced by villagers that are potentially more profitable than agricultural production?
- How does the existence of a non-emergency food aid program influence villagers' economic decision-making process?
- To what extent has the existence of PFA programs in the study areas kept population in regions of the country where the natural resource base cannot support them?
- If these populations were to leave, where would they go?
- Have FFW-supported NRM interventions been valued enough by participants so that they are willing and able to continue the work after the FFW program has been completed?
- Is FFW a disincentive to the sustainability of NRM programs over the longer term?
- What can be learned from situations where both food needs and NRM considerations needed to be addressed?

1.3 Analytical Framework

The major objective of this study is to explore linkages between natural resource management and program food aid. This is a line of inquiry that has received surprisingly little treatment in the literature pertaining to either food aid or natural resource management, despite the fact that it is a very common assistance modality, in Niger, elsewhere in the Sahel and generally throughout the developing world. Some limited work has been done on the operational dimensions of FFW/NRM projects around the world.[2] In this initial attempt to identify and trace some of the potential and/or assumed linkages, this study proposes the following analytical framework.

The framework is based on a series of definitions of both the types of food aid being considered and the range of outcomes that constitute the development of natural resources management. Next, the framework traces the different types of effects on natural resources management resulting from the utilization of food aid as part of Niger's long-term rural development (including food security) strategy (see Figure 1.2).

1.3.1 Definition of Food Aid Interventions

The GON uses donations of food aid for many purposes. Commonly these are divided into emergency and development uses, but as the WFP categories make clear (see section 2), there are shades of grey along this continuum. To the extent that each category of food aid is targeted to a different population of beneficiaries, it is conceivable that their influences on the environment may vary. For the purposes of this study, and in order to narrow its focus, the team has devoted the bulk of its inquiry to the area of Program Food Aid (PFA) and in particular to food-for-work (FFW).[3] No attempt has been made to analyze the impact of PFA destined for maternal and child health, hospital feeding programs or for the repatriation of refugees.

While the SOW has made it clear that the study team should avoid attempting to analyze the impact of non-PFA or emergency food aid, some aspects of this dimension of the food aid picture bear mentioning. This is because the line separating the two is not truly a reflection of the field-informed viewpoints encountered during the study. Similarly, the two forms of food aid complement one another, and occasionally conflict at the field level.

Program food aid impacts may be both direct and indirect. Direct impacts are those specifically targeted by the project. The indirect impacts involve those which allow or induce rural people to change the way they use the land as a result of changes in household attitudes, motivations and economies. All of these situations will be discussed where germane in the sections below.

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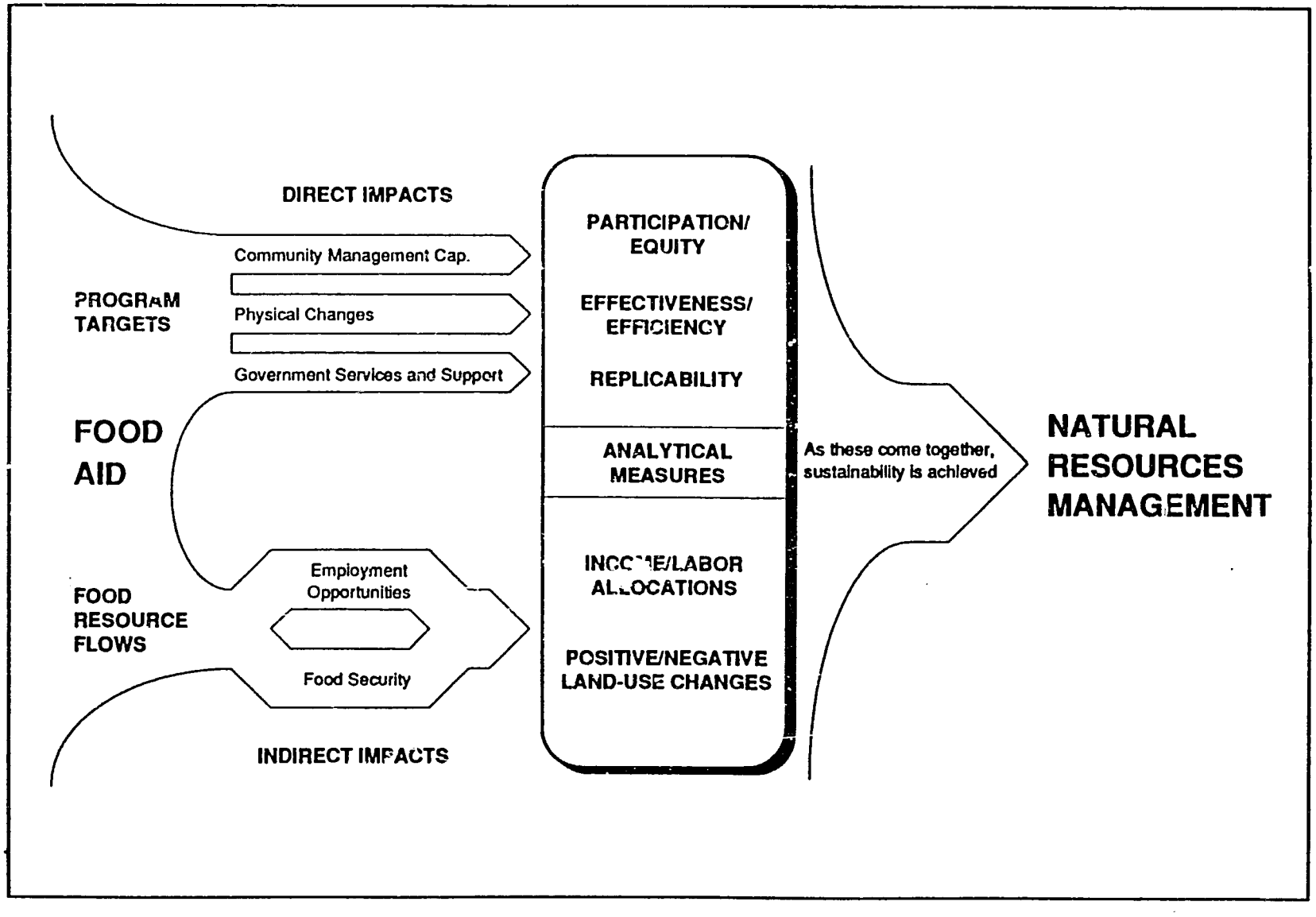
[2] For a discussion of the operational aspects of food-for-work and natural resources management projects, particularly as related to forestry, see: Bryson and Joyce 1991; Joyce and Burwell 1985; Moore and Fitzpatrick, N.d.; and Bryson, Chudy and Pines 1991.

[3] See the discussion in section 2.5.1 regarding the distinction between the different types of food aid.

Figure 1.2 Analytical Framework: Food Aid/NRM Linkages Study



1.3.2 Definition of Natural Resources Management

The term "natural resources management" has recently become something of a cliché in development circles, perhaps justifiably so given the increasing concern about man's dependence on the increasingly threatened environmental stability of the planet. Indeed, an element of "green conditionality" has become part of ongoing, donor-driven development programming objectives (Davies 1992). This has sometimes occurred, regrettably, with only limited insights into the wider role of natural resources management relative to food security and socio-economic growth. These latter points are, by definition, paramount considerations in the development strategy of most countries of the developing world. Natural resources management must be part of the overall strategy to achieve sustainable, socio-economic development, not be solely an end unto itself.

Planting trees and conserving biodiversity will doubtless be of benefit to the people of developing countries. A more expansive and more development-oriented understanding of NRM is gaining ground. In Niger, natural resources management objectives have been more properly conceived as applicable to the range of man's use of arable land, forests and woodlands, rangelands, water and wildlife[4].

Questions arise, nevertheless, about how these objectives are achieved, at what costs (both economic and social) and within what framework. The team believes that part of this study is driven by concerns in this area, i.e., how program food aid is being used in attaining NRM goals. An axiom to this study, applicable in Niger, the USA, and throughout the world, is that conservation, if it is to be ultimately sustainable, cannot be built on the backs of those least able to afford it.

For the purposes of this study, then, natural resources management is viewed as a process in which people (men and women) are able to satisfy their contemporary needs and just aspirations without significantly[5] foreclosing the options for the use of these same resources by future generations.

1.3.3 Mechanisms Linking PFA and Natural Resources Management

As stated above, the impact that a particular food aid intervention may have on the management of the environment will depend on the purpose of that intervention. In this study, two major lines of linkage or impact are used as the primary components of the analytical framework. They are: a) the direct impacts of the project interventions, and b) the indirect impacts of food aid projects which will have a long-term effect on the way people use and manage their natural resources.

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[4] Although this wider view of NRM may seem self-evident, it has not always been so considered. It was not until 1986, for example, that the importance of adding soil and water conservation to the technological packages being considered under the USAID-funded Niamey Department Development Project was identified as part of the agro-ecological zonation study carried out that year (Hagen et al. 1986). For a discussion of the present thinking regarding the understanding of natural resources in Niger, see the ASDG II PAAD (USAID/Niger 1990).

[5] The qualifier, "significantly," is essential here because tradeoffs are more often than not necessary over the near to medium term. Certain elements -- land-capability constraints, technology, fair markets and social inequities -- make it difficult to achieve the full measure of compatibility between development and environmental stability. Others would argue that it is inevitably a question of give and take as new technical discoveries and changes in the socio-economic framework make it possible to alter these basic relationships.

Food rations, usually contributed by WFP, are distributed to workers on rehabilitation sites. If the food is distributed in relation to the labor invested, if that labor, in conjunction with other project activities, succeeds in constructing a resource-protecting output, and if that output is durable, then the food intervention will indeed have a direct impact on natural resources management.

The indirect impacts break down into income and substitution effects. In the former case, the FFW provides financial resources that induce behavioral shifts; in the latter, it forces a reallocation of time and is accompanied by an entirely different configuration of behaviors. In most cases, one could hypothesize either an increase or a decrease of pressure on the local environment, depending on whether the income effect or the substitution effect kicked in. A good answer to these questions requires a thorough evaluation of the quantities and conditions under which food aid is introduced into the local economy. It is also essential to have the qualitative and quantitative data over time to permit a more careful formulation of hypotheses and an eventual test of benefits.

1.3.4 The Direct Impacts of Project Interventions

From a pragmatic point of view, taking into account the range of tools available for sectoral analysis, one might choose to measure natural resources management achievements in very tangible terms[6]. In the case of most of the food-for-work used in Niger, the direct impacts are those targeted by those projects that directly support environmental rehabilitation. *Projet Aménagement du Bassin Versant de Galmi* (CARE), *Projet Basse Vallée de la Tarka* (FED), and *Projet Keita* (FAO/Italy) are just a few of the plethora of projects focused on protecting and rehabilitating degraded lands. Their objectives are centered on the following natural resources management activities:

- controlling water and wind erosion,
- restoring the productive capacity of the soil,
- improving rainfall infiltration for the recharge of subterranean aquifers,
- avoiding flooding and siltation downstream,
- water-harvesting for both on-site and downstream needs,
- restoring the protective and productive functions of the vegetative cover.

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[6] For example, USAID/Niger, attempting to blend both the process and output orientation in practical terms, elected the following measures of sector achievement:

1. Number of resource users adopting NRM practices.
2. Number of hectares of managed agricultural land.
3. Number of hectares of community-controlled woodland sites.
4. Number of public wells attributed to individual or community management.
5. Number of hectares of pasture under management by pastoral associations.

For additional discussion of sector indicators and the measurement of impact, consult Weber 1991 and the USAID/Niger Assessment of Impact Report (FY 1992).

In addition to these indicators of direct impact, a study of the linkages between food aid and natural resources management should also include an analysis of the social institutions (government services and organizations of local user-groups) and economic incentives (net present value) operating to sustain this balance between productivity and environmental stability beyond the scope of any given projectized intervention. They are, or at least they should be, the direct impacts of the FFW/NRM projects.

For example, while directly transforming the physical environment, many NRM interventions carried out with FFW have an impact on community institutions and arrangements fundamental to the management of the resources. Most striking is the case of land tenure. Many FFW/NRM projects in Niger occur on degraded communal lands. If there is no shift in the attribution of those lands, it is unlikely that the intervention can be maintained. By the same token, if those rehabilitated lands are redistributed to participants, the tenure system must adjust accordingly. FFW-assisted NRM projects often modify the availability of pasture resources, invoking grazing prohibitions in the short-run in the hopes of regenerating fodder resources in the long-run. Such rules require enforcement. The match between the tenure institutions and the nature of the resources to be exploited is critical to the attainment of NRM objective. For this reason, many NRM projects are involved in setting up village-based land management committees or cooperatives.

Sectoral experience -- in this case in the Sahel, but also elsewhere in the world -- has demonstrated that the best measure of the development of natural resources management is an approach which views it precisely as the "process," referred to above. People acting individually or collectively make incremental improvements in their use and management of the natural resources base leading to sustainable avenues of production and environmental protection. The process involves local recognition and definition of NRM problems or opportunities, followed by purposeful actions drawing on the facilities available to the actors and overcoming the constraints.

1.3.5 Indirect Impacts of FFW/NRM Projects

The flow of food resources into a region and the mechanisms put in place to support that flow are also intended to improve the household economies and food security situation of the participants. These social and economic impacts may also have indirect impacts on the natural environment. These include those effects emanating from the flow of food aid within a community and its potential impact, particularly as related to the availability of labor, in altering the inherent relationship between the people and how they use the natural resource base.

Of greatest interest are potential shifts in crop or livestock production strategies, wood gathering, seasonal and long-term migration patterns, and the local institutions that govern how the community interacts with its physical environment -- land tenure arrangements, grazing regulations, etc. The following is a list of the indirect impacts that FFW, as used in NRM activities, might have on people's relation to their environment:

Shift in crop production strategies. FFW may induce a change in farmers' use of agricultural inputs such as land, labor and capital. For example, a large quantity of food received from participation in a FFW program may replace the farmer's need to cultivate certain fields, perhaps increasing fallow. Similarly, the easing of household food shortages may liberate financial resources for investment in agriculture, increasing the use of fertilizer, manuring contracts and irrigation. By the same token, the dedication of labor to the FFW activity might cause farmers

to manage their own fields less carefully; for example, they might be unable to take the time to target manure or crop residue resources to distant fields.

Shift in animal management strategies. As with cropping activities, it is possible that involvement in FFW projects, which usually occurs in the dry season, could siphon labor away from herd management. If the desire to allocate the maximum effort possible to the FFW work site increases the time animals spend in the region, local overgrazing might result. Overgrazing might also occur if the added income resulting from the FFW labor was invested in livestock. This scenario becomes a particular threat in the case where women receiving FFW rations invest in small ruminants, resulting in a shift in herd composition. Conversely, if the added income allowed the family to accumulate enough animals to merit hiring an outside herder, the herd may be entirely removed from the region (transhumance), thus lessening the pressures on local grazing resources. Given adequate grazing resources, a larger herd would imply more manure resources to apply to individual fields, resulting in a more sustainable agricultural system.

Shifts in other household resources. Not only might participants alter their crop and herding activities, but the added income and work load could alter, or do away with, activities such as wood gathering, fence-building, dry-season gardening, or even seasonal migration (*exode*). Depending on local conditions, one could hypothesize either an increase or a decrease of pressure on the resource base. For example, if FFW resources make it more attractive for potential seasonal migrants to remain in their villages during the dry season, and these workers then apply newly learned soil conservation techniques in their private fields, then the FFW will have positively contributed to resources management. However, if more dry season residents implies a greater need for firewood, then the reverse argument might be made.

1.3.6 Sustainability and FFW/NRM Activities

Much of the present concern about FFW/NRM in Niger is focused precisely on issues of sustainability, most often in terms of recurrent cost burdens for both the GON and the rural people. The analysis in this study has tried to take a wider perspective. Sustainability is considered from multiple angles, namely, institutional, social, technological and economic. Sustainability in natural resources programs has been defined as including:

- developing institutional capability,
- maintenance of the bio-physical resource base,
- promoting interventions and packages that provide sufficient incentives and returns for the participants to ensure their continuity.

On a parallel and decidedly convergent track, the state-of-the-art in natural resources management in the Sahel focuses on NRM as a socio-economic process, not a technological achievement, and highlights the following dimensions of sustainability:

- decentralization as a direct development objective of NRM programs rather than, as is often proposed, a tool for achieving it;
- linking self-reliance with greater resilience to drought in farming and land-use systems;

- an improved national policy framework for village/local level capability for making land-use decisions beyond the family field; and,

- complementing and developing the concepts and informal codes which governed local resource use and conservation, thus offering guarantees against both resource depletion and full-blown disasters.

This is precisely the substance of the experience that is leading the Sahelien/donor partners towards the *Gestion de Terroir* approach. Do the countless FFW/CES-DRS projects seem to fit mold?

Many of the observations in this study are drawn from the relatively recent field experience with FFW/NRM projects in Niger. Although it may be too early to draw rigid conclusions regarding the issue of sustainability, it is clearly a matter of high concern. There are a range of issues discussed in this report (see Section 5) which suggest that replicability, adaptation and adoption of these FFW/NRM practices must be the first step towards sustainability. Then too, sustainability may often be affected by factors external to the present projects or their participants. Such externalities may fall more precisely to the GON and its donor partners as they review and consider the overall rural/national development policy and strategy framework[7].

1.4 Lessons Learned

Finally, the result of this analytical framework will be a series of larger lessons emerging from this considerable experiential base of literally hundreds of sites where food aid has been utilized as part of the investment package aimed at natural resources management. These lessons include: policy insights; planning guidance; different strategy options, such as technological choices, institutional approaches and extension methodologies; and numerous other spin-offs. These can – and must -- inform GON and donor decision-makers, planners and technical personnel as they consider important questions related to the use of food assistance for the development of natural resources management. Among these questions are the following:

- Is program food aid necessary for the development of NRM in Niger, or indeed, for the development of the country?

- What are the full costs and benefits of this food aid?

- Are there more cost-effective ways to achieve development?

These lessons, gleaned from visits to a small sample of FFW/NRM sites and a fairly intensive review of the literature, will be addressed in the conclusions and recommendations (Section 6).

1.5 Study Methodology

[7] For a more detailed discussion of natural resource management indicators and their relationship to the issues of sustainability, see Weber (1991).

A three-person team, including a Team Leader/Natural Resources Management Specialist, a Food Aid Specialist and a Community Development Specialist, undertook this study during the period 9 September to 24 October 1992. Additionally, a researcher on the political dynamics of food aid contributed to the study in January, 1993.

Interviews and discussions were carried out with knowledgeable individuals and field practitioners concerned with food aid and natural resources management (see Appendix B for a complete list of these contacts). The assignment began with a three-day briefing and team building session in Washington D.C.. Over the course of six weeks in Niger, team members met either as a group or individually with a wide range of Niamey-based GON, USAID, donor and multilateral agency representatives, NGO representatives, and also with project field staff, territorial authorities and participants in food aid programs.

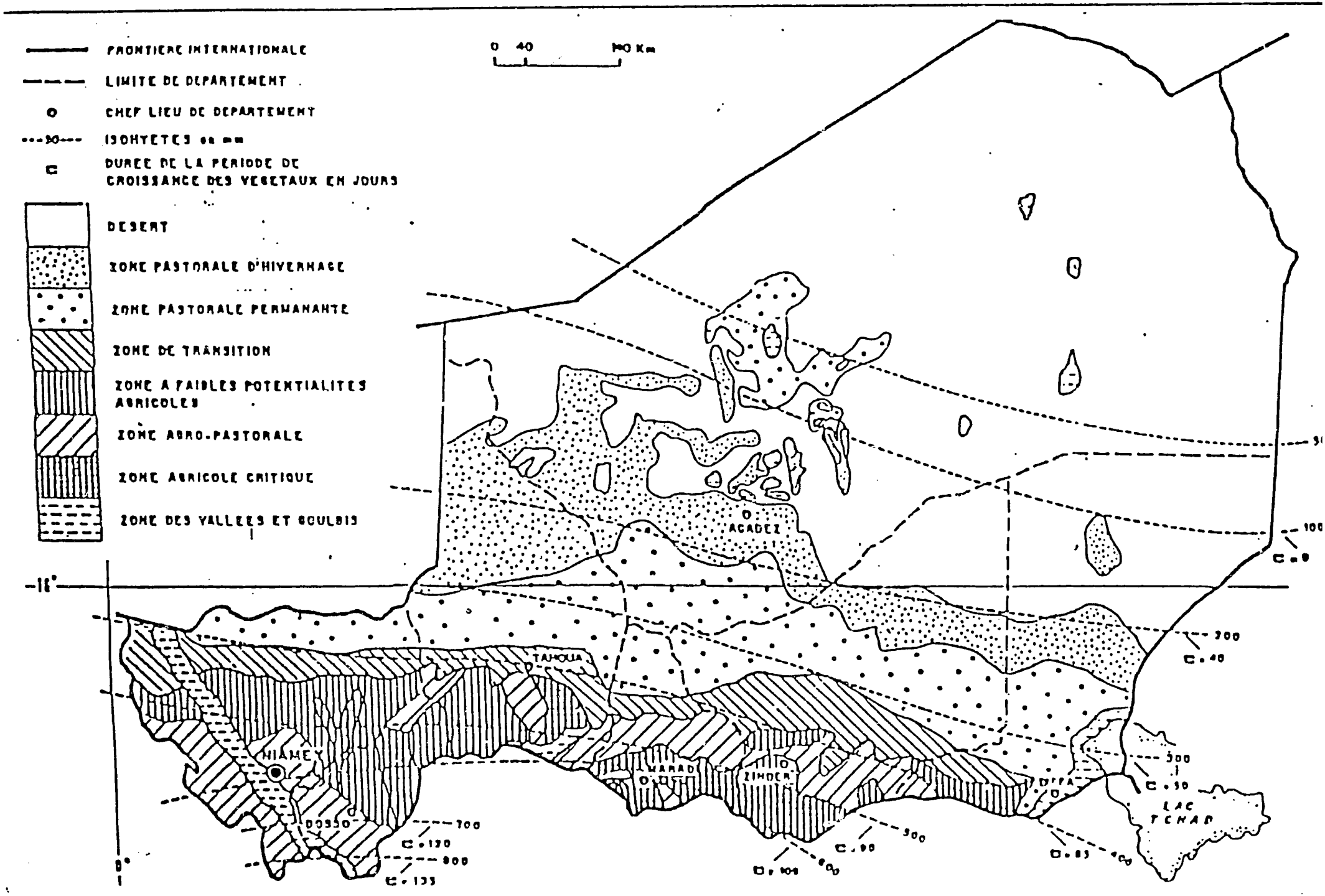
Although the literature concerned directly with the food aid/natural resources management linkages is somewhat shallow, the team was able to review a broad range of pertinent published materials. These are noted in the *List of References*.

Perhaps the most important element of the team's activities was the opportunity to visit field sites and villages involved with food aid and food aid-assisted projects targeting natural resources rehabilitation in the Departments of Tillaberi and Tahoua. Time limitations and the logistical constraints associated with travelling relatively long distances to diverse sites necessarily limited the breadth of the field visits. Although some effort was made to choose sites across the same agro-ecological zone of the country, namely the transition zone (see Figure 3), the present security situation prevented the team from fully satisfying that study criterion.

The research effort was favored by a heightened sense of professional concern by USAID/Niger staff keen to incorporate study insights into their own work. This study is part of a broad analytical agenda which the Mission is pursuing, primarily but not exclusively with the resources being made available through the Agriculture Sector Development Grant. ASDG II is targeted at a five point program which includes: the development of a national natural resources management strategy and action plan; the establishment of secure land tenure and resource management rights; the decentralization of decision-making and executive powers as related to NRM; the strengthening of NGO capacity in NRM; and, the enhancement of the extension role of government forestry agents. Both USAID efforts at the Famine Early Warning System (FEWS) and the Disaster Preparedness and Mitigation Program are intended to assist the GON to bolster its capability to respond to disasters and to "bridge the gap between emergency food aid and development" (Soos 1991). This study is also a reflection of USAID/Niger's commitment to support the four principal themes of the GON's rural development policy: natural resources management, organization of the rural sector, food security, and intensification and diversification of production.

FIGURE 1.3

— PRINCIPALES ZONES AGROECOLOGIQUES DU NIGER



2. THE PRESENT SITUATION IN NIGER

This brief summary of the setting reflecting the period during which this study was carried out, hardly does justice to the special circumstances of the moment in Niger. Many other authors and documents treat this basic information in more substantive ways. It is included here, nevertheless, because Niger, like so many other countries today, is facing the dual challenges of the democratization process against a backdrop of difficult economic and fiscal constraints. No account should ignore these circumstances so integrally linked to the developments prospects for the future.

2.1 The Political Setting

For the last two years, Niger has been in a period of transition and unprecedented change. Before 1992 is ended, the country should have a new constitution and will have elected a new government. Some 18 political parties are campaigning throughout Niger today, and there is both great hope and anxiety for the future.

At the same time, Niger faces the problems of secessionist rebels and banditry in the north. This has led to a general feeling of insecurity for the country's future, in particular its short-term future. Many fear that the unrest and insecurity of the north will end up, either coincidentally or by design, as a roadblock to the democratic process, and might halt the electoral process altogether. Although the tensions of the north seem to be ethnic in origin, there are other issues which must be addressed: notably, the distribution of development resources and the question of national identity.

In the rural sector, the general uneasiness and lack of direction of the transition government, along with a liberalization of national policy regarding government control of rural organizations, has had mixed results. On the one hand, issues such as land tenure, market policy, and specific sector development plans have caused some activities to languish, and has slowed down decision-making by regional officials. On the other hand, the rural population has responded favorably to the increasingly liberal atmosphere by moving ahead with the formation of new cooperatives and other voluntary groups, and the re-formation of old ones.

The problems of the north, including related farmer clashes with the herder Fulbe in the Maradi and Filingué regions, reflect larger issues that include natural resource management throughout the pastoral zone, and particularly in the transitional region. While the droughts of the last two decades forced a general movement of cattle herds, if not herders, to the south (White 1986), increasing population growth over the last 50 years has put greater pressure on traditional land-use systems, and has encouraged farmers to move north in search of new farmland. Additionally, the weak economy has led farmers to turn to the traditional coping mechanism of increasing numbers in herds of small ruminants. The result has been a general increase in pressure on dry-season pasture lands used historically by herders in the pastoral zone.

It is also becoming clear that increasing pressure is coming to bear on the rural household in Niger. Women are more and more responsible for the upkeep of the family in economic as well as social terms, particularly in areas of structural food deficiency (Wilson, USAID, Jan. 1992).

As has been suggested above, the current condition of political transition has resulted in a general malaise and lack of direction. Although this may not be as extreme as people are perceiving it, such perceptions are widespread. Lack of funds has slowed down activities for virtually all government

services. Lack of decisions has slowed down policy formulation and program implementation. In the informal sector, some activity can be seen in re-configuring local institutions, but this is also against a backdrop of uncertainty. Nevertheless, this uncertainty also presents a window of opportunity for Niger. It presents an opportunity for change, re-evaluation, and new approaches to problem solving.

2.2 The Economic Setting

The economic challenges facing Niger during this time of political transition are formidable[8]. The growth of gross domestic product (GDP), which has fluctuated greatly during the last decade, has recently turned negative; real GDP grew 2.9 percent from 1985 to 1989, but then declined -0.1 percent in 1989, followed by an estimated decline of -1.8 percent in 1990. The growth rate for 1991 is predicted to be positive (U.S. Embassy/Niamey 1992). On a per capita basis, GDP has fallen from $315 to $251 (17 percent) between 1989 and 1991. The consequent lack of local demand is indicated by the decline in the price of the average basket of goods and services purchased by an African family; the African consumer price index fell 13 percent between 1989 and 1991.

The Nigerien government identifies four factors responsible for the ill-health of the economy: declining uranium prices, drought, debt service, and a loss of export opportunities due to unfavorable exchange rate movements of the FCFA relative to the Nigerian naira. Unable to maintain export earnings, which declined nine percent in 1989, the country's balance of payments slid from surplus in 1988 to deficit in 1989. The rate of investment fell 30 percent in 1991.

In the face of this economic downturn, it is not surprising that the state is bankrupt. The government's operating deficit has run about 10 percent of GDP from 1989 to 1991. The recession, the lack of investment, and the flight of the remaining economic capital from the formal to the informal sector have decreased sources of GON revenues; lax attempts to collect taxes only exacerbate the crisis. In spite of a 70 percent reduction in Niger's outstanding commercial debt, the result of forgiveness by official creditors (France, USA), and additional support from the IDA Debt Reduction Facility, Switzerland and again France between 1989 and 1991, the World Bank and IMF have declared Niger in 1991 and 1992 "out of compliance" with the structural adjustment program in effect since 1983. Additional fiscal reforms aimed at reversing export losses, containing the state's wage bill, and reducing parastatals are required before the IMF or the World Bank will make new low-interest structural adjustment program loans.

2.3 Agricultural Sector Performance

The livelihood of the vast majority of Nigeriens is drawn from the agricultural sector. The sector has accounted for an average of approximately 36 percent of GDP during the 1980s, and seems to be maintaining that share into the current decade[9]. Approximately 78 percent of the labor force is absorbed by the agricultural sector, far more than the 19 percent involved in commerce and the 1 to 2 percent employed in government and mining (Baker personal communication 1992; République du Niger 1992a). While recent studies have indicated that a large share of rural household income is derived from non-

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[8] This discussion of the fiscal and economic situation in Niger is drawn from USAID/Niger (1992a & 1992b).

[9] Commerce and Services contributes the largest share (41 percent), followed by Industry (12 percent) and Mining (11 percent).

agricultural activities, the state of the agricultural sector continues to dominate the lives of those living in Niger's rural areas -- 85 percent of the total population.

The riskiness of agriculture is rarely so pronounced as in Niger. In the face of tremendous climatic variability, less than 5 percent of crop production occurs under irrigated conditions. Millet production has been increasing at an average annual rate of 4.3 percent per year during the period from 1954 to 1990. Most of this gain can be attributed to the almost equal increase of 4.4 percent per year in area cultivated. Consequently, yields, which are measured in terms of production per hectare, have remained basically flat; the annual rate of change during the same period was -0.1 percent. The data for sorghum is more discouraging. Though area planted has increased by approximately 4 percent per year, production gains have limped behind at 1.3 percent. Consequently, sorghum yields demonstrate a marked decline of -2.6 percent per year (Gavian, n.d.).

In the face of Niger's dramatic 3.2 percent annual rate of population growth, gains in crop production per capita have basically stalled, or cereal production per person has decreased. Recent results from household surveys in western Niger indicate that cereals make up between 88 and 97 percent of average daily caloric intake and that millet constitutes 62 to 90 percent of the cereal calories consumed (Hopkins and Reardon 1992). Because own production accounts for the largest share of cereal calories, the failure of Niger's farmers to improve their productivity threatens their nutritional well-being. Though self-sufficiency in food production has long been a stated priority of the government, the country has suffered some very severe food deficits during the last two decades (1973-74 and 1984). In the absence of a vibrant nonagricultural sector, stagnation of the agricultural sector greatly compromises Nigerien food security.

Logically, therefore, governments and donors across the Sahel are striving to understand and reinforce the food security of Sahelien populations. Reflecting this need, USAID/Niger pursues a strategy to increase opportunities for sustainable agricultural production and rural enterprise, which includes promoting systems to forecast and respond appropriately to the inevitable crop failures and other natural disasters. The various dimensions of this approach have included efforts to improve data on food security, production and marketing, the promotion of natural resources management, as well as to encourage policy reform, and research- and capital-intensive assistance to improve food production (USAID/Niger 1992b). While food security implies independence from food aid, USAID and many other donors have also used food aid as a tool for setting Niger on the path to food security.

2.4 Natural Resources Sector Strategy and Performance

Over the last twenty years, drought and natural resources degradation have joined with population growth to significantly compound the constraints to achievements in socio-economic development in Niger. There are few countries in the world where the destiny of a nation and its people are so inexorably linked to natural resources.

Over 90 percent of the domestic energy needs of the country are still being met by harvesting of the biomass produced on the country's forests and woodlands. Recent accounts suggest that the 130,000 tons of fuel wood required annually by the city of Niamey alone represent the equivalent of the complete destocking of 100,000 hectares of the savannah woodlands found around the capital (SEED/CTFT 1991). An often quoted figure of 67,000 hectares of deforestation per year in Niger is bandied about (World

Resources Institute 1988), although how this figure was derived is unclear.[10]. It is probably a derivation of population growth rates; the CTFT France estimated that in Sahelien West Africa, each new rural inhabitant meant the loss of 0.6 hectares to land clearing (Seve et al. 1988).

On the agriculture/natural resources front, there is every reason to assume that the total area under cultivation is expanding. Of the country's area only 12 percent, or approximately 15 million hectares, are considered suitable for agriculture (USAID/Niger 1992b). Estimates of the amount already under cultivation range from four to six million hectares (Cleaver and Schreiber 1992; Andenmatten 1992). The Ministry of Finance and Plan (1991) estimated a 40 percent net increase or one million additional hectares in cultivated area from 1976 to 1986. Also important are the more infrequent citations of land abandoned because it is no longer productive. In Tillaberi Department, net reductions in land cropped for millet from 1978 to 1987 were said to be 115,000 hectares, *"attribué à l'abandon des plaines et glacis sablonneux degradés sous l'effet de la desertification"*(attributed to the abandonment of sandy plains and hardpan areas degraded as part of the effect of desertification) (Breitschub et al. 1989).

These net increases are occurring in part on previously fallow land, although many informants report serious inroads on the rangeland portions of both the transition and agro-pastoral zones. Fallow periods are being shortened dramatically, from an average of 10 years to betweem 2 and 5 years (Taylor-Powell et al. 1991). Beyond what may be intuited from this loss of fallow, little is known about the continuing processes of degradation on lands being cropped. Erosion (either wind or water) and run-off have not been systematically studied although their intensity is evident to even the untrained eye. No studies of soil fertility losses associated with constant cropping or leaching have been found, although, the decreasing use of manure due to herd reductions, both total and spatial, are again widely remarked. Average yields, as discussed above, are perhaps the only true indicators.

The country's continuing vulnerability to drought is exacerbated (would it be fair to say -- exponentially?) by the pervasive degradation taking place across the land in Niger.

In the past, attempts to deal with the land degradation problem were led by efforts to re-establish the vegetative cover, primarily through reforestation. In 1988, however, the total area of forest plantations was estimated at 30,000 hectares, not nearly sufficient to have any significant impact on the problem. Fortunately, the 1980s also marked a period in which notable, albeit modest, achievements in forestry have been made. The success of the Majjia Valley Windbreaks Project and the pioneering efforts at Guesselbodi Forest have stimulated expansions in both agro-forestry and natural forest management throughout the country. More recently, there are encouraging signs that the farmer community is beginning to safeguard the regeneration of native species in their fields, thus allowing them to return to a state of farmed parkland -- once one of the most extensive agroforestry systems in the world (Taylor and Rands, 1990). Soil and water conservation as well as land rehabilitation are being undertaken in projects across the country.

[10] Perhaps one of the most important indicators of sector performance is the continuing difficulty in obtaining reliable data on the actual parameters of the natural resource situation in the country. In almost every case -- arable land area, forested area, deforestation rate, erosion rates, fuelwood needs -- figures are poorly documented and often conflicting. Little of this data can thus be used in definitive terms and with the level of confidence necessary to guide macro-level, land-use assessments, planning, and strategy identification.

There have indeed been some encouraging achievements in Niger in the natural resources management sector. Effectiveness and efficiency in delivering and implementing these programs at the field level however, are still of major concern. The most satisfying achievements of the past decade are the refreshing new viewpoints about more participatory and integrated approaches to natural resources management policy and strategies. It is these shifts in approach that will ultimately lead to the solution of these efficiency and effectiveness issues, and thereby have real impact in the field.

Niger, as well as the other countries of the Sahel, is presently going through a fundamental shift in the orientation of natural resources sector policies and strategies. In May, 1989, the Regional Encounter of Ségou underlined the importance of local level management of natural resources. This benchmark event highlighted two elements critical to sustainable development, namely decentralization and land tenure. Guaranteeing security for investments in local level natural resources and revitalizing the relationship between the state and rural dwellers (Club du Sahel 1992) are finding their expression in a wide array of purposeful actions across the country and the region[11].

A second issue to come out of the evolving sector strategy in Niger concerns the shift from land-use prohibitions to land-use management. There has been a gradual change from the attempt to reserve land areas during the immediate post-colonial period to the emphasis on forestry (large plantations, village woodlots, and green belts) as a primary force to combat desertification (1973-1982). In the period after the 1984 Maradi Conference, the strategy was further refined as a multi-sectoral approach to rural development and the "fight against desertification" (Niger 1990). In 1992, the *"Principes directeurs d'une politique de developpement rural pour le Niger"* (Guiding principles for rural development policy in Niger) was formally approved, which defined sector objectives as the progressive transformation of agriculture and livestock systems, with a view to the long-term respect for fundamental ecological stability (Andenmatten 1992). This latter document, it should be noted, has been a national initiative from start to finish, in contrast to many of the other strategic plans (e.g. *Plan National de Lutte Contre le Desertification* [PNLCD] and the Tropical Forestry Action Plan [TFAP]) which are very much donor-driven. The *Principes Directeurs* include GON strategy statements on both natural resources management and food security.

At the field level, the most common expression of this progression of trends is the new program and project approach called *gestion de terroir villageois* (GTV). In short, the older paradigm of the fight against drought and desertification, which looked at the ensemble of land degradation problems and attempted to target an integrated action plan by GON ministries and donor partners, is giving way to an approach that addresses the problems, opportunities and priorities from the grass roots level.

2.5 Food Aid: An Overview

Food aid is a major instrument in the development tool kit. About $1 billion of food aid is transferred to Africa yearly, constituting 7 percent of official development assistance to Africa. Seventy-four percent of the cereal food aid distributed between 1987 and 1990 moved through bilateral channels (i.e. between governments or through nongovernmental organizations). Twenty-four percent was multilateral, and the rest came from the resources of nongovernmental organizations. The corresponding shares of non-cereal aid are 55, 42 and 3 percent respectively. The U.S. is the largest bilateral donor

[11] A follow-up regional conference for the definition of decentralized initiatives from local bases (CREDIBLE) is planned for early 1994 in Praia, Cape Verde, with backing from the CILSS and the Club du Sahel.

of food aid, accounting for 47 percent of the volume of bilateral cereal aid and 49 percent of non-cereal food aid. The EEC follows in importance with 19 percent and 24 percent respectively. Amongst multilateral donors, the WFP accounts for 80 to 85 percent of both cereal and non-cereal food aid (World Bank, 1991).

Food is transferred between countries under many different conditions for many different purposes. For example, half of all food aid to Africa is monetized, and about one fifth is transferred in some form of triangular transaction, trilateral operation or local purchase (World Bank 1991). The section that follows examines some of these dimensions in the context of U.S. policies and the African experience.

2.5.1 The Food Aid Continuum

In the grand scheme of things, food aid is typically directed at problems of food insecurity. It is part of the plethora of strategies for achieving food security, which include macroeconomic policies (industrial, fiscal, exchange); storage under public control; trade for price stabilization; production-oriented policies and programs; and, other income- and employment- generation policies and programs (such as labor-intensive public works programs, credit, etc) (von Braun et al. 1992). Analysts often consider food aid interventions on a continuum, which runs from relief to development, depending on the immediacy of the food security problem being addressed. Borrowing from the language of the Disaster Preparedness and Mitigation Program PAAD, relief food aid is given in response to an existing and immediate crisis that has surpassed the local coping capacity; development food aid aims to improve future incomes, economic productivity or social well-being (USAID/Niger 1992b). There are many intermediate possibilities along this continuum; for example, disaster mitigation activities, which may include the use of food aid to prevent the deterioration of the food security situation to the point of requiring relief interventions.

Loosely speaking, the standard food aid categories -- emergency, project and program -- can be ordered along this continuum from relief to development. Many definitions exist for these terms, mostly semantic. **Program food** is typically that used for sale or budgetary support to help developing countries meet their overall food deficit. According to some estimates, roughly two-thirds of food aid is sold by recipient countries on their domestic markets, often substituting for commercial imports (Saran and Konandreas 1991). In U.S. jargon, program food aid is distributed under Titles I, II/206 and III of PL 480 and Section 416. **Project food aid** is distributed to food-deficit people "as part of a program of nutritional and other developmental interventions" (USAID/Washington, 1989). U.S. project food aid is classically oriented towards maternal and child health, food-for-work, and school feeding programs. **Emergency food aid** is used " to meet short-term food needs created by natural or manmade disasters through both project-type and program-type implementation mechanisms" (AID/Washington, 1989).

The **World Bank** comments on the distinctions between program and project food aid in the following manner:

> "Program food aid can be an efficient way of transferring resources to meet balance of payment and budget support objectives, but it seldom makes a large direct contribution to the alleviation of poverty and hunger because deliveries are irregular, funds are not targeted, and the benefits are often dissipated in general food subsidies to urban areas..."

"Project food aid has the capacity to reach the poor and hungry directly through food-for-work, supplementary feeding, and other targeted programs, but the costs of reaching target populations through direct distribution may be prohibitively high. Project food aid also has been handicapped by a lack of complementary financial and technical resources, and by administrative and logistical difficulties" (World Bank, 1991).

Likewise, other analysts have reacted to the lack of coordination between program food aid activities, or between program food aid and other development resources or projects. They call for the integration of food with other development inputs leading to infrastructure creation, long-term income generation, child survival, improved primary education and school attendance, natural resources management and emergency relief (Bryson and Joyce, 1991).

According to a recent study of food aid in Africa, the share of program food aid was 40 percent, project food aid was 19 percent and emergency food aid was 41 percent over the recent interval from 1987 to 1990. Niger is a "major recipient" of emergency cereal food aid, with relatively less program and project aid compared to other African countries (Table 2.1) (World Bank, 1991). WFP reports, however, that within the Sahel, Niger receives more food aid than any other country in the Region (Ayih, WFP/Niamey, personal communication).

In concrete terms, American food aid is allocated under the terms of Public Law 480 (of 1954) with many modifications, including the most recent found in the Development and Trade Act of 1990 (also known as the 1990 Farm Bill)[12]. By permitting the monetization of what was classically seen as "project" food aid, the 1990 legislation blurs these traditional distinctions between program, project, and emergency assistance:

- Title I of PL 480 (Trade and Development Assistance) under the Secretary of Agriculture (USDA) permits sales to countries with foreign exchange shortages that might potentially become markets for U.S. agricultural commodities, based on a concessional rate of interest determined by USDA, for repayment within 30 years. The receiving country can sell the commodities and use local currencies for budgetary support, including projects. The new legislation requires the receiving country to state how the goods or proceeds "will be integrated into the overall development plans of the country to improve food security and agricultural development, alleviate poverty, and promote broad-based, equitable, and sustainable agriculture[13]."

- Title II (Emergency and Private Assistance) covers the food aid used in support of projects, as approved and monitored by AID/Washington and USAID field missions, channeled through PVOs, cooperatives, WFP, and other multilateral organizations, in collaboration with the host government (Bryson and Joyce 1991). It can be monetized or used directly as food for development or relief purposes.

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[12] The following discussion of legislation of food aid has been drawn from MayaTech Corporation (1991).

[13] The language comes from Sec.404(b)(2) of the 1990 Development and Trade Act, as quoted in MayaTech Corporation (1991. p. 10).

Table 2.1 Major Recipients of Cereal Food Aid, 1987-1990, Average

(In thousands of tons grain equivalent)

Emergency		*Program*		*Project*	
Ethiopia	582	Mozambique	303	Ethiopia	108
Sudan	170	Sudan	258	Ghana	37
Mozambique	128	Zaire	116	Mozambique	33
Malawi	117	Kenya	68	Mali	31
Somalia	88	Madagascar	49	Senegal	26
Angola	50	Zambia	46	Lesotho	25
Uganda	18	Ghana	40	Malawi	25
Niger	16	Cape Verde	37	Sudan	25
Zambia	15	Senegal	36	Burkina Faso	24
Botswana	13	Angola	34	Kenya	20
Other	121	Mauritania	34	Other	241
		Other	238		
Total Africa,	1,318		1,304		595
Share of top 5 in total (%)	82.3		60.9		39.5
Share of top to in total (%)	90.8		75.7		59.5

Source: WFP INTERFAIS Database

Source: Taken from Table 5 on Page 10 of World Bank, 1991.

- Title III (Food for Development) provides for bilateral commodity grants to countries that fit the specified "least developed" criteria or for those experiencing food deficits. These commodities are used in direct feeding programs to create emergency food reserves or to generate local currency.

- The Food for Progress program also contributes to program food aid, drawing on Title I and Section 416 legislation. Under this program, commodities are directed to developing countries and emerging democracies, such as those in Eastern Europe, in support of agricultural policy reform.

2.6 The Political Dynamics of Food Aid As Development Assistance

Traditionally, food aid has fallen into two categories: emergency or relief food assistance, and development assistance. In reality, the distinction between these two categories is blurred. Situations where long-term refugee camps are assisted to develop infrastructure and even income-generating activities, and discrete food-deficit regions receiving food-for-work projects, established, perhaps, after a series of particularly bad harvests are commonplace. Early dialogue about food aid focused largely on

the appropriateness, quantity, and timeliness of emergency food assistance usually given in response to natural disasters. These issues, however, are less frequently grounds for discussion as systems have been developed, tested in real emergencies, and refined, as sensitivity to food preferences and appropriateness has developed, and as donor governments and organizations have structured longer-term emergency relief agreements and mechanisms. Over the past 20 to 30 years, donors and recipient countries have increasingly focused on the pros and cons of "program" and "project" food aid. This section will treat that food aid which is intended to address longer-term development strategies. While the overall study addresses food aid from donors in general, the majority of the literature available to the authors focuses more on food aid from the U.S. Many of the issues raised about U.S. food aid, however, are representative of food aid worldwide and should be viewed as an example of the issues surrounding food aid in general.

The four stated objectives of U.S. food aid legislation can be briefly summarized as follows (Hopkins, 1990):

- humanitarian relief
- expansion of export markets
- support of foreign policy objectives
- overseas economic development

A fifth objective is generally accepted as the key motivating factor behind the original 1954 legislation: the disposal of surplus U.S. farm products. This aspect of food aid has been the source of much past controversy, and will be addressed below.

In its forty years of legislated existence, food aid has gone through various trends. Cereal imports have consisted of a higher ratio of food aid to commercial imports in lower income countries than in medium income countries. Total food aid to lower income countries is about 50 percent of food aid, and to medium and high income countries represents about 45 and 5 percent respectively in 1981. Since 1961-63, cereal food aid worldwide was about 11.5 million tons; the approximate total dropped to 8 million tons in 1981. There has been a steep decline, since the 1960s, in the amount of food aid per capita going to Asia (from 33 to 8 percent) and other regions of the world (such as Latin America, with a drop from 34 to 2 percent). Sub-Saharan Africa, however, has seen the share of total food imports represented by food aid increase from 8 to 23 percent (Huddleston, 1984).

Many of the same criticisms of food aid as a political tool are often made about financial aid, and few would deny that a multiplicity of motives exists for any kind of donor assistance to recipient countries. The more critical discussion of food aid concerns the implications of using food as a development tool with its attendant restrictions and potential side-effects. The five categories outlined below will be discussed in the following sections:

- food aid's use of surplus commodities;

- changes in eating habits and tastes of food aid recipients;

- the additionality issue of whether food aid is replacing financial aid, which may be more versatile in its ability to address development problems of recipient countries;

- policy reform disincentives and structural dependency of governments; and
- production disincentives, micro-level dependency, and the presence of food aid.

2.6.1 Food Aid and Surplus Commodities

Much of the controversy surrounding food aid has revolved around the allegations that food aid is driven by donor commodity surpluses that have no bearing on the needs of recipient countries, and that food aid is often forced upon countries at inappropriate levels and times, according to donor needs. With the significant decrease in surplus in the 1980s and surplus projections for the 1990s down from 26 percent to 17 percent of world stocks, this argument is abating. A recent USDA study demonstrates that surplus motives *per se* explain relatively little of the variation in allocation in current U.S. food aid (Hopkins, 1990).

In addition, increasing amounts of food aid -- approximately 10 percent of all cereal aid in the 1986/87 and 1987/88 seasons -- are coming from third- country transactions (i.e. purchasing commodities from neighboring countries) (Clay and Stokke, 1991), which tends to support the view that food aid is responding more to humanitarian needs-based demand and less to the need of donor countries to dispose of costly surplus production. However, Clay and Stokke go on to say that analysis of food aid and the use of surpluses shows that food aid is "still not a counter-cyclical element in the world food economy, that might buffer the effects of market movements on recipient countries." In other words, food aid is still tied to surplus availability when world prices are low anyway, and the commercial import of food is at its cheapest.

An additional, related discussion revolves around the relative benefits of donors providing cash instead of food aid. A key argument of food aid proponents has been that food aid, because it is based on surplus food stocks in donor countries, is generally an *additive* assistance mechanism, and does not *replace* cash assistance to developing countries. If food aid were to be cut back, they contend, more cash assistance would not result. This debate has declined somewhat over the past years as particular kinds of food aid have become more monetized. However, the recent declines in some donor surpluses, and the more frequent (though still minimal) use of donor cash for third-country transactions may result in raising this issue once again, though the food aid resulting from these transactions may be monetized under particular circumtances, as well.

2.6.2 Food Habits and Dietary Changes

A related and potentially more serious charge made by many critics of food aid is that the use of surpluses is a distinct marketing tool to promote U.S. commodities abroad. By making wheat and other non-locally produced commodities available through food aid, recipients, it is said, lose their taste for local foodstuffs, and the status attached to eating and eventually buying foreign commodities also plays a role. Accompanying this allegation is the fact that approximately 50 percent of food aid goes to medium- and high-income countries (Huddleston, 1984), thus giving the appearance, at least, of a priority for developing commercial markets for donor country commodities in emerging economies. PL 480 clearly supports using food aid to improve the export market for U.S. commodities. There is some evidence that this objective has led to the allocation of food aid to the countries with higher incomes that are more likely to be good commercial customers, such as Egypt, Taiwan, and Korea, and does not target the neediest countries (Bickersteth, 1990).

Evidence that the distribution of food aid, such as wheat and rice, changes dietary habits is mixed. It is difficult to ascertain whether changing dietary habits may be attributed to the effects of urbanization or of food aid, or both. In addition, many projects now use local or third-country commodities, or commodities that are not foreign to local eating habits, as food aid. However, the issue is clearly of importance in the development sense. Commercial import is the likely outcome of such changes in dietary habits, because, in many countries, there is no comparative cost advantage to producing wheat, rice, or other non-local commodities. Such an analysis was done in Sudan for the production of wheat. It was determined that the loss of foreign exchange due to reduced cotton production would not be offset by the savings of local wheat production (Bickersteth, 1990). The issue of changing food habits is one, however, that has been the subject of relatively little research. Moreover, it is critical to production incentives and income levels.

2.6.3 Additionality: Is Food Aid Replacing Financial Aid?

The foundation for this discussion is the general hypothesis that financial aid is better than food aid. The discussion is somewhat moot for U.S. food aid, however, as most sources reviewed agree that food aid does not replace financial aid, or at least, it has not in the past. Food aid is a separate allocation with a separate budget and does not impinge upon other foreign assistance transfers. Recently, however, the advent of the Gramm-Hollings-Rudman Amendment shifted the attributable cost of PL 480 to the Foreign Assistance budget -- the costs of shipping, administration, and so on. This change is resulting in some competition with the other elements of the assistance program with, as yet, unclear results. As food aid becomes more concentrated in sub-Saharan Africa, and away from politically strategic countries such as Egypt and Korea, the non-commodity costs are growing and competing with other financial assistance (Clay and Stokke, 1991).

The other issue that should be mentioned here is that of recipient-country resources required to administer food aid. Many food aid programs do not cover costs of in-country transport and administration that must be borne by the recipient governments. Thus, funds that are spent in covering these costs are unavailable for other programs and activities. This is not to say that such use of these funds is undesirable; it is merely to point out that the issue of additionality cannot be looked at completely from the point of view of the donor. Opportunity costs on both sides must be calculated to get a clear picture of the value of food aid.

2.6.4 Policy Reform, Structural Dependency, and Food Aid

Key among the concerns voiced by those involved in food aid programs is the possibility that governments may be buffered from making difficult policy decisions by the presence of food aid in their countries. The extreme position is that undesirable regimes are maintained in power because food aid artificially bolsters their reign (Varnis, 1990). Clearly, the more common problem is that food aid likely does reduce pressure on governments to make difficult economic policy changes, even in this era of market liberalization and decline in price-fixing. Some evidence shows that the presence of food aid even encourages governments to neglect their country's food production systems and infrastructure, and that food aid reaches the urban poor, who are beneficiaries of price-fixing, but not the unempowered rural poor (Lappé, 1987). A further issue raised is that by getting rid of U.S. surplus, food aid is postponing

the *U.S. government's* need to make difficult policy decisions around protectionism and efficient production.[14]

In recent years, food aid has been tied to *conditions precedent*, which can be used to overcome the lack of incentive for policy change while the lack of food constraints enables the government to be more expansionist in its general policies. Consequently, the demand for local food increases and prices rise (Singer et al, 1987). Governments can use revenue from food aid sales or counterpart funds for public works, to help poor rural farmers and improve production, or to cover local costs of managing the food aid programs. Often cited is the case of India, where food aid provided funds to finance infrastructure and investment that supported the "Green Revolution." Part of the appeal of food aid to governments, however, is that the revenue from local sales (monetized food aid) is not programmed by donors and the uses to which the revenue is put are not monitored (unlike financial aid) (Lappé, 1987; Singer et al,1987; Fletcher, 1992). Since governments do not have much accountability to poor rural farmers, however, it is difficult to determine whether these funds are indeed used toward policy improvements and investment in that sector.

Finally, food sale revenues may lead to fiscal dependence by governments, which can relax their efforts at tax collection and cost-saving measures. Foreign exchange freed up by food aid, rather than used for commercial commodity import, is also attractive to governments.

2.6.5 Production Disincentives, Micro-Level Dependency, and the Presence of Food Aid

A major criticism of food aid is its potentially depressing effects on local production and commodity markets. The concern is that food aid, by providing lower-cost sources of food and increasing the volume on the market, undermines the incentives of farmers to produce food. It cannot be sold at high enough prices to make marketable surplus production worthwhile. Some researchers state, however, that food aid generally substitutes for a portion of a country's food commodity imports, and thus, is additive to local production in the same way that imported food would be (Huddleston, 1984; Singer et al, 1987). Huddleston cites increased food import dependence in higher income countries as being associated with the phase-out of food aid, along with increases in per capita income, average calorie consumption, export earnings, and diversification out of agriculture. Elaborating on this argument, Singer and others have shown through their research that food aid generally substitutes for commodity imports until the country becomes more industrialized, incomes increase, and the dampening effect of extra supply on domestic prices is at least partially offset by the demand response, due to the net gain in welfare. Among regulations of various donors, PL 480 legislation requires the President to "take reasonable precautions that food aid shall not replace normal commercial imports" (Singer et al, 1987). Though food aid advocates state that this legislation is rarely enforced, it must nevertheless create dilemmas for implementing organizations and governments which are required to certify to this effect. Even with some low-income countries the regulation has been applied rigorously on occasion (Fletcher, 1992).

The issue of decreased producer incentives is a real one. Additionally, targeted food aid, or food-for-work is often criticized for taking people away from their own food production, either willingly or

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[14] Interestingly, if reform of government policies is postponed due to the presence of food aid, the *commercial* import of food is reduced and postponed because of low buying power of countries, thereby decreasing the commercial market for commodities exports by the U.S.

not, and for increasing dependence on project-supplied food as a by-product. Another frequently cited drawback is that food-for-work can undermine self-help and individual or community initiative; former recipients will not do work or attempt new activities unless they are getting food or payment. A WFP/FAO report also cites problems with the inability of some projects to refuse any request for assistance (in land improvement activities, for example), even when the request comes from a wealthy landowner to pay wages of his employees (Lappé, 1987).

A key component of the food aid support argument is that if farmers are net buyers of food then food aid helps them; it does not pose production incentive problems. If farmers are net sellers of food, then supply of staple crops through food aid allows farmers to diversify, develop new varieties, and adopt new technologies (Singer et al, 1987). This diversification allows the farmer to cushion the drop in production and revenue that the introduction of new crops generally brings about. The reality is more complex, however. Farmers are neither net buyers nor net sellers in the sense used in either of these arguments. Most farmers sell a portion of their crop at harvest time for much needed cash, and subsequently sell off crops in small amounts as cash is needed throughout the year. It is not clear that this constitutes selling surplus, or whether the farmer sells as needed without regard for the amount that will be needed to carry him or her through to harvest. An additional factor is that many farmers have other sources of small income apart from their crops, such as harvesting of other natural resource products, small artisanal activities, food processing, services, trade, and so on. A farmer may be a net buyer of food in the long run when income sources are diversified enough to allow food purchase. The traditional view of food aid impacting on farmer production must be modified to take into account the seasonality of food marketing, and when food aid is delivered. If food-for-work is ongoing, not only may it impact on the farmer's and trader's ability to sell food; it may also take away labor that would be involved in other non-farm income activities, thereby reducing the farmer's ability to purchase food when necessary. There seems to be little actual research on any of these issues.

Another overlooked issue is the concern about farmers' incentives for production without noting traders' incentives for purchase and marketing. Production, in fact, may continue at a subsistence level adequate to feed, or nearly feed, the farm family, but it may not necessarily produce surplus *because traders will not buy what they cannot sell at a profit*. Looking at the issue from the market point of view, the trader, transporter, or processor must be able to move commodities at prices covering costs and adding profit. When food enters the market and artificially lowers prices below those which traders need to cover their costs, or possibly even takes the place of commercial food imports, it decreases the health of the market and throws off the balance of supply and demand. One argument made in this regard is that any reduced demand for local food will be offset by additional demand due to the additional incomes created by food aid, inducing accelerated development (Singer et al, 1987). However, the positive effects of food aid, should they occur, are unlikely to have a near-term benefit in terms of increased incomes and accelerated development. The traders and farmers will have responded to the immediate effects, reducing production and decreasing investment in trade. Simon Maxwell (Clay and Stokke, 1991) also notes that food aid can undermine incentives to traders, causing year-to-year variability in prices by reducing the level of inter-year storage.

Another problem cited by Maxwell is that "beneficial market linkages can be disrupted by food aid which causes an uncoupling of processing industries from the agricultural sector." If edible oils are provided, then processing industries will not have a demand for the oil-producing foods, leading not only to their decline, but also to a decline in production demand for certain foods.

Food aid, especially targeted or project food aid, is often specific to small pockets or regions of a country. Therefore, the effects of food aid on local markets may not show up in national statistics on which discussions of food aid are based. Rather, they may in fact have local effects on production or trade that are quite significant. In addition, food aid from donor countries often replaces imports from regional or neighboring country markets, thereby decreasing incentives for other countries' to improve production.[15]

2.6.6 Other Issues

A major drawback of much of the literature on food aid and production incentives is that it takes place in an environment of government price control, parastatals, and commodity regulation. The majority of sources available date back to the mid-80s and earlier, with relatively few appearing in the last two to three years. Students of this topic have not yet had the opportunity to conduct much research in the emerging, open, economic environments. Thus, the discussions revolving around black market sales, obligatory deliveries of commodities, and the undercutting of official prices, do not address the new market realities of many countries in Africa.

It is important to note that most of these studies have been conducted in Asia and other countries, where industry and export bases have improved quickly as agriculture diminishes in importance. A problem with this scenario is that Africa, and lower income countries in general, are more likely to experience growth based on agriculture, not industry. In fact, much development programming in Africa is emphasizing this sector. Thus, the correlation between increased industrialization and the phase-out of food aid is not clearly applicable in the African context (Eicher and Stokke, 1991; Huddleston, 1984).

Another source of discussion on food aid is the fact that few people in implementing organizations (often NGOs) are economists or have much knowledge of market linkages, interdependencies, and incentives. The effects of food aid on local markets and on production are therefore generally left up to anecdotal information, or are often not addressed at all.

Finally, coordination of different donor food aid programs, especially targeted food aid, is the subject of much controversy. While approximately 25 percent of all food aid is channelled through the WFP, this leaves a large percentage open to individual donor application and programming.

2.7 Food Aid in Niger

Niger receives more food aid of all types from World Food Programme than any other Sahelian country. Using WFP data for Niger from the last three years, Table 2.3 indicates that about 87 percent of cereal food aid and nearly all of non-cereal food aid is imported rather than locally purchased. Information on donations indicates that the U.S. is the major donor of cereals, supplying approximately 70 percent of the cereals distributed by WFP (fax, 18 Jan 93, Ayih-WFP/Niamey to Ben Slimane-WFP/Rome).

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[15] It should be noted that third-country food aid, where donors purchase food aid deriving from sources other than their own production, amounts to only 10% of all food aid.

However, according to WFP records in Niamey, the U.S. was the major cereal donor in two of three years presented Table 2.3; U.S. direct contributions of non-cereals were nil during the 1989-92 interval[16].

As disaggregated by WFP, food is currently used in five specific applications in Niger: school and hospital feeding programs, the Keita project, multi-purpose rural development projects and for emergencies[17]. For a rough idea of the relative size of these categories, see Table 2.4. The relative magnitudes of these investments indicate that the multi-purpose rural development and school feeding programs command the largest shares. The purpose of the rural development projects is to control

[16] Care must be used in interpreting food aid statistics. Minor inconsistancies in food aid totals arise between these tables and can be attributed to the diverse nature of the World Food Programme data employed. Figures for cereal versus non-cereal imports as well as those for beneficiary type are both drawn from published brochures of the World Food Programme. Those concerning country of origin were derived from unpublished internal worksheets of the WFP/Niamey office. More generally, attempts to monitor food aid pledges, deliveries and distributions in the recipient countries are often hampered by the lack of coordination between donor and host governments and poor record keeping. Steps to improve such data collection would greatly facilitate development and relief planning.

[17] A fifth program, i.e. for repatriating Nigerien refugees returning from Algeria, was ended in 1990.

Table 2.2: Food Aid by Purchase Site and Beneficiary Type in Niger

(Metric Tons)	1989/90	1990/91	1991/92	
Commodities				
Cereal	36,597	87,839	30,568	
Imported		28,205	76,550	30,568
Local		8,392	11,289	0
Non-Cereal		1,834	3,779	675
Imported		1,834	3,579	675
Local		0	200	0
Beneficiary Type				
Refugee		0	0	0
Other Relief		0	11,000	0
Vulnerable Groups		827	1,306	0
Market	17,900	66,226	11,200	
Other		19,703	13,087	17,271

Source: World Food Programme (1991b).

desertification (soil and water conservation, reforestation), promote food security and stabilize rural populations in their native environment; herein are situated the food-for-work activities that serve as the focus of this report. Since the Keita Project food aid contributions are also given in exchange for work, this category swells even further. Oddly, UNDP fails to note any emergency food aid deliveries in 1990, while the U.S. reports donations of 15,000 metric tons -- a difference most likely attributable to accounting conventions concerning the timing of delivery.

The data available on the actual value and quantities annually contributed by program and by region is scattered. This is especially true for emergency food distributions. In theory, the GON assesses the food security situation, submits requests to donors and coordinates the delivery of that food. With the current administrative disarray, amassing historic data on the geographic incidence of emergency food distributions would require contacting each donor and PVO. Because many donors are not as careful as is USAID about monitoring the distribution of their shipments, they are unlikely to have accurate information on this level.

Table 2.3: Food Aid by Donor in Niger

(Metric Tons)	1989/90	1990/91	1991/92
Cereals			
EEC	0	14,962	1,008
France	0	5,000	8,000
Japan	2,900	1,225	1,200
Pakistan	0	5,000	0
Saudi Arabia	0	10,000	10,000
USA	15,000	35,000	0
Germany	5,800	0	0
WFP	10,291	13,961	10,360
	33,991	85,148	31,568
Non-Cereals			
EEC	110	945	72
France	120	0	0
Italy	33	0	0
WFP	1,599	2,828	1,583

Notes:

1. The data for 1989-90 cover the period from October to September. The data for the other years spans November to October. Thus data for October 1990 are missing.
2. Cereals include millet, sorghum, sorghum grits, wheat and wheat derivatives. Everything else, including cowpeas, has been classed as a Non-Cereal.

Sources:

1. The 1989/90 figures are derived from "Niger Food Deliveries Report Oct. 89 - Sept. 90" World Food Program/Niger, dated January 15, 1991.
2. The 1990/91 and 1991/92 figures are derived from WFP (1991).

Table 2.4: Dollar Value of Food Distributions by Category in Niger

(Thousands of $)	1990	1991
School Feeding Programs	$2,468	$1,502
Hospital Feedings	$1,396	$1,137
Refugee Repatriation	$1,072	$0
Keita Project	$1,631	$1,176
Multi-Purpose Rural Dev.	$4,047	$3,307
Emergency	$0	$1,946
Total	**$10,614**	**$9,068**

Notes: Data for previous years was not computerized and did not permit this kind of breakdown.

Source: UNDP computer printouts.

With much extrapolation, it is possible to get an idea of the distribution of WFP assistance between departments (see Table 2.5). Under the rubric of multi-purpose rural development, WFP committed 32,994 tons of food for the four-year period from 1990 to 1994. The cereal (sorghum and millet) portion is projected to be 26,799 tons. WFP file records for 1990 through the second quarter of 1992, as summarized in Table 2.5, indicate that Tahoua Department received a disproportionate share of the rural development funds (48.2 percent). This figure becomes even larger if one includes the Keita Project. Dosso, Maradi and Zinder receive less than their share -- relative to population -- in all these programs; Agadez and Diffa typically receive more, which is understandable considering their ongoing food deficits.

Table 2.6 provides a breakdown of the cereals distributed in Niger between 1987 and 1991. Millet and sorghum dominate the other cereals, averaging approximately two-thirds of the total tonnage of foodaid imports. The striking conclusion from Table 2.6 is that total food aid imports are a very small fraction of Niger's food balance. Whether one takes millet and sorghum in isolation or considers all cereals, food aid never exceeded five percent of gross production in the period 1987-1991. Adjusting the production figures for stocks and exports (i.e. domestic food supply), or additionally by commercial imports and food aid (i.e. total food supply), does not alter this relationship.

Table 2.5: Geographic Distribution of Selected WFP Programs in Niger

	Health	Schools	Rural Dev.	Population
Share of Contribution (percent)				
Agadez	11	17	6	3
Diffa	9	11	3	3
Dosso	10	2	2	14
Maradi	15	9	7	19
Tahoua	19	17	48	18
Tillaberi	23	23	23	24
Zinder	14	21	11	20
Niger	100	100	100	100

Notes:

1. Columns might not add precisely to 100 due to rounding errors.
2. The Health figures are based on estimates of number of tons of sorghum distributed in the 4th quarter of 1992.
3. The School Feeding estimates are based on the number of rations requested for the sedentary and nomadic school lunch program for the 4th quarter of 1992.
4. The Rural Development estimates are based on the total tonnage of sorghum received by each Department between the first quarter of 1990 and the 2nd quarter of 1992.
5. Population estimates are based on the proportion of the resident population in each Department, as determined by the 1988 census. (République du Niger 1992).

Source: WFP file documents and personal communications with Mr. Kponou of WFP, Niger, 1992.

The very minimal nature of food aid imports at the national level is echoed in data taken from various other sources. For example, FEWS/Niger projects 10,000 metric tons of "program food aid imports" in 1992/93, constituting less than 1 percent of either total domestic production (including off-season and irrigated produce) or total consumption requirements[18].

[18] Taken from the "Provisional 1992/93 Cereals Balance for Niger," presented by FEWS/Niger on September 16, 1992.

Table 2.6: The Commodity Composition of Food Aid in Niger

	1987	1988	1989	1990	1991	Avg
Composition (mt)						
Mil/Sorghum	39525	41913	33166	54156	9849	35722
Wheat	4200	23000	0	27510	13000	13542
Rice	6048	4394	4394	9432	1818	5217
Maize	0	0	0	0	0	0
Total mt	49774	69307	37560	91098	24667	54481
Mil/Sorg as % of total	79%	60%	88%	59%	40%	66%
Millet & Sorghum Food Aid as a % of:						
Total Production M/S	3%	2%	2%	3%	0%	2%
Domestic Food Supply M/S	3%	3%	2%	3%	1%	2%
Total Food Supply M/S	3%	3%	2%	3%	1%	2%
Commercial Imports M/S	211%	1139%	174%	176%	49%	194%
Mil., Sorg., Wheat & Rice Aid as a % of same:						
Total Production	4%	3%	2%	5%	1%	3%
Domestic Food Supply	4%	4%	2%	5%	1%	3%
Total Food Supply	3%	4%	2%	5%	1%	3%
Commercial Imports	32%	80%	27%	71%	18%	42%

Source: Lowdermilk (1992).

USAID/Niger does not have a regular food aid program of its own, in part because it has not found a commodity which is both attractive to Nigeriens, but unlikely to disrupt local markets or production or be re-exported to Nigeria (Soos, 1991). USAID/Niger has imported emergency aid on an "ad hoc" basis in response to drought conditions that entailed widespread crop production (1968-73; 1983-84) and localized crop production deficits.

The USAID/Niger Mission is seeking alternative ways of providing humanitarian relief that would 1) circumvent the need to use food in cases where the impending crisis develops slowly over time and 2) facilitate the procurement of food in cases where it is unavoidable. To achieve the former, the Mission has designed the Disaster Preparedness and Mitigation Program, based on the premise that, given adequate warning, asset-preserving programs can advance and avoid the time when relief food would be necessary. Examples are employment programs, donations/loans of agricultural inputs such as seed or fodder, and the orchestration of small-scale FFW projects for farm-to-market roads, wells, and soil and water conservation activities. To improve the speed and distribution of relief food distributions, USAID/Niger is exploring local currency and local purchase options (USAID/Niger, 1992a).

3. FOOD-FOR-WORK IN NRM ACTIVITIES

In the course of the literature review, interviews and field trips undertaken for this study, several more general findings arose concerning the conditions under which FFW is used in NRM projects. The quantities, timing, and purpose of FFW rations, as well as observations pertaining to the community's participation in those projects are not, strictly speaking, linkages between FFW and NRM, but they do serve as an essential backdrop to those linkages.

This section describes the use of FFW in NRM endeavors -- in particular the quantities of FFW distributed in the NRM sites visited, the participation of different segments of the population in those activities, the lands which were rehabilitated, the role that FFW played in their rehabilitation, and the relationship between FFW and emergency relief food aid also distributed in the vicinity of the NRM project.

3.1 Quantities of FFW Distributed

The observation from Section 2.5.2 that food aid in Niger is minor in relation to either aggregate production or consumption offers little insight into the magnitude of the quantities of food distributed in any particular community. Turning first to project food aid in the form of FFW, one finds that the quantities of this highly targeted food aid can be very large in relation to household resources.

In the Tarka Valley Project (*Projet Basse Vallee de la Tarka*-PBVT), the quantity of cereal distributed in 1992 was approximately 428 tons. Reliable data on the number of participants receiving this food was not available for the period previous to a WFP seminar on accounting procedures, held in March of 1992. Using data for tree-planting activities carried out in the Tarka Valley during June and July of 1992, the average monthly ration per participant ranges from 30 to 54 kilograms of cereal. Because there is no restriction on the number of participants per family, project staff report that they often make weekly payments to families in entire sacks (100 kgs), rather than in individual measures of 2.25 kilograms. In terms of *arrondissement*-level production or consumption needs, however, the 1992 figures are extremely small. Even if one assumes that all this cereal was distributed in the Madaoua *arrondissement*, it constitutes less than one percent of either production or consumption needs[19].

In 1992, the *Projet Measures Anti-Erosives* (PMAE) in Filingué tried to disassociate food contributions from project participation on the grounds that linking food payments to land reclamation activities caused participants to view the fruits of their labors as belonging to the project. PMAE staff persuaded participating villages to accept a "partnership" relationship with the project, in which the project complemented the labor invested by villagers with the technical resources needed to carry out the job and a food aid contribution in the hungry season if the need arose. In July the staff distributed food without regard to the number of days individual villagers had contributed to the work effort. In the village of Toukounous, 50 kgs was distributed to every resident, and an additional 25 kgs to project

[19] Cereal production in Madaoua for 1991/92 (net of seed, storage and milling losses) is estimated at 65,482 mt. Consumption requirements for the same period are estimated at 53,469 mt (FEWS/Niamey computer file data).

participants. Depending on the precise assumptions made, the contribution could constitute as much as 25 percent of annual food needs for the entire village[20].

In the CARE Galmi project, an average of 230 persons per day worked 5 days a week for 8 months a year from 1987 to early 1992 (Webb 1992). Due to project delays, breaks in the delivery of food rations and seasonal fluctuations, these figures vary considerably over time. Between the end of November 1991 and May 1992, 23,630 person-days were contributed by approximately 358 participants (Doka et al. 1992). Forty-one tons of WFP sorghum were distributed during six months in 1991; an additional 23 tons was contributed by USAID to fill a 55-day shortfall. Fifty-nine tons were distributed in eight months in 1992. Looking at the 1992 data, an estimated 165 kilograms of sorghum were given to each participant for an average of 66 days of work (Doka et al. 1992; Madou Gapto, personal communication, Sept. 1992). It is difficult to assess the importance of this contribution on the households concerned without a population estimate. If Webb's estimate of 1,133 households with an average of 8 people per household in the project villages is accurate, then project participation is about 3.9 percent. Project rations would run on the order of 3.2 percent of the total consumption needs in the region, though individual participants may be earning as much as 75 percent of their annual needs[21]. More precisely, Webb reported that FFW represented approximately 22 percent of the total household income among the poorest third of the households sampled, while among the richer third, it represented less than 5 percent. According to CARE Galmi project staff, the scale of operations is limited by the quantity of WFP rations available. More people want to work than can be absorbed on a daily basis. There is no limit on the number of participants coming from the same family, nor from neighboring villages.

The only food distribution data available for the CARE Salama project site of Loubé pertained to the quantities distributed for the mechanical activities overseen by *Génie Rural*, which constituted the lion's share of the work. Approximately 16 tons of sorghum, 1.3 tons of milk powder, 1 ton of canned meat, 0.1 ton of oil and 0.3 tons of sugar were distributed in the dry-season of 1991/92. The actual number of recipients was unavailable, but this quantity would represent approximately 2.7 percent of the village's food needs[22]. Land management activities in Loubé were only in their second year; however, there were villages in the Bouza region that had been receiving FFW since 1988 -- for example, the village of Garadoumé, in the Majjia Valley.

The Keita project does everything on a big scale. During the first phase, from 1984 to 1991, the project operated only in the Keita *arrondissement*, a zone of 205 villages and 173,237 people. In those years, the project is estimated to have involved 1 out of every 15 people in Keita; that is to say, perhaps every extended household in the *arrondissement*. An estimated 89,000 people have been directly influenced by project activities over the course of the first stage, about half the people in the

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[20] This calculation assumes a 1988 population of 2255, growing at the *arrondissement*-specific growth rate of 2.9 percent per annum, i.e. a sedentary population of 2528 inhabitants. Using the FEWS/Niamey requirement of 220 kg of millet per sedentary person per year, a quantity between 50 and 75 kilograms of cereal would satisfy about 25% of food needs.

[21] As in CARE Galmi, this assumes an entirely sedentary village of 9064 inhabitants requiring 220 kg of cereal per person per year.

[22] Assuming an entirely sedentary village of approximately 2650 inhabitants.

arrondissement (Simonelli, personal communication). During the expanded second phase (1992-96) the project zone is predicted to grow to 445 villages, with an estimated population of 420,000[23].

Currently distributing an average of 4000 rations of FFW per day, the project uses approximately 9 tons of WFP cereal daily, or about 4000 tons of cereal per year[24]. Valued at 400 FCFA per ration, it has an average value of 1.6 million FCFA per day, or 3,321 FCFA per Keita *arrondissement* resident per year[25]. In the upcoming phase (1992-96) there will be an estimated 19,000 beneficiaries of the FFW rations and another 3,100 trainees who will also receive food rations. Counting the families of these 22,100 participants, food will flow to approximately 110,000 people, or about 38 percent of the people in the areas around project sites and 26 percent in the Keita project zone (World Food Programme 1991a)[26].

At the *arrondissement* level, the grain component of the FFW rations works out to 23 kg per person per year, and accounts for roughly 10 percent of total consumption requirements for cereal[27]. Using the projected number of 22,100 recipients, the cereal contribution per recipient is 181 kg, or 82 percent of the annual food needs of these sedentary people. In their socio-economic survey of households in intervention zones, project analysts estimated WFP cereal contributions to fall between 10 and 25 percent of household cereal production and 7 to 10 percent of household consumption needs (Project Keita, 1992). However only a third of the households surveyed participated in project activities. When one considers solely the households receiving WFP rations, the WFP share of consumption ranges from 16 percent (1988) to as much as 33 percent (1990).

Drawing a sample of 5 households in each of 13 intervention zones, researchers found a steady increase in rates of participation in the project from 14 percent of all households in 1988 to 37 percent in 1990 (Project Keita 1992). During the same period, the number of days worked per participating household increased from 107 to 333 days per year.

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[23] The project will move into the adjacent Tchin Tabaraden and Bouza *arrondissements*.

[24] This estimate of 4000 tons of cereal differs somewhat from the extrapolation of 4000 rations per day, which would amount to only 3285 tons of cereal per year.

[25] Project documents estimate the value of the WFP contributions at $2.6 million from 1984 to 1989, $4.2 million from 1989 to 1991, and a projected $10 million for the next phase from 1992 to 1996. Included in these figures are funds to cover 88% of the internal shipping, transport and handling of the foodstuffs, to be financed through the sale of vegetable oil on the Niamey market (World Food Programme 1991).

[26] According to the WFP (1991a), there will be 28,648 inhabitants in the areas around project intervention sites.

[27] These approximations assume a Keita of 173,237 and a cereal requirement of 37,822 for 1991/92 (FEWS Project/Niger).

3.2 Participation in FFW Activities

The participation of the population is generally required at two different periods of the year[28]. During the dry-season months from mid-October to the first major rain in May or June, participants perform *Génie Rural* tasks, such as building rock walls and digging trenches. They then turn to their private agricultural endeavors. After 100 mm of rain has fallen, participants spend about a month from mid-July to mid-August planting trees in the previously prepared trenches.

The work day runs from about 7:30 a.m. to 1 p.m., depending on the particular site. Rations are received based on daily participation rather than by the task, though in some projects, effort is made to ensure a minimum output per day.

Most work sites draw participants from outside the realm of the villages immediately concerned by the land reclamation. In Keita, for example, at any give time as much as 20 percent of FFW/NRM workers come from outside Keita. At the Tarka site, approximately 60 percent of the labor is comprised of residents of the village of Tambaye Nomade, the rest being drawn from neighboring villages -- in particular, the village of Magaria, approximately eight kilometers away. A system of rotation permits people to work three alternating days of the week. Both villagers and project staff agreed that this infusion of outsiders did not cause conflicts. Villagers were pleased that the Magaria workers also brought with them items for commerce.

3.2.1 Women as Primary Labor Source

While the actual proportion differs between work sites, the great majority of the participants on FFW/NRM sites are women. At the CARE Galmi site, for example, between 80 and 90 percent of the participants are women. Sixty-two percent of those women are unmarried, or married to immigrants (Doka et al. 1992). Likewise in Keita, about 65 percent of FFW participants are women, again mostly single or recently married. Unlike other sites in the project zone, the CARE Salama site at Loubé had more men working on FFW/NRM activities than women.

There is sometimes a gender distinction to the kinds of tasks workers undertake. In many locations, the women undertook the "earthworks," digging trenches, moving rocks, building half-moons; the participation of men was often limited to tree-planting or supervisory tasks.

A common constraint to participation of certain segments of the population was the lack of household labor available for participation in FFW/NRM activities. Women often rotated work days to maximize household participation and also so as not to neglect any other of their many responsibilities. In cases where the men had left on seasonal migration, households with young children and few household members able to provide child care had the least chance of accumulating benefits from FFW. For young married women, participation in FFW/NRM activities depended on the number of friends and relatives available to either "work in the young wife's place" or to provide child care.

Wherever the team visited in the field, women seemed determined to rise to the occasion and provide the necessary labor. They seemed determined to take advantage of what appeared to be for them

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[28] This is a generic description of the current operational modalities of the FFW/NRM Projects visited by the study team.

a temporary opportunity. Nowhere did any villagers seem to think that program food aid would go on forever; they simply don't know when it will stop. For this reason, it is unlikely that it has truly become ingrained as a rural coping mechanism.

In a study of gender and food aid, researchers from the MayaTech Corporation identified several gender-related issues concerning FFW. First is the dilemma of piecework versus a daily rate. If payment is linked to the quantity of work accomplished, women are likely to receive lower wages per day worked; if payment is merely based on presence at the work site, then productivity will be low (MayaTech, 1991).

Second is the question of why such an overwhelming proportion of the participants on FFW sites around the world are female. Possible reasons include the lack of other income-generating opportunities for women in many societies, the proximity of FFW projects to their homes, a heightened sense among women of the importance of community works, either for practical (roads), health (drains, garbage disposal), financial (agricultural productivity) or social reasons. The high proportion of unmarried women and immigrant wives noted on the CARE Galmi site suggests that these households suffer greater food deficits than others.

Third, though participation in FFW activities is arduous, women may start to transcend traditional role barriers when offered this opportunity to work. The question of whose assets are being enhanced by these public works, however, remains fundamental (MayaTech 1991).

A few modifications to the current structure of FFW activities might ease the burden on women. First and foremost would be the provision of transportation to and from work sites. Another is to assure the availability of drinking water at the very least, if not a source of prepared food. Also important are measures that facilitate "day care" of infants, either in the village or at the site.

3.2.2 Male Participation

What about the men? During the first year (1987) of the CARE Galmi project, no men participated in the community works. The share of male participation has increased slightly over time, suggesting that some men are substituting this form of local-dry season employment for their traditional activities. It is unclear that this represents a decrease in seasonal migration however. Local women explain both the decreased incidence of seasonal migration and the shortage of men on the CARE work site by the opportunities presented by the dry-season onion production for which the region is famous.

In Keita, the male participation rate is much higher than the five percent registered during the first year of the project; however, that was the dramatic drought year of 1984. Aside from that particular year, project staff believe that male participation has not improved greatly over time. The amounts of money flowing into the region from outside shows that it would require substantial changes in the level of economic opportunity in the region to replace the rural exodus that currently draws men away. A table compiled at the Keita Post Office indicates that, in 1985, postal money orders arriving from outside represented FCFA 175 million. This figure ignores the money or money orders that are hand-carried, or that arrive in Niamey or Tahoua. In 1988, the amount decreased to FCFA 74 million. Unfortunately, it is not possible to assess whether this drop in mailed revenues is due to a change in migration or in earning levels abroad, or both.

From a historical perspective, the central Sahel has been characterized by the importance of off-season activities in the organization of male labor. Niger is no exception. Since pre-colonial times, men

in this area have traveled during the dry season to go to do battle or commerce. Some of the people interviewed stated that rural migration is structural in terms of culture as well as economy. While the presence of program food aid may make men less apprehensive about leaving their families for a season or two, it may also encourage them to send less money. More challenges and opportunity in the migration areas will eventually affect seasonal rural exodus. A more diverse economy and more wage-labor opportunities for men are long-term regional goals that will most likely affect the rate of seasonal migration.

Throughout the project zones, some attempts at soil conservation were occasionally seen in family farms -- that is to say, grain fields managed by men. It remains to be seen, however, how well the soil and water conservation technologies learned by women on communal or public lands will be transferred to men on private lands.

3.2.3 Child Labor

One strategy that women are employing in order to take advantage of the opportunity of program food aid without sacrificing the integrity of their other work is to send their children to FFW/NRM work-sites in their place. In the households sampled by Webb, 220 project workers, i.e., those receiving a salary, were aged less than 15 years. Of these, 50 were aged less than 9 years. The issue is worthy of attention but more in terms of what this says about need (extreme household food insecurity) than what it says about school attendance. With literacy rates so low to begin with (14 percent), because there are so few rural schools, this is not, unfortunately, a major conflict.

Often project staff explained that they had to send some children home because they were too small. Others described the discomfort they felt when having to send a small child home from a household they knew to be needy. Some projects set the participation age at 12 years, others at 15. The issue of whether food aid is having an impact on school attendance deserves attention.

3.2.4 Other Participation Issues

Ethnicity and class also influence participation in FFW projects. The system of paying labor in public works projects at low wages is a tool for policy-makers to direct resources to the most needy segments of the population. The self-targeting nature of FFW projects is discussed in depth in Webb (1992), von Braun (1992), Bryson et al. (1991), and Clay and Stoke (1991). Webb, for example, in his survey conducted in Niger in 1991/92, found that low-income households contributed an average of 275 days to such programs over the 18-month period preceding the survey, as compared to the 179 days worked by wealthier households. In the same vein, the poor earned four times more income from public works projects than the rich, and the share of project receipts out of total income was much greater for the poor (17 percent) than the middle class (7 percent) or the rich (2 percent) (Webb 1992).

In one of the villages visited, ethnicity also seemed to influence project participation. The village of Tambaye Nomade (in the PBVT project) is roughly 40 percent Tuareg and 60 percent Bella (or Bouzou). Though actual statistics were not available, it was evident from the village interviews that the majority of the FFW work force came from the Bella underclass. While Webb's data suggest that the FFW rations may serve to redress income disparities between the classes, other equity issues remain. In the case where the historic relationship between the classes is one of master/servant, to what extent is this participation voluntary? Secondly, which group will benefit most from the pasture created by these

labor investments: the animal-holding Tuareg or the farming Bella? Such questions must be considered before employing FFW projects as tools of social welfare policy.

3.3 On Whose Lands?

Without exception, all the FFW land-management projects visited refused to remunerate efforts to protect private lands. They claim, to varying degrees, to offer technical advice when needed. The implicit view is that individuals will be rewarded by their private returns. By contrast, the returns to work on public or community lands are diffuse and therefore require public support. This is a common public goods argument. There are several problems with this logic in the context of these projects.

First, though the work sites may appear to be common lands, they usually are not. In their eroded and unimproved state, hillside and plateau lands are usually not arable and are thus uncultivated. The use of community labor to regenerate an ultimately private site is problematic. This problem of land tenure over improved sites has clearly emerged in Keita. Rochette (1989) discusses the dilemma that arose in the early years of the project: whether to distribute improved land to its original owners or to its rehabilitators. Currently Keita project managers are exploring the possibility of purchasing lands before initiating rehabilitation efforts. The CARE Galmi project is likely to encounter similar problems as it attempts to identify and attribute ownership of improved lands. If indeed the returns to project activities are attributed to private individuals, an entirely different criterion for intervening is required (see also the discussion on land-use planning in Section 4.1.3).

Second, if indeed the returns are accrued by the community, it is completely logical that individuals will fail to maintain the investment once the subsidy ends. Though rock structures appear more permanent than education or health services, their upkeep, nonetheless, requires periodic investments of arduous labor. Rochette observed in Keita that the community only repaired hillside trenches when the project reorganized and remunerated such an effort. It is possible that once the major investment is undertaken with the support of the state or project, a local committee can be formed to oversee the recurring costs of maintenance. This will only succeed if the actual beneficiaries are identified and if the maintenance costs are less than the value of the productivity gains.

Two arguments can be made for greater public support for interventions on privately owned fields. First is the case where the actions of one farmer on his own field have an off-site effect elsewhere in the production system. The effect could be negative, as in the instance where the cutting of his own trees adds to the wind erosion on adjacent fields. Conversely, the effect could be positive if, by blocking runoff through his field, he protects those downslope. The welfare of society is advanced in the first example if the farmer can be made to feel the cost of his erosive action, and in the second example, if he can likewise be rewarded for its benefit. The forestry service's system of fines is one way in which the Nigerien government has attempted to tax the negative action of tree-cutting. Similar are the fines levied by local communities on herders who violate grazing restrictions during the rainy season. Conceivably, FFW might serve as a motivation for individual farmers to undertake soil-preserving activities in their own fields in cases where a positive off-site effect can be identified. This effect can be very physical in nature: water erosion on the adjacent field. Or it could be more social: the value of the stability enjoyed throughout the society when families are left intact in rural settings. In either case, however, the social return must be clearly defined and quantified.

The second argument for public subsidies to private farmers is when land improvements on private lands are profitable in the long-run, but beyond the means of the farmer in the short-run. The

best approach in such a case would be to allow the private capital market to finance the investment; this would force the farmer and his "banker" to perform the necessary economic analyses, a task to which they are far better suited than is an outside agent of the state. If private investment capital is lacking, the state might intervene. If the state provides credit, the farmer must still undertake his own profitability analysis. Alternatively, the state can choose to subsidize particular aspects of the improvement (such as the labor, using FFW); unless the state (or its agent) is extremely judicious in setting the level of support, the intervention is likely to distort the profitability analysis. Nonetheless, this may be a tolerable distortion if FFW, for example, is the only tool available to the state. It begs the question, however, about why food aid is being used and whether it is the most appropriate form of assistance a donor might provide to address the needs of the area.

3.4 Views of Food in NRM Projects

What is the purpose of the food used in conjunction with natural resources management projects? Should it be viewed as a tool, one of the many resources used to accomplish project objectives? Or is it part of a larger policy focused on improving short-term food security through employment generation? If food is considered simply as an input, it should be allocated and evaluated in terms of alternative project inputs. Issues such as the level of payment and the practicality of the distribution mechanisms become relevant. If the food is to provide the households with the calories needed to tide them over until the next harvest, it should be evaluated in light of other short-term approaches to assuring food security.

In their report, "Project Food Aid: A Classification of its Uses as a Development Resource," Moore and Fitzpatrick carefully describe the pros and cons of the various applications of food aid (CARE, n.d.: see Appendix E for a copy of project food aid matrix). In particular they distinguish between food as a direct payment versus food as an "incentive" or an "enabler". When food is used as a payment, there is no reason to require or to assume the personal commitment of participants to larger project goals. They do their job; they get paid. When food is used as an incentive, it encourages the recipient to do something that will benefit him in the long run. When food is used as an enabler, it permits the recipient to undertake activities that he could not otherwise afford to attempt.

Moore and Fitzpatrick go on to classify various uses of food aid, as listed in Table VII. It is evident that the use of food aid in a given project may serve numerous functions. As FFW tends to be distributed in food deficit regions to recompense the labor used to improve the carrying capacity of the environment, these functions often become inextricably intertwined.

3.4.1 Food as a Payment

As used in NRM projects in Niger, FFW is clearly a payment for services. The work -- digging trenches and moving rocks -- is arduous, and takes place under the hot sun on sites often several kilometers from sources of food and water. The fruits of these efforts seldom accrue to the individuals who provide the labor, but rather to the "community." The proof that the FFW rations represent adequate immediate compensation for the labor provided can be seen from the immigration of laborers from communities outside the range of the project activities. These workers often travelled 5 to 8 kilometers daily to have the chance to earn the WFP rations, obviously with no direct stake in the fruits of their efforts to restore such distant lands. Further evidence that the FFW is viewed as an immediate wage is suggested by the surplus of workers relative to the labor requirements. In almost all instances, the demand for the WFP-supported jobs exceeded the supply, often by a factor of two to one; in such cases, a system of job-rotation was used to allocate potential participants to alternating shifts. (The upper

Table 3.1: Classification of Food Aid Used in Development Projects

For Increased Food Production:
- Attract a labor force
- Resettlement
- Obtain seeds (when monetized)
- Dairy development
- Livestock development
  - food for stock reduction
  - food as feed
  - food for work
- Soil Conservation
  - * on communal lands
  - * on individual lands to encourage either adoption of technologies
  - * on individual lands to compensate for temporary production losses.
- Risk Insurance

For Increased Stability of Food Supplies
- Replenish Grain Reserves
- Village Level Food Banks
- Local Food Funds
- Market Development (building infrastructure which improves local food market)

For Access to Food Supplies
- Feeding/Nutrition Programs
- Income Transfer
  - * permission to sell food from FFW or Feeding programs * ration shops and coupon schemes
- Income Generation and Enterprise Development
  - FFW
  - * Use of food for training and skills development for the enterprise
  - * Use of monetized food aid for investment in capital equipment or start-up funds for businesses or cooperatives.
- Structural Adjustment
- Training and Skills Development
  - to encourage mother to attend clinics
  - to encourage students to attend classes

Source: Moore and Fitzpatrick, N.d.

ceiling on work teams was primarily determined by the amount of WFP rations available; the logistics involved in managing excessively large work teams also came into play at some sites).

As a payment for services, FFW has several characteristics which might be interpreted as advantages over other modes of payment. First, it is generally provided by the WFP free of charge to the project. In the Keita project, the value of the WFP foodstuffs was approximately 10 percent of total project costs during the 1984-1991 phase (Rochette, 1989). In the Tarka Valley Project (PBVT), the cumulative value of the food component between 1989 and 1992 was approximately 90 million FCFA which, if included, would increase the total budget of 1,589 million FCFA by approximately 6 percent.[29] According to the GTZ synopsis of the PMAE, WFP food donations account for 9 percent of the total

[29] Taken from figures reported in F.E.D (1992a).

value of their 3.1 billion FCFA budget for the period January 1991 to August 1995. German government food donations amount to another 19 percent of the budget, raising the total food component to approximately 28 percent (GTZ 1992).

These contributions from WFP can be construed as appreciable savings for the projects in question. Anyone, however, reviewing FFW projects from an analytical perspective will immediately recognize that the so-called "free" nature of the food demands deeper understanding. The food is not free; it has been purchased from the producers, often at subsidized prices (thereby meeting producer country agricultural goals), and shipped at great expense – again most often with donor funding – to the recipient country. The cash resources used to purchase this food may or may not have come out of the development assistance budget lines of the donor nation. Where they do, host country personnel must factor this tradeoff (food aid versus cash) in their solicitations of donor assistance (see Section 2.6 on the political economy of food aid).

Secondly, as onerous as they may seem, the logistics of successfully distributing food seem easier than those of distributing cash. Project managers are concerned that money would be diverted, either programmatically or illegally. They worry that cash resources will get stuck higher in the project pipeline and not be available for field-based activities, such as investments in soil and water conservation. Among the cash-poor government services in Niger, it would be difficult to resist using available hard currency for such pressing needs as new vehicles or other equipment purchases, or to pay or bolster staff salaries. Food simply cannot be used for these purchases, although it can be illicitly sold by unscrupulous individuals. Cash, of course, is even more of a temptation in the latter sense.

Thirdly, several informants and part of the literature assert that many FFW participants prefer food to cash as the means of remuneration (Webb 1992). The reasons offered for this are numerous, including the high transaction and opportunity costs associated with finding food to buy, the possibility that the food wage is a more liberal wage than a cash wage, or that project personnel perceive food as a low value wage and thus tolerate many informal and unrecorded adaptations, such as shorter days, smaller tasks, flexibility in terms of children and old people working. Since most of the FFW recipients are women, this preference may reflect their fear that they might have to render some or all of a cash payment to their husbands.

Planners have long been concerned that using food rather than cash would have a disruptive effect on agricultural markets, depressing prices and discouraging production. The argument assumes that farmers produce cereals for sale, rather than to meet the households consumption requirements. Furthermore, it assumes a fragmented cereal market, in which the local market is highly insulated from other regional markets. Neither condition characterizes Nigerien millet and sorghum farming. Ignored, too, is the possibility that large infusions of cash into a poor economy might stimulate the demand for food, fueling an inflation of food prices at least as pernicious as a food-aid induced price decline.

It was beyond the mandate of the present study to render a definitive view of where the FFW/NRM activities in Niger fall in terms of the complex issue of disincentive effect. The disincentive effect has, however, been a major point of contention and debate for many years and has been studied widely. In their review of global food security issues, IFPRI researchers draw on experiences in India, South Korea and Taiwan to conclude that:

"The so-called disincentive effects of food aid on domestic agriculture have been exaggerated, and many recipient countries with high levels of food aid have subsequently achieved above-average agricultural growth" (von Braun et al, 1992).

On the other hand Simon Maxwell, in his chapter "The Disincentive Effect of Food Aid: A Pragmatic Approach" (in Clay and Stokke, 1991) notes that the voluminous literature on the subject is inadequate in many respects. He thus proposes a "pragmatic approach" involving real-time monitoring and cites the experience with three case studies: price disincentives in Ethiopia in 1984/85, policy disincentives in Senegal in 1985 to 1988, and change in food habits in Sudan in the period 1970 to 1987. He concludes:

"...the warning lights were flashing to indicate the possibility of disincentive effects...In all three cases, policy changes were needed but a constructive role remained for food aid."

3.4.2 Food as an Enabler

NRM projects also see FFW as an enabler, permitting workers to undertake tasks they could not otherwise afford to undertake. Project staff in Keita believe strongly that in the face of food deficits, people cannot work without the calories provided by these rations; villagers do not have the luxury of providing such immense amounts of labor without some compensation. (Simonelli, personal communication). This view of food aid as an enabler is echoed in the literature:

La réponse apportée à la satisfaction des besoins élémentaires n'est pas une contre-partie à la réalisation de travaux anti-érosifs ou d'aménagement du terroire : elle est la condition qui rend cette réalisation possible parce qu'elle permet aux hommes et aux femmes de boire, de manger pour pouvoir travailler et eviter d'émigrer. (Rochette 1989, p. VII, prologue). (That food aid satisfies basic needs does not make it a payment for having carried out anti-erosion or land improvement works: it is the precondition that makes such labors possible, because it permits men and women to drink, to eat in order to be able to work and to avoid the need for emigration.)

This view of food aid was shared by project participants in Bouza and Filingué. In the Bouza sites of PBVT, participants were willing to work when food deliveries were postponed, and even ceased, albeit it temporarily, during the first three months of 1992. In Filingué, participants in anti-erosion activities accepted a partnership relationship with PMAE in which they contributed their labor freely, in a loose exchange for generic food assistance during the lean months of the rainy season.

The food aid as enabler model, however, immediately suggests the potential for a wide range of project configurations in which food aid could be inserted into the community. For example, the Agroforestry Project at Yatenga in Burkina Faso employs a model in which food aid is provided to the community to "fund" a land-management loan program. The Village Anti-Erosion Works Committee allocates the food to individual farmers who use it to feed family, friends and neighbors they recruit to assist them with land-management and improvement activities on the family plots. The food aid loaned is later repaid, with interest, by the farmer at harvest time (Rochette 1989). Program adaptations, beyond the traditional FFW model, can thus achieve other development objectives. It can enable rural people to tackle their own needs and aspirations, and can lead to greater self-reliance, community cooperation and organization, and fuller participation -- the antithesis of the dependence syndrome that troubles many concerned with food aid.

In this context, using food aid as an enabler permits both staff and participants to remain focused on project goals. The assumption, however, that people would work, if they could, potentially masks a lack of profitability underlying the project's activities. It is critical that the projects represent the community's perceived interests, that the undertaking be inherently profitable, that the level of calorie support reflect the underlying need, and finally, that the community understands the nature of its partnership with the project.

If the food aid used in pursuit of NRM objectives is not carefully associated with need, the food aid becomes simply a means for transferring income or generating employment. These are both important tools for strengthening the short-term food security of the region, but they may run the risk of obscuring, or even subverting, natural resource management project goals. Developing make-work programs for the sake of employment cheapens the task. An example of this was found in the experience of PASP, a pre-cursor to the PMAE project in Filingué. When PASP staff allocated WFP rations by the task rather than by the day, they discovered workers could accomplish an average of five "tasks" per day, with some individuals finishing as many as ten. In terms of food rations, such individuals therefore received ten times the "daily" ration. When they tried to switch to either the ration-per-day system or the partnership system, members of these villages refused to cooperate.

3.4.3 Credit as an Alternative to Food-For-Work

There is a great and continuing need for credit in the rural sector in Niger. As an alternative to FFW, however, credit is probably not a viable incentive in the structurally food-deficient regions of Niger. In these areas, because of the inherent risk of erratic rainfall and its impact on farm productivity, the households often have difficulty meeting nutritional needs. Their ability to produce surplus crops for sale in order to pay off credit is even more doubtful. Programs or projects of any kind, be they credit, FFW or something else, should not be palliatives for more drastic changes (in land-use patterns, land tenure, and rural development strategies in general) that may be needed. They must avoid reinforcing the unfortunate status quo or further weakening the farm household's tenuous hold on financial or subsistance stability by burdening them with credit that they will not, or cannot, pay off, given the inherent resource limitations in which they find themselves. Doing so will at best postpone the final reckoning but it will also likely be to increase the effects of resource degradation, and the eventual costs of the social and land rehabilitation that might otherwise have been avoided.

Credit for non-farm-based agricultural production-related activities, such as packaging, processing, and the distribution of produce may be viable in some instances, thereby allowing a source of off-farm income to add to the family economy. In more productive areas with a greater likelihood of adequate rainfall, the provision of credit to facilitate the acquisition of farming inputs (seeds, fertilizers, tools) would be important for assisting farmers to improve their agricultural practices and productivity. Such inputs might play a significant role in improving food security and encouraging application of more intensive farming techniques so that farmers assure their own food needs and provide a surplus on the market, therefore making farm-based economic activities more sustainable. This practice, in turn, would allow farmers to upgrade their natural resources management techniques, such as soil and water conservation, and fallow.

CARE Niger, the World Bank and the Tarka Valley Project have also embarked on new projects aimed at promoting small-scale private irrigation. Credit for infrastructure development and equipment purchases is an important part of these projects. Similarly, the CARE Maradi Micro-Enterprise Development Project has successfully used credit to stimulate and facilitate a wide range of off-farm

income-producing activities for the informal sector. A similar CARE project for the Tahoua Department is presently being designed.

These new credit programs are no doubt being designed with a view to avoiding the past problems with credit programs in Niger. Unfortunately, many village cooperatives throughout the country are in arrears from earlier programs. The conception and implementation of these cooperative programs, however, was often flawed. They were routinely overburdened with transmitting state directives regarding rural development or encouraged towards the consumption of state or project-supplied inputs in the form of gifts and credit. The former system grouped several villages into a cooperative. When one village fell behind in repayment or defaulted on a loan, the credit-worthiness of all the villages in the cooperative was jeopardized (Wilson, 1984). The reorganization of the peasantry, however, presents a window of opportunity for credit programs and other rural development intiatives. A self-selection process is taking place in which producers form smaller, more focused cooperatives directed toward production and sales.

3.5 FFW in Relation to Relief Food

Though the study did not specifically examine emergency food distributions, the question of relationship between food aid used for relief purposes and that used for development purposes did arise. *Sous-préfets*, technical personnel, expatriate staff and even the food aid recipients themselves have all raised the subject of relation between relief food aid and food-for-work.

Relief food can serve to complement or to compete with food-for-work. Staff from the GTZ/Filingué PMAE project felt that relief food aid flowing into their area has distorted their ability to develop a rational FFW program with the local people. In a series of decisions made without their notification, relief food distributions were specifically targeted at villages in which PMAE was not intervening. From an *arrondissement*-level perspective, this might be a sound planning decision, with an eye toward effecting the most equitable distribution of food possible: thus highlighting the complementary nature of these two types of food aid. From the NRM perspective, however, this lack of coordination backfired: FFW participants greatly resented what they saw as punishment for having cooperated with PMAE land-management activities.

Elsewhere, the relatively small levels of relief food distributions made in 1992 also appeared to be directed away from not only the specific villages receiving FFW, but often from entire project areas as well. In the Tarka Valley, the only food aid distributions in 1992 occurred in non-project villages. (The PBVT Coordinator cited the northern villages of Ourno and Manzou, but was unsure he had the complete list.) In Bouza, where many NRM projects operate, including CARE Salama and PBVT, the *arrondissement*-level officials were not sure where relief aid had been distributed, and were inclined to believe (guess?) that it had not overlapped with FFW sites. Perhaps with more time and effort, details concerning the distribution of these two types of food aid could be made available.

The coordination of relief food and program food deliveries is essential to achieving the goals of both immediate and long-run food security. This is especially true if the USAID/Niger DPM program envisions the use of FFW-like mitigation activities as an alternative to direct relief food aid.

It is not within the scope of this study to document the quantities, timing and impact of relief food deliveries. Comments made by interviewees suggest that the quantities and reliability of relief food deliveries can be highly varied. When asked whether relief food distributions might be significant enough

to alter traditional mechanisms for coping with food shortages, responses were mixed. For example, the Ouallam *Sous-Préfet* insisted that residents were beginning to count on emergency food aid contributions, to the extent that they sell cereal after the harvest knowing they will receive aid during the growing season. This pattern of selling at a low price after harvest, however, only to purchase food later in the year, has long been documented in West Africa, most recently by Hopkins and Reardon (1992). While he believed that relief aid should be diminished, the *Sous-Préfet* was frustrated with the seemingly abrupt decision to cut such distributions to zero in 1992.

In other regions, the consistency of relief food aid appeared much less certain. According to the representative of the Ministry of the Environment in Bouza, residents are unable to count on this food. Apparently, 100 tons of relief aid had been promised in the previous year, but never arrived. Furthermore he felt that even when the food arrives, the rerouting that occurs at the administrative and village chief levels adds to uncertainty at the village level. This uncertainty is heightened in circumstances where the people in power are re-posted with great regularity. To the extent that deliveries are based on political connections rather than on need, no village can be sure to maintain its privilege once it loses its benefactor. Research carried out under the aegis of the USAID Project Development Office suggests that the quantities of aid arriving in any given region may vary widely (Taylor-Powell, 1992).

4. FFW/NRM IMPACTS

The analysis and findings contained in this section are centered on the linkages between natural resources management and program food aid. In almost all cases, these FFW activities are taking place within the context of a wider range of project objectives and components. This is particularly true in the Keita and Tarka Valley Projects, where FFW/NRM plays a relatively minor role in contrast to the larger agricultural development, rural infrastructure, social services and technical support components. This larger context does affect impact in certain instances and will be mentioned where pertinent.

The observations and findings contained herein have been drawn from the literature, field visits and personal communications over the course of the relatively short study period. In some cases, they are only initial impressions; it was not always possible to corroborate all the findings. In such instances, these findings have been included deliberately because the team felt that they constitute areas of inquiry worth further pursuit.

It is neither the mandate nor the purpose of this study to evaluate these projects; indeed, given the relatively brief opportunity to review the activities, any real informed judgement would have been impossible. There was, nevertheless, useful information gleaned at every project site visited. This has added to the following analysis and findings. At this point, these findings should be considered as general, although they may provide a frame of reference for considering an individual project, or perhaps the starting point for more in-depth study.

4.1 Direct Impacts of FFW/NRM Projects

As described in Section 1.3.4, FFW has direct impacts on NRM interventions. These include the range of anticipated effects of the projectized interventions, but mainly those related to land rehabilitation, the principal field objective of the projects studied.

4.1.1 Meeting Sector Strategy Objectives

As described above, there have been significant and seemingly irreversible shifts in the natural resources sector policies and strategies. The GON has defined these changes as four priorities for future development: natural resources management; the organization and participation of the rural world, and the gradual withdrawal of the state; food security; and, intensification and diversification of production. How do the FFW/NRM projects studied measure up in light of these changes?

The predominant objective of these projects has been and remains land rehabilitation. Project personnel often employ the phrase "C.E.S./D.R.S."[30] Interestingly, few informants alluded to the food security objectives of the FFW approach. Although most of the projects or their present phases are relatively young, most were conceived as part of "the fight against desertification."

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[30] "CES/DRS" is a common French acronym for *Conservation des Eaux et Sols/Defense et Restauration des Sols*. These are the traditional techniques used by those working in *Genie Rural* and is often, though not exclusively, understood as soil conservation engineering techniques -- in contrast to biological and vegetative-based soil conservation methodologies.

At the Care Galmi and SALAMA projects, and in the Keita Integrated Development Project, the emphasis is on reclaiming and stabilizing degraded areas, mainly the rocky, over-grazed slopes and hills or the laterized tablelands (*glacis*) of the plateaus. In both cases, degradation has advanced to the point where continued use will only exacerbate the situation, a cycle that will inevitably necessitate abandoning the sites permanently. In the Tarka Valley project, dedicated to supporting and further developing the productive capability of sedentary areas, the objective may be more appropriately construed as protection of lowland fields and infrastructure, including villages and wells. The protection, of course, involves significant impact on production in the form of pasture re-establishment and tree production on the slopes and stabilized, intermittent stream (*Kori*) banks.

Estimates of the percentage of extremely degraded, and consequently abandoned land, in Niger[31] suggest that as much as 20 percent of the total arable land may be so characterized.[32] Small wonder then that genuine concern is often focused on rehabilitation. These projects, however, seem more like those of the "fight against desertification" than the more integrated approaches to natural resources management. Despite the overall importance of rehabilitation to natural resources and the prominence of FFW approaches to it, there are several key considerations concerning the overall operation of FFW/NRM, which also bear further scrutiny.

4.1.2 Disbursements in the Natural Resources Sector

It is extremely difficult to gauge the funding impacts of FFW contributions on the natural resources sector because of the different ways funding is aggregated in GON/donor reporting. According to UNDP data (Andenmatten, 1992), in 1990 total natural resources donor disbursements approximated U.S. $12 million. Several points need to be made here. The definition used for "natural resources" employs the more traditional view of the sector, which includes forestry and wildlife/wildlands activities. It is not clear from the report if this $12 million includes the annual disbursement of hard currency portions of the Keita Project. The FFW rations disbursed by the projects supplied by WFP in that same year ("*buts multiples*" and Project Keita) amounted to approximately U.S. $5.8 million or the equivalent of 48 percent of the hard currency expenditures.

More analysis is certainly needed and some can be made by inference. Shaikh estimates that annual funding for the sector, "depending on where one draws the borders of natural resources," ranges between $35 and 100 million per year (USAID/Niger, 1990). The portion of that funding actually applied to on-the-ground investments aimed at sustainable natural resources management, as well as the portion, if any, linked to FFW, is unclear.

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[31] This characterization of "degraded lands" refers to areas where efforts to utilize them have now been all but abandoned. Other lands, still cropped but highly degraded, should also be considered in any serious assessment of the problem. There is, as such, little precision in the use of these statistics and they should only be thought of as "orders of magnitude", imprecise but nevertheless useful in macro-planning efforts.

[32] This figure bears some disaggregation, and with it, some reflection. It is generally agreed that approximately 75 percent of the 1.267 million square kilometers of national territory are located north of the limit to rainfed agriculture (the 300 mm isohyet). With or without drought, the isohyet limit is a moving target, but nevertheless, one can estimate a potentially arable area of 30 million hectares. Soil properties and topographic features further reduce that total to approximately 15 to 20 million hectares of rainfed farming lands. Actual area being cultivated is now estimated at approximately 6 million hectares. Using the higher figure, then, the remainder is either forested or abandoned agricultural land.

The newest phase of the Keita Project has received a commitment of approximately U.S. $10 million worth of food from WFP for the four years beginning 1992 (WFP 1991a). The project is slated to carry out its fairly intensive land rehabilitation, reforestation and agro-sylvo conversion works on 16,000 hectares. Windbreaks, dune protection and other less intensive works will be carried out on an additional 27,600 hectares. Approximately 73 percent, or $7.3 million, will be used to cover the costs of these 16,000 hectares of intensive works at an average cost, in WFP wages alone, of $456 per hectare. This figure does not include the cost of the mechanization to be used on roughly half the area[33].

Anyone familiar with the history of forestry in the Sahel will find intriguing parallels here in comparing FFW/NRM cost considerations with similar ones on the economics of block plantations. It was indeed precisely the issues associated with large-scale, state-funded block plantations that began the move away from the unilateral forestry approach to the problems of land degradation and sustainable development in the Sahel. These high levels of investment per unit area for FFW/NRM are difficult to reconcile with the declared *Principe Directeur* related to the gradual withdrawal of the state, a principal that was espoused well before the approval of the most recent phase of the Keita Project.

More important is the question of what level of real impact – by the state, by the donors, or by the farmers – could be expected if the average cost of NRM treatments is $500 per hectare or more? At this rate, the total investment costs required to achieve real impact become astronomical. Then too, as is obvious, few farmers will be able to afford such investments.

There are also important precedents being set increasing the predominant role of the state and the donors in funding soil and water conservation activities, which will affect the sector for some years to come. They include:

- providing large amounts of funds to "restore" lands that, because of their inherent resource limitations, should perhaps remain unused in the future;

- equating soil and water conservation with jobs, employment and FFW, using resources beyond the means of the state;

- little real planning with the participants, especially with women. They lack information about project objectives and time frames. Uncertainities about program food aid foster insecurity and an "emergency" state of mind rather than one of planning for the future. Although there is a vague hope that food production will increase commensurate to the reduction of food aid, nobody knows.

- risking popular backlash[34] against FFW/NRM or similar work because of perceptions of arduous work paid at less than equivalent wages or inequities of the gang-labor approach (chiefs mandating participation, implied threats to land rights); and,

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[33] Although many will criticize the Keita Project for this level of expenditure per area treated, the project has had a good deal of experience with systems operations. There is reason to believe that their costs are significantly below those for similar treatments by other projects.

[34] Soil and water conservation extension in East Africa is treated with great distrust and reluctance because of the historical legacy of the colonial governments, which imposed it as a land-use practice on the peasants "for their own good". It is difficult to say whether this is, as yet, occurring in Niger. The study team encountered several groups of women who were vociferous in demanding improved benefits. Similarly, project personnel admit that they spend an inordinate amount of time dealing with complaints from the workers.

- reinforcing the notion that plagued participatory forestry, that treated areas become the property and responsibility of the state.

4.1.3 Land-use Planning Considerations

Land is being restored using FFW; trees are being planted and the banks of streams stabilized. This evident physical impact, however, must be viewed against the backdrop of a quantitative and qualitative understanding of the problem it seeks to address. How much land is in need of rehabilitation? How many kilometers of stream bank require stabilization? The study team was unable to develop a sense of the physical proportions of the problem. It would appear that almost the entire southern portion of the Department of Tahoua, for example, is covered by one or another active land rehabilitation project, an observation also suggested by the disproportionate share of WFP resources directed to the region (see Table 2.5). A rough estimate of the rehabilitation area treated each year in Tahoua would be 10,000 hectares.

The basic premise is that with enough investment of labor and technology, at whatever intensity, significant impact can be achieved in restoring the land to a productive state. When questioned about who is keeping the balance sheet, so to speak, the staff at the CARE Project in Galmi indicated that the Department planning unit in Tahoua is supposed to come and measure the results, presumably to tally them against the needs. The question remains, and the team feels it is a vitally important one: Is there an overall estimate of the amount of degraded land that might ultimately have to be treated to reach some level of significant environmental impact or against which incremental impact over the years can be compared? Who is doing the master planning?

The present understanding of the land-use situation in Niger is dramatically outdated. Maps and data on this topic frequently conflict. There are few accepted standards or assumptions on which to base meaningful planning at the macro or regional level. The terms "agro-pastoral zone" or "transition zone" are both vague and perhaps misleading. Data is lacking to substantiate even the most fundamental planning efforts; consider the PNLCD[35] which contains neither data nor maps.

Many well-intentioned projects aimed at land rehabilitation have floundered because their designers were unaware of the magnitude of the problem, not to mention the rate at which degradation was continuing[36]. Worldwide, projects aimed at land rehabilitation, watershed management and integrated rural development[37], have shown that it is relatively easy to identify qualitatively what *could* be done -- the phenomenon sometimes referred to as the "techno-fix". Determining what *can* be done and subsequently, what *should* be done is considerably more difficult.

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[35] *Plan National de Lutte contre La Desertification* (National Plan for the Fight against Desertification).

[36] Examples include the USAID-funded Haiti Targeted Watershed Management Project and the World Bank-funded Upper Magdalena Watershed Management Project in Colombia.

[37] There are many examples from the numerous integrated rural development projects that could serve as guidance for the present. The experience, however, has been so overwhelmingly negative that the usefulness of these projects is often repudiated. For futher discussion of this point, see Painter, 1991.

At the macro-level (country or region-wide), basic land-use data and information can provide the essential perspective needed for making choices of projects and their interventions. These land-use figures should include rough estimates of the amount of land being cultivated, in fallow, degraded or abandoned, used for grazing, and in woodlands. This macro-level data allows planners to estimate the level of need or opportunity and compare it with the unit costs being proposed and the budgets available (see section 5.3.2 for more explicit discussion of the economics of FFW/NRM). Although this information should be as precise as possible, any estimates along with the assumptions under which they have been compiled, will be better than nothing. Data of this type would provide an interesting backdrop to the present high unit costs of land treatments. Similarly, good information on land actually being cultivated could help to further rationalize the food security scenario or could affect policy related to agricultural development strategies. In short, land-use data helps to answer the important questions of how and where to maximize impact with the technology and resources presently available.

Few projects operating at the local level in severely degraded areas have all the data and information they need to allow comprehensive planning. The many projects operating in the Department of Tahoua are undoubtedly cases in point. Overcoming this gap, however, can be more easily accomplished at the local level. Assembling GON officials and local leaders, reviewing their knowledge of resource conditions and use, and plotting this information on reasonably scaled maps will greatly enhance both the qualitative and quantitative understanding of the project area. These early contacts will also promote familiarity, and hopefully rapport, communication and understanding between project and participants, for which there is no substitute (Catterson et al, 1991). Here again, what is essential is some level of planning understood by all the key players, even if the plan is encumbered by dubious assumptions. It is easier to make adjustments along the way, although admittedly, these may be politically or administratively unattractive, than to have to reconsider the approach.

The overall strategy for a land rehabilitation effort is, and must be linked fundamentally to the magnitude of the problems. It is only in this way that planners can establish priorities and make decisions about the choices of treatment intensities and technologies (the investment profile), based on a sense of the resources -- time and money or in this case, food -- available to meet the challenge. The partial completion of a restoration subsequently halted because of government or donor funding shortfalls may, at best, simply shift the problems elsewhere.

Some degree of land-use planning is essential for these FFW/NRM projects. The sheer contrast between the hyper-intensive, costly Keita Project approach and that employed by CARE Galmi underscores this reality. Both projects have undertaken basic planning related to their areas of influence and impact. Despite the evident similarities between the two project areas, they have chosen remarkably different approaches in their type and level of intervention. While most practitioners outside the Keita project have already taken sides, although perhaps not for the right reasons, no judgement is intended here. It would be professionally irresponsible, however, not to note this difference. More to the point, their planning efforts cannot be extrapolated to apply to the overall situation of either the Department or the country, which underscores doubts about their real impact.

In the Sahel, however, there remains a legacy of planning and mapping efforts which supplied minutia and detail beyond present needs and useful application. Few of the products generated earlier have been thoroughly understood and utilized. Fortunately, there are new tools and techniques available to the land-use planner in the fields of remote sensing, satellite imagery, and information management. New efforts at pulling this data and information together may be on the horizon: a master plan for the Diffa Department, a GIS-based compilation for Tahoua, and continuing USAID-funded support for natural

resource sector planning under ASDG II. Compiling the existing information to reach a broad consensus about the present land-use situation in Niger would be an excellent early step to rationalizing and coordinating sector strategy and donor support for it. As one looks around the barren hills and degraded farmlands of Niger, it is evident that there is a great deal to be done. Any plan, even at the smallest scale, would be better than none at all, as long as the assumptions are stated.

4.1.4 The Long-term View and FFW/NRM and the Issue of Impact

Related to the land-use planning issue and the question of impact is that of the long-term view of rural development in Niger. Something needs to be said, admittedly from a very speculative posture, about the longer term and the planning associated with FFW-driven resource rehabilitation projects. Can/should planners and policy-makers be taking into account the distant future? Does it make sense? Is it not true that in most cases in other countries where soil and water conservation have been constraints, there have been major shifts in land-use patterns as people and governments recognized the absolute limitations of the resource base and the futility of the situation? Reflecting on the public works for soil conservation program experience worldwide may be enlightening. In the U.S., for example, much of the soil conservation and tree-planting took place on lands that are not now part of the national production equation, as opposed to the protection function.

Is the apparent policy decision, as seen in practice in all of the projects visited, to concentrate the bulk of efforts at land rehabilitation on degraded common areas well founded? More attention, or at least a parallel effort at soil and water conservation activities on individual fields would also offer significant benefits. The farmers investing their labor would stand to benefit from higher and more sustainable productivity, while the nation would realize a decrease in the rate of on-going degradation and its accompanying off-site costs. In certain instances, for example, in order to protect rural infrastructure, a case could also be made for investing FFW as an incentive to motivate on-farm soil and water conservation by farmers. Farm-family strategy in Niger now seizes upon any opportunity to reduce the household's reliance on subsistence agriculture because of "the fickle returns to farming" (Swinton, 1988). If peasants want to become less dependent on the land, are the GON/donor policies and programs enabling them to do so? Is GON concern about rural-to-urban migration (Niamey is said to be growing at the rate of 10 percent per year) overshadowing what must eventually be a national recognition of the relatively finite potential of agricultural development? This matter is discussed below in greater detail in the section addressing technical concerns. It seems, at least to this team, to be something that might be added to the development policy agenda.

The team did not have an opportunity to review what are reportedly a wide range of agricultural extension projects working with private farmers (Taylor, personal communication). For example, the new World Bank-financed *Projet de Renforcement des Services d'Appui a l'Agriculture* is scheduled to grow progressively into a nationwide program. It is focusing on the improvement of farmer practices for field crops, livestock husbandry, soil and water conservation, and other basic farming practices. Its extension approach will be modeled after the Training and Visitation (T&V) system emerging from successful Bank-funded agricultural extension projects elsewhere. Similarly, a number of small-scale private irrigation projects are either underway or planned. They include the IFAD projects in eastern and western Niger, CARE's proposed work in Tahoua, and a new program in the pipeline to be funded by the World Bank and the *Caisse Centrale*. The mix of soil and water conservation activities, i.e., on private fields or on common areas, and how they relate to other components of these agricultural extension projects, would be instructive for all concerned and worthy of review.

4.1.5 Range Lands and Farm Lands

Nowhere is the present land-use planning issue in Niger, as discussed above, more compelling than in considering the impacts and tradeoffs between rangelands and farmlands. In both the so-called "transition and agro-pastoral zones", previous land-use was a mosaic of both agriculture and livestock husbandry. The opportunities for the latter are fast disappearing under the northward expansion of the agricultural frontier. This must be contrasted with the shift south of the rainfall isohyets, which suggest a southerly movement of the areas appropriate for pastoralism. Adding to this situation, in all of the projects visited, there were large-scale conservation works, which included the prescription of protection from grazing animals -- thereby, in one way or another, shifting herd pressures to other areas. Are they accelerating degradation on other areas? Are these works exacerbating the competition for range and fodder resources between traditional pastoralists and farmers with livestock?

Cut-and-carry prescriptions on these rehabilitated lands are in place in both Keita and Galmi. Villagers reportedly are able (this year at least) to sell collected fodder because of the demand for it in the rural markets. This fact of sales combined with the abundant evidence of over-grazing suggests near carrying-capacity limits for herd numbers. In Filingue Arrondissement, intensified agriculture, including soil bunds, sub-soiling, and crop diversification, is being carried out on areas immediately adjacent to the Toukounous Ranch. In Keita, large-scale (6000 hectares plus) rehabilitation has taken place on the degraded sites known as "*glacis*" (hardpan areas resulting from the loss of topsoils and laterization of the substrata from inappropriate agriculture or over-grazing), which were once part of the grazing resource base.

Questions and considerations that arise include:

- Given that the *glacis* served as part of the extensive grazing resource base before rehabilitation, are they now or would they be better off as such?

- Will agriculture, under improved traditional methods (but without the addition of high-cost mechanization), be sustainable on these lands?

- Is the expansion of agriculture self-defeating from the viewpoint of soil fertility management -- considering that crop residues are increasingly finding a market as fodder, and manure for field amelioration has declined?
- Is the agricultural occupation of the "*bas-fonds*" (low-lying areas) and "*dallols*" (valleys), such as in the Toukounous area, taking over lands that have traditionally been the exclusive grazing reserves of the pastoralists who previously dominated in these areas?

- Would rainfed agriculture in these more northerly regions be better concentrated in and improved on the sandy soils at the base of the plateaus, where it presumably originated because of the combination of ease-of-cultivation and pastoralist dominance?

- Are these sandy soils easier to manage, less pest and disease prone, and less susceptible to degradation than the low-lands?

Answering these questions is beyond the scope -- and well beyond the capability -- of the present team.

Few NRM projects focus on interventions aimed at rangeland improvement. The water-harvesting and tree-planting activities seen on the steeper sites in Galmi, Tarka and Keita will undoubtedly add to the local supply of fodder resources. Whether these areas can be intensively cropped, or should be, even under a cut-and-carry system, remains to be seen. On the flatter areas, all project rehabilitation was aimed at returning lands to agriculture; there was never any discussion of whether these lands might be better suited for rangeland and grazing.

Herders, however, may be good candidates for conservation interventions geared to rangeland improvement and rehabilitation. Because of their high level of local traditional knowledge about range conditions and fodder quality, pastoral groups carrying out food-assisted range improvement activities in the transition zone might ease the present pressure for adequate grazing. The stumbling blocks perceived by project personnel on this topic are the land-use planning issues and the tenure situation (the latter is discussed elsewhere). Of course, any recommendations made, whether using food aid or not, "must be tempered by careful analysis of the many failed attempts...at range management...over the past twenty-five years across the Sahel" (Taylor, personal communication). Food aid projects considering rangeland rehabilitation would thus need to take into account the fact that the interventions are not immediately available, and that they are likely to be less intensive and more widely scattered, thereby complicating the already challenging logistical demands of these projects.

No unbiased observer can help but speculate on whether the apparent lack of interest in rangeland improvement, whether in food aid projects or otherwise, is the result of the political isolation of pastoral peoples. The failure to deal with the challenge of range management in Niger may ultimately prove to be the "Achilles heel" of both the agriculture and forestry sectors. It might also be argued that the relentless erosion of the range, pasture and fodder resource base may also undermine the key famine coping strategy still widely espoused in the food deficit areas – namely, that of acquiring and keeping small ruminants as drought insurance.

4.2 Indirect Impacts of FFW/NRM

A series of potential changes in the nature of the relationship between man and the natural resource base, resulting from employment or the impact of the food received in the household, was postulated in Section 1.3.4. The astute reader will have undoubtedly realized that a careful examination of the full range of these impacts was beyond the scope of the present study, given its time constraints and methods. Some pertinent information in this regard will emerge from recent longer-term studies (Webb, 1992) as well as through future in-depth analyses of farmer perceptions of food aid.

The following discussion does, however, highlight some of these indirect outcomes of FFW/NRM. It addresses concerns often heard about settlement patterns and livestock management strategies, both part of the farmers' coping strategies in the face of drought and hunger.

4.2.1 Settlement Patterns

Are settlement and migration patterns in Niger significantly affected by the presence of FFW/NRM activities? Field observation, interviews, historical sources and the literature give no particular reason to believe that settlement and migration patterns (particularly community migration and long-term village resettlement) are significantly affected by the presence of FFW/NRM activities, or for that matter, by food aid in general. However, a corollary finding shows a general slowing down of the village fissioning described for the 19th and early 20th centuries (Delehanty, 1988).

The most obvious reasons for this reduction in village mobility and settlement patterns are contemporary geopolitical conditions (national borders) and macro-economic conditions (shifts in the location and terms of trade, change of markets). The most crucial element, however, in this transformation is probably the growth of the population and the declining quality of the natural resource base.

The extent and the rapidity with which the environment has changed in Niger over the last thirty years is almost impossible to imagine. Repeatedly, villagers used the immense environmental changes experienced over the last generation as a major frame of reference. Most villagers are confronted with conditions for which they know no precedent; they are anxious for new technologies and new approaches. In every case villagers expressed an awareness that they must find new solutions. Very few "new villages" (i.e. established during the last twenty years) that were not offshoots of older, nearby established villages were identified in the field interviews. Many interviewees explained that these new hamlets were created in the search for new farmland. Few, however, evinced any belief that there were many more opportunities, either locally or elsewhere (north?) to find new land. Indeed, land holding is increasingly taking on fundamental importance and one can foresee greater application of the private notion of property. FFW/NRM activities should be able to make some contribution in helping rural farmers and pastoralists decide to move or to stay where they are; and if they do stay, how to maximize returns from their natural resources.

4.2.2 Animal Management and FFW/NRM Activities

Program food aid has not had a noticeable impact on herd reconstitution or destocking rates in the study zones, though it may be too early to notice such changes. Additionally, it would take closer observation and more intense study to have a realistic understanding of livestock numbers. On the other hand, program food aid has the potential for both positive and negative impacts on the exploitation of pasture and the condition of plateau areas currently over-exploited.

Over-grazing seems to have been largely responsible for the extremes of degradation typically found on the uplands of southern Tahoua. These areas have been submitted to the pressures of almost continuous year-long grazing as the local population increases and land is put under the hoe. The lands are used by pastoralists moving south during the dry season to seek fodder for their animals. In the rainy season, the large herds of small ruminants, increasingly common in the ever more sedentarized areas, are taken to these areas to avoid crop damage. It should be noted that this problem of fodder resources for small ruminants is tied directly to farmer perceptions of food security, unstable cereal supplies and markets, recent changes in weather patterns, and the absence of other coping mechanisms (e.g. viable forms of savings and off-farm investment).

Efforts to return areas to cropland (the rehabilitated *glacis* and plateaus of the Keita Project) or to revegetate the highly degraded slope areas (Keita, Tarka, and Galmi), which presently include grazing prohibitions, are evidently further reducing the already scarce fodder resource base of the region. It is unlikely that local residents – having participated in the arduous campaign of trenching, rock wall construction and tree-planting on these slopes – will be willing to share these areas with wandering pastoral groups. Indeed, even village herds may find their grazing resource restricted. Where, then, will villagers – particularly women who tend to purchase small ruminants from savings accrued, perhaps as a result of FFW – find the fodder to feed them?

Adding to this constrained situation of fodder resource base is recent evidence which shows that herds owned by absentee owners are proliferating in areas along the northern limit to cultivation (Akilou et al, 1991). Are FFW/NRM efforts aimed at land rehabilitation attracting such herds and further contributing to this zero-sum situation?

5. SUSTAINABILITY ISSUES

In the past, one of the central issues pertaining to the considerations of sustainability of food assisted projects has been the concern for recurrent costs accruing to a government after the termination of project funding[38]. It is the common denominator of the misgivings often expressed about the Keita Project. In the design of this FFW/NRM study, the definition was expanded to include other issues related to the sustainability "equation." These include the degree to which local people have internalized the activities undertaken with the stimulus of FFW and whether they are continuing to carry them out of their own accord. Similarly, this study has looked at some of the perception issues related to the current modalities of FFW/NRM and how they are understood by the participants.

In considering sustainability then, this study has expanded the review to include notions of sustainability linked to institutions (government services and local organizations), the technological dimensions (ecological, technical and economic) and finally, the social concerns. As was stated in the previous sections, these findings at this point should only be thought of as tentative. Certainly, though, in some situations the concerns about sustainability seem well-founded; in others this aspect deserves further study.

5.1 Institutional Capabilities

In most of the natural resources management projects visited, institutional objectives are seen as part of the means to achieving development objectives. The study team believes that more emphasis needs to be placed on institution-building as direct development objectives of a project. Institution-building, even where it seems to occupy a more central focus of a project, is often described as and relegated to a modicum of activities involving reorganization and human resources development, or in the case of local organizations, training. Then too, as the findings below so testify, institution-building is all too frequently conceived as if there were an institutional vacuum at the local level.

In order to properly execute the activities designed to achieve institution-building objectives in a project, more attention must be given to a defined implementation plan associated with this vital object of the project's interventions. An institutional assessment and needs survey, defined outcomes in terms of an improved institutional framework and its functions at either the government or local level, and specific indicators or benchmarks, are all necessary elements of this institutional-building component of the projects.

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[38] Responding to questions from the team, the WFP/Niamey Director of Operations commenting on followup maintenance for FFW/NRM activities stated quite frankly: *"Concernant la poursuite des activités à la fin du projet, le Bureau (...WFP/Niamey...) est conscient que certaines activités pour lesquelles la population ne percoit pas un interet immédiat ne seront probablement pas poursuivies sans l'aide du PAM"*. (Concerning the followup for activities at the end of a project, my office is aware that certain activities for which the people do not perceive an immediate interest will probably not be followed-up without WFP assistance. (Ayih, WFP/Niamey, personal communication).

5.1.1 Local Level Institutions

The literature and field observations indicate that there are several different local management models being used for the management of natural resource interventions. Some of the FFW/NRM projects are very active in supporting the development and training of altogether new institutions, such as in Keita *arrondissement*. Other projects, such as CARE Galmi, and PASP/PMAE in Tillabery Department, are calling on existing institutions to take on new responsibilities related to natural resource management. In particular, cooperatives are enjoying a revived *raison d'etre* in this regard.

On the other hand, there is some confusion as to the status of local organizations in general because of changing national development policies. This makes the work of building sustainability into NRM activities even harder. For example, the *Société de Developpement*, which was put in place during the Kountche era, is no longer a required frame of reference for the rural peasantry. In some instances, such as in Keita, people are still using this terminology and its structures even though they are assigning new functions to them and discarding others. On the bright side, it is evident from observation in the field that people are feeling freer to create small, local, voluntary associations. These associations appear to be more specialized in both purpose and function than previously.

In Keita, Bouza, Tarka and Galmi, villagers have formed small cooperative committees that focus on a particular product and activity, such as vegetable gardening. CLUSA has been working with the development of cooperatives at a number of natural forest management sites (Guesselbodi, Baban Rafi, and Gaya). These cooperatives are much less encumbered with the myriad responsibilities that they would have had in other times; they have the potential, therefore, of being much more efficient. Some are only for marketing, others for production and credit. Their reduced purview should allow for easier organization and training.

The problem with the growing diversity among rural organizations is a reflection of a current national malaise (hopefully transient): do these institutions have a future in the new political and institutional life of Niger? Rural inhabitants are investing in new forms of local management of their resources and their market activities without knowing for sure if such organizations will be "allowed" in the future. This general interest in new forms of local governance of natural resources is finding echo and interest at the national level. Similarly, the donor partners interested in the subject have committed resources to continue exploring these issues (e.g. USAID/Niger is supporting policy studies concerned with rural institutions under ASDG II).

Beyond the issue of basic institutional arrangements, FFW/NRM projects are faced with general conditions of low literacy and numeracy, and the problem of establishing new norms of accountability. Accountability is crucial to sustained efforts for natural resource management. The Keita Project has been experimenting with literacy training and the creation of local literacy agents, who are assigned to each participating village. Staff hope for the institutionalization of written contracts, which delineate local responsibility for maintenance of natural resource management outputs. However, past experience in Niger and in other parts of the Sahel, as well as reports from The African Development Foundation (Sahel region; Working Committee for Literacy and Report Revision, 1984 - 1989), show that written documents as reference tools for project implementation do not work well in conditions of only functional literacy. Such an approach is better suited for use in teaching and with intense monitoring. However, in general, field staffing levels in current FFW/NRM activities may be too low to sustain useful training, extension and monitoring efforts.

The great challenge facing natural resources management projects in the Sahel, whether they be food-assisted or not, is to increase local participation – in understanding and setting goals and objectives, in defining the returns to be expected from the activity, in assisting in building institutional capacity at the local level, and in identifying ways to promote a sense of local ownership of the NRM process. In this regard, levels of capital investment should be carefully scrutinized in light of future maintenance efforts required by local organizations. CARE/Galmi, for instance, is working with the local representatives of the UNC to assist women participants to set up gardening cooperatives with land rights. The Keita Project has done this as well and also provided grain mills, storage facilities, management training, and gardening inputs. While all of these investments are worthwhile, one-time investments should be measured against recurrent operational costs and expected returns from investments (i.e., garden product income, member dues, fodder sales and cooperative fees). Nothing will discourage local people more than to have their promising local organizations founder because of financial problems.

5.1.2 Participation versus Food Aid Accountability

It would be unfair to characterize the projects reviewed in the course of this study as being exclusively land rehabilitation-oriented. Almost all have, in one way or another, adapted or adopted a more participation-oriented approach. For example, the GTZ-financed *Programme de Mesures Anti-Erosives* (PMAE) in Tillabery Department works in coordination with the *Projet Agro-Sylvo-Pastoral* (PASP), a project established earlier that has now taken up the *gestion de terroir villageois* approach. Both the Tarka Valley and Keita projects have mechanisms whereby specific requests received from area villages are considered in the annual project planning exercise. These requests are routinely channeled through the *Sous-Préfecture* although the objective of this vetting process is programmatically unclear. One might assume that the compatibility of these expressed demands of the rural people are being compared with the officially held view of the local rural development plans, and with an eye towards the careful allocation of scarce resources.

The study team, however, cannot help but remark that from their overview of the situation in the field, the challenge to local staff is that of meeting the inherently quantitative circumstances of FFW/CES-DRS projects, i.e., to deliver significant quantities of food to large numbers of people while still completing the expected physical outputs. Is this field reality overwhelming and inhibiting the need for analysis, learning and flexibility? The considerations and achievement of the qualitative dimensions, particularly as concerns sustainability, are being overwhelmed by the demanding quantitative elements. Recent attempts to emphasize the importance of food aid accountability has increased the burden on technical cadre in the field (such as the March 1992 WFP seminar on food aid accounting, following the halt to food aid deliveries in 1991). This accounting, while certainly valid, exacerbates the view of food aid as a form of payment rather than as a development input. A greater focus on the efficiency and effectiveness dimensions of food aid distribution risks distracting project personnel from the development objectives of their work. In struggling to keep up with the day-to-day demands of their jobs, project staff may lose sight of the participants as the principal actors on the local development scene. They become, instead, impediments to getting the job done – an extension of the view which also sees them as the

causal agents of "desertification."[39] The combined effect is impeding the nascent efforts at a more participatory approach to FFW/NRM.

Many of the present project efforts began after the great outpouring of humanitarian aid for the past droughts. These relief efforts were undeniably people-oriented. The emphasis seems to have shifted, however, to an implied project posture and focus wherein the natural resources activities become ends in and of themselves, and the people the means to achieve them. One can perceive this confusion at higher levels as well. Question often arise: Are these NRM projects using FFW or FFW projects doing NRM? Are the same projects presented or understood differently by the GON, the executing agencies (CARE, FAO) and the WFP? Are the mandates of these three types of organizations not always inherently compatible? Perhaps the operational answer is that these projects are (or should be) using both FFW and NRM to achieve development goals -- improved household- level food security and incomes, sustainable agriculture and land-use models, and ecological stability.

In some of the FFW projects visited, staff seemed too thin at the field level and without an adequate ratio of extension personnel per number of participants to deal with the demands of the more participatory approach. Other projects (e.g. Keita) have decisively reduced the numbers of staff extension personnel to favor the *chef de chantier* (site foreman) approach. This means that the participants' (Are they participants or laborers?) day-to-day contact with the project is with the "foreman", i.e., the individual charged with getting the job done. This is hardly the ambiance for the two-way exchange of views essential to genuine participation. There is also a readily apparent conviction that runs through discussions with project staff of the drive to "get this job done". Project staff frequently mention their "frustrations" in constantly having to deal with participants complaining about the difficulty of the work or the meager rewards (the rations) received for their sacrifice. The reality, of course, is that the work is extremely hard, and the workers have also learned the adage about the "squeaky wheel" vis-a-vis government/donor development programs. Participation must be seen and understood, certainly by staff at all levels, but particularly among those who deal daily with the participants, as one of the development objectives, not as a means to harnessing the labor of the rural people to complete project tasks.

5.2 Social Concerns Related to Sustainability

Overall, certain outstanding constraints have come to the fore from the literature and from field observation regarding the social sustainability of NRM practices. They include the following:

- competing labor and time requirements for household farms;
- competing labor and time requirements for income-generating activities (livestock management, gardening, artisan);
- weak local institutions;
- insufficient nutrition/energy levels for labor required;

[39] Has the legacy of the "fight against desertification" become, implicitly, the fight against those perceived to be the causal agents of desertification? Are the disadvantaged, even more disadvantaged because some development personnel may still perceive a "culture of desertification"?

- insufficient understanding of long-term benefits;
- absence of direct long-term benefits;
- absence of immediate direct benefits (farmers have short-term time horizons);
- confusion over tenure conditions; and
- marginalization of users from decision-making of NRM objectives.

Given the finite resources and time available to the study team, and the fact that probing these issues must almost always be done at the village level, which requires a different methodology and time frame, it was not possible to delve in detail into all of the above. The discussion which completes this section on social sustainability addresses, as the team believes, the most salient and accessible of these issues.

5.2.1 Land Tenure and the Rural Code

Land tenure is an intricate institutional element of sustainable natural resource management and one of the most emotionally charged. In the direct sense, these activities are focused on the rehabilitation of abandoned, exhausted farm and grazing lands. This focus has induced perhaps unanticipated changes in the perceptions about land and tree tenure conditions in various parts of the country. Examples include land redistribution, or the creation of household plots in formerly common range areas, or the regeneration and turning over of village lands to women's cooperatives for gardening.

The rehabilitation of land that has fallen into disuse often stimulates local farmers to either unearth almost forgotten tenure privileges or, in some cases to even invent them. Since the communities in the study zone are patrilineal, family farms or grain farms refer to farmlands managed, controlled, and inherited by men. It is unclear, at this point, whether rehabilitated lands will encourage a "scramble" for land claims, the privatization of land or a surge toward community management of resources.

The training and cooperative division at the Keita Project identified three categories of FFW participants. These are: people who participate solely to receive food; people who participate who need food and who also hope to receive land; and, people who already own land and who are afraid they will lose it if they do not participate. Project staff feel that these categories represent the primary forces of self-selection taking place in the project. Participants who only come for food do not stay in the project as long as those of the other two categories. The people from the second category are most often from the immediate region of lands being treated, and are among the poorest and most marginalized of the surrounding communities. They participate hoping that in the end, abandoned land will be restored and redistributed in their favor.

The third category participates primarily to protect their property interests. Participants voiced a belief that families with inherited land, which is being treated through the project, forfeit their inheritance rights if a family member is not present working on those lands throughout the life of the project. The lands, in effect, become part of the public domain and can be redistributed. A similar perception (or is it already the model?) exists in Galmi, though not quite as extreme. In that case, farmers whose lands have been worked on through the project are expected to give up some portion of it for use by other farmers who are in greater need of arable land once the work has been completed.

This means that if a project lasts for ten years, a family must find some representative for each of those ten years to contribute labor, or the land in question can be redistributed. Serious questions arise as to whether this really constitutes voluntary participation when inherited land is at risk of being reappropriated.

Although project managers are rightly looking toward the Rural Code to provide direction in these matters, it is essential that data describing these circumstances be communicated to those working on the Rural Code so that its formulation reflect, as much as possible, empirical conditions. Equity issues, as well as the actual durability of such land arrangements beyond the life of any given project, need to be examined closely.

A more wide-reaching tenure issue is the rehabilitation and transformation into farm fields of plateau lands that once served as grazing areas. Such transformations are rarely the result of the sedentarization of pastoral communities (in the study zone), or requests from pastoralists. Beyond the geographic areas studied, a good deal of the shifts to crop cultivation in the pastoral zone is being carried out in land depressions, in high water table zones, and is small scale. Much of it is off-season gardening, in some cases involving the local pastoralist community itself, and in others, farmers moving north into these areas traditionally used as dry-season grazing by the pastoralists. The distinction is an important one because it invokes the issue of traditional tenure rights.

The reasons why this land-use shift is taking place are mostly related to the changing demographics of the pastoralist and sedentary farmer segments of society. Farmers are moving in as well because of the situation of the pastoralist groups, i.e., lower population growth rates, the importance of grain purchases to offtake practices in herd management and the local economy, and the lack of farming know-how among herders. Another reason, which several specialists have recently pointed out, is that pastoralists are now facing a labor constraint, and have perhaps faced such constraints in the past more than has been understood. The technical and ecological ramifications of this land-use shift have been discussed elsewhere in this report. The land tenure factor does, however, appear to be another rather acute issue which will indeed undermine the long-term sustainability of FFW/NRM land rehabilitation efforts.

5.2.2 Participant Perceptions

The CARE Galmi Project provided a useful opportunity to probe participant perceptions of FFW/NRM activities. The study team feels that participant attitudes and perceptions there are a useful indicator of the situation elsewhere. Some of the older women, perhaps because of their longer-term view of the resource changes that have occurred in the last 20 years, did anticipate long-term benefits of improved natural resource conditions.[40] The younger women among the worker group interviewed were less forthcoming. Since the construction of the dam in 1980, the older women have seen nutritional and income benefits accrue through household participation on the irrigated perimeters; perhaps younger women are less aware or predominate in other households. Women had the perception that the hillsides would eventually become arable farmland. However, their particular access to such lands was unclear as is the real productive potential of such lands for agriculture. The women interviewed did anticipate gaining access to some of the rehabilitated lands for a cooperative garden.

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[40] The perceptions among male participants has not been discussed in detail here. Since they represent a small percentage of participants in FFW/NRM activities, their participation and its impact are covered elsewhere.

The Galmi Project had not gone on long enough (two-plus years) for farmers (men or women) to notice significant changes (less silt) in the irrigation system that the watershed work is aimed at protecting. Indeed, in the years since the project started, irrigation potential has been much more affected by poor rainfall failing to fill the dam to capacity than, if at all, by siltation in the reservoir. On the other hand, increased soil humidity and vegetation in the area of the perimeter (resulting from the dam) were clearly appreciated.

The women were asked if they had planned for a future without the project, whether they had ideas of how they would survive without FFW, and if they had increased investment in income-generating activities (some did have individual gardens). The women were almost unanimous in their response that they tried when possible to invest in small ruminants. It should be noted here that the project has as one of its objectives the production and harvesting of fodder. Currently, grazing is prohibited in the treated areas. This is an interesting correspondence of project purpose and local intention, and may represent an opportunity for promoting and encouraging post-project maintenance.

Women stated they had given up the production of calabash covers since beginning their participation in the project. They identified this as a time constraint. Women had reorganized household labor so that family members rotated between NRM work requirements and home work requirements. The greatest labor bottleneck appeared to be at the time of tree-planting, when demand for family farm labor is paramount. However, the ongoing tasks of maintaining the recuperated lands would presumably not be as labor intensive.

5.2.3 Replicability and Social Sustainability

Women make up more than 60 percent of the labor at all the projects visited in these FFW/NRM projects. Women interviewed at the CARE project at Galmi provided some insight into the problem of replicability and social sustainability. They had not yet received any direct natural resource benefit from their labor, other than the possibility of utilizing some small patches of land in a ravine land that was being treated near the protected hillsides. On the other hand, all of the women said that they needed the food badly. In their view, they would have needed the food with or without the extra output of labor that the project required. This raises the question of whether, if there were no food aid, the women would physically be capable of sustaining the maintenance of the works achieved. In this and other cases, it appeared that some communities are suffering a "structural food deficit."

The sustainability of NRM activity will be dependent, in such cases, on the impact of those activities on food production or income production, or the broadening of NRM focus, to include more direct intervention on in-use household plots. Public works that have long-term benefits, but which do not address local food security in the shorter term (beyond the distribution of FFW), may not be sustainable without FFW due to low food production, undeveloped local market linkages for grain, and weak household purchasing ability.

5.3 Technological Issues

Technical know-how and experience are the common denominators among the organizations, projects and staff currently implementing food-for-work natural resources rehabilitation efforts. As such, any presumption of evaluating this dimension, especially as the result of such fleeting visits, must be heavily tempered with modesty. Here again, however, it is perhaps the contrasts between project

approaches, rather than a detailed understanding of the technological underpinning of each, which prompts many of the remarks which follow.

5.3.1 Choices of Technology

Markedly different systems of soil and water conservation engineering are being applied on similar sites by different projects. In both Galmi and Salama project areas, CARE is promoting the use of dry rock walls along the contour with trees planted on either side of them to slow runoff from the barren rocky slopes. Just to the east of Galmi, in the *Arrondissement* of Madaoua, the Tarka Valley project is using a trench system with trees planted on a saddle in the center of the trench with the same objective. The Keita Project uses the same trench technology. Both systems are highly labor intensive. The dry rock walls are constructed at the rate of approximately one linear meter per day and at an average spacing of 10 meters between walls, amounting to approximately 900 linear meters and/or person days per hectare. The trench system uses trenches 4 meters wide with one meter in between, and 3 meters between lines of trenches, which would yield approximately 660 trenches per hectare. The trenches, according to project personnel in both Tarka and Keita, are constructed at the rate of approximately one per day, meaning 660 person days per treated hectare.

The CES/DRS practices in Galmi, the Tarka Valley and Keita are clearly helping to restore the vegetative cover. It should be noted, however, that it is unclear as to whether this restoration of the herbaceous/grass stratum (in contrast with the planted trees) is more the result of grazing prohibitions than from the on-site effects of soil and water conservation engineering. At Galmi, it was evident that protection plays a big role in this vegetative recovery. Observations of small cut-out areas within the treated areas, where CES/DRS was not practiced, showed little, if any, differences in grass cover. This implies that the same level of restoration of the vegetation would have been possible with less intensive treatments.

The trenching technology is more effective than dry rock walls in terms of stabilizing the site. Behind the rock walls, even on the sites treated two years ago, there is little evidence of soil buildup, possibly because the walls are too porous to trap the eroding silt. With the trench system, there may be some accelerated erosion during the first year because of soil disturbance, but it is likely that the translocated soil winds up in the trenches below each mound. The CARE staff argue that the impluvium between their rock walls may ultimately be reclaimed for agriculture; this is a dubious proposition given the slopes and the soil condition[41]. Standardized reporting formats with agreed measures will be essential if useful comparisons and technology-choice decisions are ultimately to be made.

5.3.2 Economics and FFW/NRM

A related issue concerned with the choice of technology is that of whether indeed such intensive treatment measures are necessary and justifiable from the economic point of view. The most successful soil and water conservation projects worldwide have been those that have continuously sought to reduce the overall costs of the investments related to land rehabilitation, especially where truly marginal lands were the target areas. In certain instances, the least-cost/largest-scale soil and water conservation and vegetation rehabilitation impact may be achieved by simply protecting the sites from fire, grazing and

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[41] This team had no way to verify the treatment figures it was given, and it would appear that there are as yet many reporting distinctions and discrepancies, which make comparisons difficult.

cultivation. In many areas, there may be no real need to invest in soil and water conservation works beyond protection because the marginal nature of the resource base is such that they should not be put back under exploitation, but rather serve as catchment areas.

Will, for example, the expected best-case scenario regarding returns from either the trenching or dry rock wall technology; i.e., improved fodder resources, additional fuelwood (from the tree plantations, harvested on a coppice system) and the downstream effects of controlled runoff, justify the investments? The labor investment alone during the first year using FFW for each of the two technologies discussed above would be as follows:

Rock walls: 900 person/days @ FCFA 400/day = FCFA 360,000/ha.

Trenches: 660 person/days @ FCFA 400/day = FCFA 264,000/ha.

Using the estimated WFP costs of the rations, i.e., U.S.$1.91 (WFP 1991a) or FCFA 477/day, to calculate the amount actually invested per hectare would raise these figures even more. If the project were forced to pay a cash wage at the current average daily rate for unskilled wage labor (approximately 750 FCFA/day) or the SMIG (800 FCFA/day), these figures would double.[42] It should be further noted that none of these calculations use the "real costs" of food aid, i.e., including the prices paid to the farmers in the producer countries, transport to the recipient countries, internal shipping and handling costs, and the costs associated with the administration and management of these programs and projects.

While it is often possible to "push the envelope" vis-a-vis land-use practices on poorer lands through the introduction of improved technological packages, there is a limit to what can be done. There must also be a recognition that many of these soil and water conservation practices are very labor-intensive, thus raising the cost of the investment (and in the Sahel, the risks) for the farmer and for society as a whole. These investments must either be paid for in the marketplace or compensated for elsewhere in other ways, e.g. FFW (incentives and subsidies). Linking the downstream or off-site effects of land degradation, whether they be physical (flooding or siltation) or social (the influx to the cities of rural refugees), can assist a nation to carry out a meaningful cost/benefit analysis of conservation incentives. It may also identify the real beneficiaries of conservation efforts and part of the source of the investments required.

FFW experience in Niger is very much related to projects undertaking public works for land rehabilitation, and providing food and income to the poor and the hungry. Another vision of food aid that has been used successfully elsewhere is the approach which views food aid as a buffer against production lost to the farmer as the result of deliberate efforts to change land-use practices. In some cases, food aid for production tradeoffs is justified because the site alterations (eg. terracing) have a transitory negative effect on production. In other cases, the labor required to install new techniques

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[42] These ball-park figures do provide a sense of the order of magnitude involved in land rehabilitation investment needs in Niger. Consider the following example: 1 percent of the 35 million hectares of arable land in the country were degraded and required such treatment, i.e., 350,000 hectares. At the rate of $1000 per hectare (below the CARE or Tarka/Keita rates mentioned above), the wage bill alone would amount to $350 million. For a different view of this vital cost/benefit analysis, see Shaikh's work in the technical annex for the ASDG II PAAD (USAID/Niger 1990), noting, however, that he uses lower costs than this study and others (eg. Rochette 1989) believe apply.

draws from the labor pool ordinarily required for food production. In yet other cases, the food aid is justified, as mentioned above, as an investment for the expected alleviation of downstream impacts. It might also simply be tendered as insurance from the risk of trying new production technologies proposed by the project.

It seems evident that more extensive and inexpensive methods must be found to treat land, even if large amounts of food for FFW remain available. To this equation must also be added the question of the pace of rehabilitation. It seems unlikely that the current rate of achievements is even approximating the rate at which degradation is taking place and lands are being abandoned. In the Galmi project, even the dedicated staff of CARE have only been able to treat 500 hectares in the last five years, in a watershed area of 4700 hectares.

Are soil and water conservation engineering works effective in controlling wind erosion in productive fields? Probably not; more attention is needed to soil and water conservation measures which protect the agricultural fields from wind and water erosion, and fertility loss. One could envisage continuing emphasis on conservation farming, for example, the "Zai" or "tassa" (micro-basins) approach used traditionally and being promoted by some projects. Other measures are also needed: no-till agriculture, improved crop spacing, windbreaks, live fences, fodder banks on land that should not be cultivated, green manure with leguminous creepers, intercropping, compost pits, vegetative erosion control barriers (such as Andropogon planted on contour bunds across the field, which could form the basis for a cut-and-carry fodder production system). Although the team did not have an opportunity to delve into the use of these techniques, it is well know that many are being tried on agricultural development projects throughout Niger. A wider variety of these techniques is not employed in the projects visited doubtless because, in part, they would complicate the traditional approach to FFW/NRM involving a simplified work allocation/food payment formula and its administration.

Parallel to the issues raised about planning and technology choices is the need to model the impact of marginal incremental increases in soil organic matter content or soil fertility on productive fields and production, and in terms of vulnerability to drought-induced hunger. In watershed management, one follows the water. Soil conservation engineering works on the upper slopes of a watershed is the logical place to start, as it is essential to control runoff and promote infiltration to deter damage from flooding, siltation and erosion on the lower portions of the area. But what about protecting and improving productive fields? Changes in land-use from population pressure (more fields/less fodder resources) means less "new" land for cultivation and less fodder available around these areas, therefore, less manure for field amelioration and more demand for utilizing crop residues. Can/should the food-assisted natural resource management projects not be trying to break this descending spiral of degradation in other agricultural improvement and extension projects operating in Niger?

6. CONCLUSIONS AND RECOMMENDATIONS

It is hard to justify drawing a large number of conclusions and recommendation concerning the linkages between natural resources management and program food aid on the basis of so brief a study. Then too, the extant literature on the subject is meager. The study team has been very cognizant of the fact that their efforts constituted an initial attempt to identify and trace these linkages.

Despite this situation, the team feels strongly that there is sufficient reason to believe that serious problems exist, both in the overall conception of these projects and in their day-to-day implementation. Real impact, cost effectiveness and long-term sustainability are still elusive goals in projects using FFW to carry out natural resources management activities, although, and this is important, they do not necessarily have to be so.

The conclusions and recommendations which follow are arranged according to their relevance to particular aspects of sector endeavor. Many of them overlap, but for the sake of presentation, they have been disaggregated herein. As the reader will note, recommendations are not tendered in every discussion area below.

6.1 Policy Concerns

Several issues which should be of concern to both donor and recipient country policy-makers arise in the context of this study.

6.1.1 Food Aid: Donor Prerogative or Recipient Choice

The general legislation authorizing food aid underscores the basic notion that it is intended as a transient way in which to fill a development need. The long-term goal of food aid projects is to "work themselves out of a job." While there are many reasons to suppose that implementors of food aid projects are sincere in this tenet, the nature of food aid itself raises the issue of how realistic this is. Project food aid is generally supporting of activities that will not or cannot be sustained in the absence of food aid. Donor countries have vested interests in continuing to find outlets for surplus food and for using food aid as an inexpensive political tool.

Presently, the literature on this topic conveys a deep-seated concern and serious reservations about food aid and its contribution to development. Many development programs are criticized as being "donor driven" because, in part, host countries, particularly in sub-Saharan Africa are still struggling to build the personnel and institutional capacity for defining and guiding their own development agendas. Dramatic changes in governance, policy reform, and structural adjustment conditionality are currently impacting development assistance programming. In many of the countries where this evolution is taking place, again in particular in sub-Saharan Africa, food aid remains a major element in the donor-host country relationship.

The very tangible and direct returns to donor countries resulting from food aid consumption of surplus commodities and the political leverage such aid entails begs to be examined with the same critical viewpoint. Changes in the thinking about the purpose, role and applicability of food aid are underway; the findings of this study suggest that these changes must be continued.

Recommendation: A deliberate and concerted effort by the donor community to examine its own motivations for providing project food aid would be a meaningful and parallel commitment to the macro-level changes in socio-economic development strategies being fostered so ardently among the recipient countries.

Recipient governments are being supported by and derive revenue from food aid programs. In the last two decades, project food aid has expanded in sub-Saharan Africa and more donors are willing to provide it, adding to the burden being imposed on the host governments. There are strong parallels between project food aid and the emerging dilemma of the "projectized approach to development," which has become a key theme of the international development community. This dilemma is undermining the ability of governments to establish their own national development strategies, policies and programs, and overwhelming the absorptive capacity for field implementation. Attempts at donor coordination are only just beginning to have some effect; in other countries, they are losing ground.

In Niger, government resources and funding are presently experiencing dramatic shortfalls and this poses real difficulties for the GON officials, who might otherwise resist offers of food aid assistance given recent sector policy guidance, i.e., the Principes Directeurs. To critically assess the contribution of food aid, in this case FFW/NRM, which is aimed at feeding hungry people and rehabilitating the degraded environment, would amount to "looking a gift horse in the mouth."

Recommendation: As the proliferation of projects and their impacts are likely to continue for sometime, and donor coordination (see discussion below on NRM sector coordination) slowly develops, it is recommended that the GON and its donor partners take steps towards rationalizing the present project food aid situation in-country by strengthening national capability to program and monitor food aid initiatives. A small unit for these purposes might be set up as part of the Ministry of Finance and Plan.

6.1.2 FFW/NRM and the *Principes Directeurs*

Projects carrying out natural resources management activities through FFW fly in the face of the sector priorities contained in the *Principes Directeurs*, which underscore the decision to promote popular participation and disengage the state as the prime actor in sponsoring and funding rural development.

The predominantly quantitative character of FFW/NRM activities and the urgency to rehabilitate the land on which project sites are located, recalls the debate of years past about the degree to which reforestation could or should serve as the spearhead in the "fight against desertification". At that time, the misgivings about large-scale plantations and the state-mandated village forestry programs centered on the need to actually plant trees versus creating the conditions that would induce rural people to plant them. There are some parallels, worthy of reflection, between the situation then and the determined efforts to carry out CES/DRS in the projects using FFW/NRM approaches now. In the view of this study team, FFW/NRM seems a distinct throwback to the olden days of the "fight against desertification."

Recommendation: GON sector authorities and the concerned donors should carefully examine the present FFW/NRM projects and operating methods from the perspective of the priorities established (and endorsed by the resident donor community) by the *Principes Directeurs*.

In a similar vein, the third element of the *Principes Directeurs*, related to GON Food Security Strategy, is emphatic about food aid. It recommends:

- "*Un recours le plus restrictif possible a l'aide alimentaire et a la distribution de vivres (gratuite ou contre travail*" (most restricted recourse possible to food aid and the distribution of food [free or for work]);

- "*L'injection de revenus et de credit dans le milieu rural sera par contre consideree commen un moyen privilegie pour permettre la transformation des systems de production et la diminution de la dependence alimentaire des populations*" (On the other hand, the injection of income and credit into the rural sector will be considered as the preferred means for promoting the transformation of production systems and the decrease of the food dependency of the people).

Recommendation: Here again, the present FFW approach needs to be carefully reviewed in light of these very explicit guidelines. Also to consider is whether it is, in fact, contributing to the achievement of long-term food security in rural Niger.

6.1.3 Degradation Marches On

Despite the equivalents of millions of dollars in food being used for land rehabilitation under the FFW/NRM approach, and the thousands of treated hectares, the overall judgement of this team is that little impact is being made in slowing the degradation processes, much less reversing it. The apparent policy decision to emphasize the investment of these food resources on abandoned "common" lands does little to counter the degradation, which is continuing unabated on the fields and farms throughout the country. In fact, it may even be providing an illusion of halting degradation while the process, in fact, continues, driven by the food needs of an expanding population desperately trying to eke out an existence on an increasingly marginal land base.

Present efforts applying the watershed concept, i.e., starting at the top of the topographical sequence, are correct. If FFW/NRM activities on these degraded common lands are to continue (and the study team believes they can be justified because of their downstream benefits), more effective and less intensive and costly techniques (see discussion below) must be found to widen the impact of these projects across the national territory. The approach, however, must follow the water downslope and amplify their treatment impact on the productive lands below. While this may prove to be a slower process, it is likely to be more sustainable.

Each of these efforts should be linked directly to a more holistic approach that embodies the full array of agricultural improvements, agroforestry, field level soil and water conservation techniques in an affirmative, farmer-focused extension program in the area of influence. Meaningful impact can only be achieved by getting the farmers themselves in large numbers fully involved in slowing and reversing the processes of degradation. Improving the supply of agricultural inputs and credit, and enhancing market outlets, will also be important. Many of these approaches are already being tested and implemented in other projects throughout the country.

In certain instances, for example, where farmers face risks associated with developing technologies or trade-offs from applying soil and water conservation, food aid could be considered as a possible incentive to avoid hardships or to ensure near-term food security until more sustainable production systems take effect. It should be noted, nevertheless, that across the Nigerien landscape, there are countless farm households whose land holdings are simply too small or too marginal to allow sustainability to take hold. Unless this can be done, there is a very real chance that the present approach is only shifting the pressures elsewhere and postponing the final reckoning.

Recommendation: Less intensive treatments must be found for land rehabilitation on degraded upland areas. The present food-assisted, large-scale projects of this type should be restructured to ensure that their efforts go hand-in-hand with promoting sustainable farming practices on the active farmlands within the targeted watersheds.

6.1.4 Range Lands or Farm Lands

A good deal has already been said in this document about the apparent contradictions implicit in the decision to favor farmland development over rangeland in Niger. FFW/NRM land rehabilitation efforts may be adding to rather than alleviating the pressures for grazing resources in the agro-pastoral and transition zones. Protection of rehabilitated uplands, the imposition of cut-and-carry fodder systems, or the conversion of degraded former grazing areas to agriculture, are limiting free range. Some segments of society (pastoralists and women) may be disadvantaged by these approaches unless counter-measures (eg. herd improvement and management or community-brokered, prescribed grazing rights) are put in place. The matter is serious enough, in the opinion of the study team, to conclude that it merits careful scrutiny. In any case, the FFW/NRM projects do not seem to be contributing to the resolution of the present conflicts involving the pastoral peoples of this country.

Because of the ethnic and political origins of these conflicts, there will be no easy solution to these issues -- certainly not ones directly dependent on how food aid is being used for natural resources management. Several of the projects visited, however, have plans to expand their activities further north. Hopefully, these plans will come to fruition, although it should be noted that past efforts at rural development in the pastoral areas have tried many approaches with only limited success.

6.2 Strategy Matters

The CILSS recently promulgated a Food Aid Charter, the basic tenets of which are to strive to avoid the dependency syndrome and to actively seek to make it more development-oriented. The following section considers part of the strategy related to how, in situations where it has been decided to continue to utilize food aid, it could be better geared to meeting the described important goals.

6.2.1 Food Aid as a Development Resource

Food aid as a development resource is poorly understood in Niger. The true costs of such aid are unknown. On the one hand are the costs paid to the farmer-producers in the donor country and the shipping costs to the port of entry of the recipient country. These costs are typically born by the donor. On the other hand are the internal shipping, the handling of food deliveries, and distributions and the administrative and managerial costs of the programs themselves. Increasingly, recipient countries are being called upon to absorb the latter costs in one way or another. Although food purchases by the donor are traditionally funded outside the development budget, shipping and other administrative costs are tapping funds that might otherwise have reached the recipient country in the form of cash transfers or project assistance.

At the conceptual level, there has been very little cost/benefit analysis of FFW-funded interventions and no such analysis using the full costs of food aid mentioned above. In general, where FFW is used, one gets the impression that the labor amounts are greater than they would be if cash had been used to pay the workers. This suggests that food aid is being taken for granted, a condition that

is almost always a flaw in the fast-changing situations of a development effort. Other individuals, including both project field personnel and workers view food aid as a second-class resource. With the best of intentions, they all too frequently adopt aberrations to the accepted work day/task to food ration norms, thereby further increasing unit-wise investment costs. In other situations, if cash were required for paying labor, there would be radical changes to the way things are done and many projects would not be carried out at all.

Recommendation: There is a particular need for Nigerien personnel to become more familiar with the full implications of the food aid system, particularly in the case of FFW projects. Responsible food aid programming without a complete understanding of the full costs of such aid is impossible. The study team would propose that WFP/Niger, given its central role in FFW activities, undertake an informational cum training seminar series for Nigerien -- and in some cases, expatriate -- project personnel to enhance their capability for cost/benefit analysis as part of FFW/NRM projects. Individual studies for particular projects or general program thrusts (i.e NRM amelioration) to determine the costs vs. the improved practices or project outputs should also be conducted.

6.2.2 Avoiding Unfortunate Precedents

FFW/NRM projects are currently setting unfortunate precedents, which the country will find difficult to reverse in the future, particularly with respect to popular perceptions of these endeavors. They include: extremely high investment costs on marginal lands; inculcating the notion that soil and water conservation means food aid or jobs; only ephemeral efforts at real participation; the inequities of the gang-labor approach; and reinforcing the belief that land rehabilitation is the purview of the state.

6.2.3 The Need for Coordination

The need for better coordination in the natural resources sector has been raised as a major issue in Niger and elsewhere in the Sahel. The situation as regards FFW/NRM is much the same -- uncoordinated efforts happening throughout the country. The challenge of implementing these projects which involves large areas to be treated and massive quantities of food aid to be delivered annually, seems to have even inhibited communication and interchange between companion projects.

FFW/NRM projects are rarely controversial in the donor capitals of the world; they feed people and green the landscape. It appears that they have been identified and approved with less rigor than other initiatives funded with hard currency. FFW projects also share the deep-seated problems of the projectized approach to development with those of cash-funded projects. These include: proliferation of projects, lack of donor coordination, different administrative arrangements, differing extension methodologies and varying levels of technical support.

Experience has shown that the need for coordination often evoked in development circles remains a very challenging objective. Coordination can and must begin with greater communication among similar projects, thus leading to some cooperation and eventually to a more programmatically appropriate atmosphere for genuine coordination.

Recommendation: The analysis of FFW/NRM activities should be added forthwith to the present agenda for donor coordination related to sector development in Niger. Because of the commonalities of their models, an interchange of experience and lessons learned would doubtless be a fruitful exercise for all concerned.

6.3 Operational Approaches

In addition to the policy and strategy concerns about FFW/NRM, requiring the input of decision-makers, there are also a number of operational issues within the purview and time frame of the present projects.

6.3.1 Delinking Food Aid as a Payment

One of the most disconcerting aspects of the projects visited is the sameness of their approach to the use of food aid. Almost all have chosen the tired, old, and somewhat paternalistic approach of FFW, i.e., local people work for the project and are paid with food rations. This approach is perhaps justifiable at the outset, however, given the long history of food aid in Niger, new approaches which better engage local people in a genuine participatory, problem-solving development effort must now be further explored. Among the options: distributing food on the basis of need in the participating villages without regard for worker participation (attempted in the GTZ project in Tillabery Department); creating community-based and managed revolving food banks; and linking food distribution to the joint pursuit of project/community objectives (see Appendix C for more alternatives). Creating and motivating self-reliance and community institutions to resolve problems is a development goal that overshadows physical interventions and will outlast them.

Recommendation: The GON and its donor partners should challenge on-going projects to make a real commitment to diversifying their food aid approaches. They should be expected to employ community development specialists sensitive to the needs and aspirations of rural people, who can begin and/or carry forward the dialogue about future options.

6.3.2 Genuine Participation

Directly related to the need to reconsider food aid approaches are the issues of enhancing popular participation in land rehabilitation, and in soil and water conservation. The projects visited seem like archaic throwbacks to an earlier age, especially in light of the numerous, more up-to-date NRM projects active throughout Niger. Here again, the emphatically quantitative nature of these FFW/NRM activities seems to have stifled their evolution in terms of the state-of-the-art of NRM in the country, both in terms of participation as well as technical advances (see discussion below).

The key to a genuine participatory approach to development lies in the extension/outreach program it adopts to work with the target population. The present arrangement and the mentality associated with the *chantier* approach do not seem conducive to achieving participation goals. The *chantier* approach also has implications for sustainability. By working more closely with rural people, projects can help to re-establish the community consensus about use prescriptions that will be necessary to meet the long-term maintenance costs of the treated areas.

Recommendation: Niger's rural labor force is one of the few resources the country can tap in abundance; it makes little sense, nevertheless, to invest it poorly in ill-conceived activities. Every effort to ensure that workers become participants will be essential to the future success and adaptation of FFW/NRM in the country.

6.3.3 Vital Need for Sound Land-use Planning

The natural resources sector in Niger is badly in need of sound land-use planning capabilities and tools. Much of the existing information is out of date; little is available or understood at the field level. This situation has dramatically affected FFW/NRM activities. Serious questions about their scope and scale of investment need to be addressed. Can the nation afford, strategically and economically, to invest $500/hectare in highly degraded lands of inherently low-resource limitations? Any new attempt at land-use planning in Niger, however, must start by pulling together the existing maps and studies.

At the level of on-going projects, discussions with participants about land-use problems and opportunities would serve as a vehicle and be a useful starting point for enhancing the participatory nature of FFW/NRM. Ultimately, brokered collective agreements at the community level to adopt current use practices, on both degraded areas and active farm lands, to realistic land capability assessments will strengthen the sustainability of these interventions.

Recommendation: Compiling up-to-date land-use and capability data and information should be a near-term priority for natural resources sector development in Niger. It will, however, take time. In the interim, it is recommended that on-going FFW/NRM projects begin mini-exercises along the lines of the *gestion terroir* model now being actively pursued in the country, with a view to improving both the choice of interventions as well as genuine participation.

6.3.4 Emphasizing Sustainability

The present high unit costs of FFW/NRM activities remains a critical constraint to the long-term sustainability of these interventions as a viable sector development strategy in Niger. The sustainability of the present activities, however, can also be called into question from many angles: social, institutional, ecological, technical and economic.

Recommendation: Because the issue of sustainability can be so easily challenged by the unknowns of even the near-term, projects should adopt very pragmatic approaches. Among the tangible objectives related to the sustainability of FFW, the following should be considered as starting points: ensuring arrangements for the maintenance of existing treated areas; instituting more monitoring and evaluation in conjunction with cost/benefit analysis; creating local problem-solving capabilities by organizing project participants; and revitalizing the soil and water conservation for farm lands extension components of existing projects.

6.4 Technical Needs

The techniques now being employed for natural resources management in Niger have come a long way from the once popular view that saw reforestation as the solution to degradation. The country is a leader in the Sahel in terms of promoting and implementing innovative technologies, such as agroforestry, natural forest management, improved dryland farming practices, soil and water conservation, and more recently, farmer-managed, natural regeneration of protective and productive tree canopies in farm fields. Unfortunately, too few of these innovations have found their way into FFW/NRM projects.

6.4.1 Technological Choices

The choices of technical treatments for land rehabilitation using FFW in Niger are among the most intensive being practiced worldwide. Only bench terracing might be more intensive. This must be contrasted with the dubious benefits, whether protection or production functions, which can or should be expected of these lands once they are "rehabilitated". Dry rock walls and trenching have been chosen because, according to several informants, they are considered more likely to have low maintenance requirements. Projects are trying to "people-proof" their interventions. This implies a rather fatalistic resignation to an inability to assist local people to organize themselves and broker the use/conservation methods and tradeoffs compatible with the carrying capacity of the land.

Such a posture is untenable; its outcome is impossible to accept. That people can and will eventually resolve these situations is evident; they do so everyday in meeting the demands of living together in society. What is needed includes: assistance to treat some areas (justifiable because of the social and ecological off-site costs); the policy and administrative framework, which will provide the authority needed to enforce collective decisions; and, the wherewithal to raise their own productivity through investment and its returns on their own best lands.

New and less expensive ways to treat the severely degraded uplands and slow run-off -- as one part of the conservation picture -- thus protecting lowland farms, might include:

- protection alone, or in conjunction with any of the things listed below;
- more modest soil and water conservation engineering works, such as sidehill ditches or individual water catchment terraces;
- vegetative means of protecting and rehabilitating these sites, including direct seeding of local species, leguminous creeper cover-crops, live hedgerows on the contour, vegetative bands, and strip crops such as Andropogon spp. grasses.

6.4.2 Cost/Benefit Analysis is Essential

There is little evidence that anyone has been carrying out cost/benefit analysis of different soil and water conservation practices currently being used in the FFW/NRM projects. Because of the accounting requirements associated with food aid distributions, assembling labor data should be relatively easy. Estimating benefits may be more difficult because of the some of the intangible values affected. There are several recent studies available in and applicable to developing countries, which deal with the off-site costs and benefits of soil erosion.

Recommendation: Cost/benefit analysis is needed at every level related to FFW/NRM in Niger: for specific interventions and their outcomes (the micro-level); in considering alternative treatment strategies for area development (the macro-level); and, at the program-level for studying the role and impact of FFW as a sector development strategy option. It is recommended that a donor not currently participating in food aid be requested to commission such a study. At the country level, improved monitoring and

evaluation systems should be the starting point for compiling the data essential for this analysis. Parallel efforts at improved record-keeping are also necessary.

6.4.3 Research and Demonstration

Personnel at the field level were consistently unable to explain the technological origins of the soil and water conservation practices they were using. The contrasts in technology used by different projects operating on similar terrain is remarkable. Additional research and demonstration will be essential for the future development of soil and water conservation technology in Niger.

Recommendation: Much is already known about soil and water conservation, and land rehabilitation and improved farming techniques in Niger. As a starting point, the major FFW/NRM projects could be called upon to jointly finance the development of an up-to-date manual on these techniques. In all cases, small demonstration sites should be incorporated into the project activities to serve as living laboratories and training sites for personnel and participants. More control plots are needed to compare various techniques, especially the potential for achieving rehabilitation through protection only. Simplified soil transport studies would be preferable to the more costly soil erosion and runoff plots in gauging the effectiveness of different techniques. Lower-cost revegetation techniques, including direct seeding for highly degraded areas, should receive priority attention.

6.5 Next Steps

Despite the intrinsic focus on "change" in the nature of development projects, changes in approaches, techniques, and operational strategies come slowly to the development community. This should not be surprising. There are many players, models, experiences, and opinions involved in determing what should be done, not to mention a backdrop of largely anecdotal evidence that the present approaches are not working. One of the most disturbing repercussions of the "projectized" approach is an almost institutionalized inability to reach consensus on what works and what does not. There are certainly elements of this condition in evidence among the FFW projects in Niger today.

The case of the difficulties with food aid, however -- and, if this study is to be taken seriously, with FFW/NRM in Niger -- are compelling. Although the conclusions and recommendations above suggest a course of action, the team feels, in all professional modesty, that their six-week study will be insufficient to realistically guide future actions. To suggest otherwise would trivialize the gravity of the concerns raised herein.

The issues surrounding food aid are complex, the rhetoric sometimes quite heated. In Niger, however, there is an opportunity for some focused and continuing dialogue and action on food aid, as it relates to natural resource management, because of the level of collegial and cohesive interchange already taking place in the sector. This is an opportunity which should not be missed. The following ideas for follow-up are suggested in that context:

- An informal GON/multi-donor forum or working group should be formed to sort through the concerns expressed in this report and others to establish an agenda for action. The group could begin by reviewing and critiquing this report and deciding what, if anything, is of importance to the improvement of the ways food aid is used in Niger.

- Although USAID is not deeply involved in FFW/NRM, the U.S., through its relief aid and its contributions to WFP, is the major food aid donor in the country. USAID/Niger will have the capability and motivation to address certain of these issues because of its new Disaster Prevention and Mitigation Program. It should earmark some of the resources of this program to support the workings of the group mentioned above.

- USAID Missions in general should ask AID/Washington, and in particular the Office of Food for Peace, for further guidance about the "real costs" of food aid and the changing considerations essential to effective food aid programming.

- WFP is the major operational agency providing the food being used for FFW projects related to natural resources in Niger. In addition to the specific recommendations about its role in the sections above, it should seek funding for program support needs in order to be able to contribute to the dialogue and action that will be necessary.

- Many of the questions found in Figure 1.1 of this report, which were taken from the original scope-of-work for this study, have not been definitively answered and remain worthy of inquiry. Not all of them can or need be answered in order to begin making significant improvements to the understanding of the appropriate role and importance of food aid for natural resources management in Niger. Among the most important areas of inquiry are those related to: people's perceptions of food aid, and of FFW in particular; the issues constraining the practice of known natural resources management prescriptions; the factors used for the design and planning of food aid projects; and innovative techniques for using food aid to meet both food security and natural resources sector objectives.

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APPENDIX A

APPENDIX A

SCOPE OF WORK

Natural Resources Management and Program (i.e., Non-Emergency) Food Aid in Niger: An Initial Analysis of Linkages

I. Purpose:

The purpose of the APAP II study described in this scope-of-work is to: (1) explore and, to the extent possible, establish the linkages between natural resources management (NRM) and non-emergency or program food aid (NEFA or PFA); and, (2) examine the sustainability of NRM interventions implemented with PFA.

The expected outcomes from this study are: (1) quantitative and qualitative assessment of environmental change over time in the study areas, with a comparative understanding of PFA and non-PFA sites; (2) conclusions on whether physical changes due to PFA (a quantitative output) are recognized and internalized by residents (a qualitative output); and, (3) identification of how development interventions can maximize the objectives of both NRM and PFA, (e.g., what works and what does not), quantitatively and in the eyes of the residents.

II. Background:

Most analytical studies of food aid programs examine their impacts on macroeconomic performance, the policy environment, nutrition and consumption, government and donor programming, income, employment, welfare and/or production. Yet, within this broad net, there is virtually no mention of the relationship between program food aid and natural resource management or environmental degradation/ rehabilitation per se. Considerable attention has been focused on whether or not PFA has created a significant disincentive to agricultural production. Not considered is whether production should be pursued at all on marginal lands in areas where large quantities of food aid are provided on an annual basis, and whether the existence of such aid keeps populations in areas where the natural resource base is and will remain inadequate to support a bare minimum of their basic agricultural production needs over the longer term. This is important since farmers' coping strategies (seasonal migration, off-farm activities, etc.) under such conditions may result in lower income in the short-run, thus increasing their overall vulnerability.

Such analysis also fails to consider that land degradation may be "moving north" with millet cultivation and the concentration/ transfer of cattle ownership rather than the more generally held view that degradation/desertification is "moving south."

Likewise, although considerable information exists on NRM programs and conditions in Niger, the literature does not look specifically

at the extent to which PFA may have contributed to either the degradation or rehabilitation of the environment and natural resource base. Consequently, there is speculation but little firm information as to what the nature of these relationships are. Without this knowledge, donors and the GON run the risk of pursuing programs in both NRM and food aid that do not positively reinforce one another.

This is not to say that food aid programs cannot co-exist with programs that seek to improve the natural resource base on a sustainable basis. In principle, food aid can lead to better programming in support of natural resource management by increasing fiscal resources available for such programs or encouraging better use of resources, thus increasing production, incomes and food consumption over time. For example, an increasingly common incentive available for NRM projects is Food For Work (FFW), where villagers undertake community development work in exchange for food. This incentive works best in villages with seasonal under-employment, and where specific conservation-oriented activities can be undertaken. It can provide motivation to work on conservation projects, especially if the community already has indigenous institutions which can recruit the labor, identify the priority tasks to be undertaken, supervise the work, and distribute the food. However, examples of FFW leading to <u>sustained</u> local-level NRM appear to be few and far-between. The team should consider the full range of donor programs that provide food to villagers in the areas studied, and what the impacts have been <u>vis-a-vis</u> NRM.

This study will attempt to break ground in articulating the nature of NRM/PFA linkages, and how this knowledge can work to the benefit of those development practitioners who work in either or both of these areas. In particular, the study should provide some guidance that can be applied to programs in both of these areas.

III. <u>Scope of Work</u>:

A. Conceptual Overview of the Study:

Man-environment interaction essentially provides the theoretical core of the work undertaken in both NRM and PFA activities. The problem to be studied here, in the broadest sense, can be stated as follows: The presence of human beings affect their environment. The results of this presence can be considered negative, positive or neutral, and can vary depending on the socio-economic level of the party affected. Negative effects are to be avoided. The policy question stemming from this problem is thus: How has man's presence caused changes in the environment? To what degree are these changes positive (to improve well-being) and for whom? To what degree have these changes resulted in negative impacts on life and well-being? The focus of interest in this study is that development assistance is intended to provoke, permit, or encourage positive adaptations to the environment. Has this assistance been effective? Has it countered other negative impacts of man's

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presence? Has it fostered and supported positive adaptations? The subjects of interest to this study, NRM and PFA, have been tools used for development assistance efforts to provoke positive environmental adaptations. How effective has this assistance been when undertaken in the same project area? It is hoped that the team's responses to the specific questions listed below will contribute to our understanding of these broader conceptual concerns.

B. Issues/Questions to be Addressed:

The team leader will arrive two weeks prior to the other team members. During this two week period, s/he will work with ADO and possibly CARE to collect and analyze quantitative data needed for the study (status of environment before development interventions in such areas as run-off, erosion, devegetation, soil/geomorphic changes, occupation changes etc.), and qualitative data (investigation of perception of change in environment in general and at area of interest (food aid use sites).

In addition, s/he will collect data that will answer the following questions: (1) What has been the area covered by food aid projects compared to the whole area under study? (2) How much food aid has been used (yearly average); how many people are believed to have received food aid and how do these numbers compare with study area food consumption averages and populations? (3) What external inputs, other than food, have been provided to the study areas? (4) Can a selection of sites be found covering different years - new, old and medium aged sites - all within the same environmental zone? (5) What kinds of assessments into environmental impact (and other impacts) have been done by the FAO, CARE, WFP, GTZ and others for their food aid related interventions in the Tahoua area?

When the additional team members arrive, work will begin to address the following two sets of questions:

(1) <u>Exploring and, to the extent possible, establishing the Linkages Between Natural Resources Management (NRM) and Program Food Aid (PFA)</u>: In areas of Niger where there has been the most food aid over time, to what extent has there been degradation and/or rehabilitation of the environment and natural resource base? To what extent can this degradation/ rehabilitation be attributed to donor-supplied food aid? What are the effects of the NRM/NEFA linkage on migration, both seasonal and permanent? What methodology can be used to rigorously explore the linkages between NEFA and NRM?

(2) <u>Examining the Sustainability of NRM Interventions Implemented with PFA</u>: There is a great deal of experience in Niger and elsewhere of using FFW to have people participate in NRM interventions. Has this work been valued enough by participants that they are willing and able to continue the work after the FFW program has been completed? Is FFW a disincentive to the sustainability of NRM programs over the longer term? What can be

learned from experiences where both food needs and NRM considerations both needed to be addressed?

This study will also examine the nature of the NRM/PFA linkages by trying to better understand villagers' economic decision-making and migration patterns. The following questions should be addressed to the extent they are useful in establishing linkages between environmental changes and food aid during the team's field visits:

(a) NRM/PFA Linkages as they Effect Economic Decision-Making: Given the environmental and production realities in areas of the country where food aid has been heaviest over time, to what extent if at all, and how should agricultural production be attempted in these areas? Where NRM techniques are not being practiced, what constrains potential users from adapting them? What other wealth-generating activities are available to/practiced by villagers that are potentially more profitable than agricultural production? How does the existence of a non-emergency food aid program influence the villagers' economic decision-making process? How do NRM concerns influence this process?

(b) NRM/PFA Linkages as they Effect Migration: To what extent has the existence of PFA programs in the study areas kept populations in regions of the country where the natural resource base cannot support them? If these populations were to leave, where would they go?

The main geographical focus of the study will be the northern margins of rainfed cultivation. In particular, the study will respond to the questions listed above as they apply in Tillabery and central Tahoua Department. In addressing these questions, the team will make use of several data sources, including data recently collected by the International Food Policy Research Institute (IFPRI) for a study on labor-intensive public works for food security. In addition, the team will examine some surveys that were recently completed by the USAID/Niger Social Scientist addressing villagers' perceptions of food aid.

C. Process

Each of the three team members (Team Leader/NRM Expert, Food Aid Expert, and Community Development Expert) will spend one week in Washington, DC prior to arriving in Niger. During this time, the team will be briefed by IFPRI regarding their field work here as well as the IFPRI data available to the team. The Food Aid Expert, in particular, should spend as much time as is needed to fully understand the data generated during IFPRI's recent field work here. The team should also review recent work of Asif Shaikh, especially his contribution to the AID publication <u>Opportunities for Sustained Development</u>. The team will meet with AID/W officers Ben Stoner, Mike McGahuey, Tim Resch, Al Smith (FEWS Project Officer - he can suggest appropriate FEWS contacts), Melanee Lowdermilk, Jerry Wolgin (AFR/ARTS), Patricia Rader (AFR/DP), Patrick Diskin (RD/EID/RAD), Mary Little (FHA/OFDA - Project

Officer to Famine Mitigation Activity), and S. Bender (Department of Regional Development and Environment, Organization of American States - contact FHA/OFDA Mary Little for the phone number), D. Songer (FHA/FFP/AFR) to discuss any related USAID experience in Africa as well as methodological issues and considerations.

The Team Leader/NRM Expert will spend a total of seven weeks in Niger. S/he will arrive in Niamey on or around July 1, 1992, to collect information and data sources relevant to the team's needs. This will allow the team to make more effective use of its time once the entire team is in-country. The remaining two members of the team will arrive in Niamey on or around July 14, 1992 for approximately a five-week period. The team members will be solely responsible for providing their own transportation, both in Niamey and in the field. They will spend their first day meeting with Mission staff, especially relevant contacts in ADO, GDO and PROG. The team will then spend several days in Niamey meeting with GON officials and other donors to collect information. The experience of GON officials at the Ministre de l'Hydraulique et de l'Environnement and the Ministre de l'Agriculture et de l'Elevage should be fully tapped. Next, the team will travel to the Departments of Tillabery and Tahoua for approximately three weeks to interview villagers, the GON and donors.

Following the completion of field work, the team will devote the rest of its time to writing the report in consultation with ADO according to the schedule below (see "Reports").

IV. Personnel:

This effort will require a team of three individuals, each of whom should be a senior-level expert in his/her respective area, with extensive professional experience in the Sahel, at least a masters degree as specified below, excellent writing skills, and an FSI French language rating of at least 3/3. Specific qualifications and responsibilities are listed below.

Team Leader/NRM Expert: This individual will serve as both the Team Leader and NRM Expert, and will be responsible for integrating the work of the team to produce a paper that is analytically focused and consistent. S/he will arrive two weeks prior to the other team members in order to collect information and data sources that will be relevant to the team's needs. S/he will take primary responsibility for identifying the linkages between food aid and environmental and NRM degradation/rehabilitation, and examining the sustainability of NRM interventions implemented with PFA. The Team Leader must be a highly-respected NRM authority with extensive experience addressing NRM issues in Niger and in the Sahel. This individual should have an advanced degree in international forestry, or some area of environmental science.

Food Aid Expert: The Food Aid Expert should be familiar with IFPRI's recent work in Niger and in similar countries across

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Africa. This individual should be familiar with the FFW projects implemented by PVOs (e.g. CARE, etc.) as well as other donor organizations preferably in Niger or elsewhere in the Sahel. The Food Aid Expert will give special attention to how the IFPRI data, FFW project data and other available in-country experience can be used to address the issues identified above, with special attention to how the NEFA/NRM linkage effects economic decision-making processes. This individual should have an advanced degree in some area of social sciences (economics, sociology, anthropology or political science) or physical sciences (geography or a related field).

Community Development Expert: The Community Development Expert should have extensive experience in community development in the Sahel, speak at least one predominant local language commonly spoken in the study area, and have some professional background in NRM-related work. This expert will be responsible for addressing the effects of the NRM/PFA linkage on migration, both seasonal and permanent. S/he also will be responsible for understanding how local populations think about the issues identified above. This individual should have an advanced degree in some area of social science.

Because the issues the team will examine are interrelated, the team must work together and share information that will enable each member to fully develop his or her contribution to the study. ADO staff as well as the PDO Social Scientist may be assigned to work on the team, at least on a part-time basis. Up to two local hires may also be provided to the team through APAP II; the decision on these two positions will depend on the final team composition. In addition, CARE/Niger may contribute staff from their policy research monitoring unit during the team leader's first two weeks in-country.

V. Reports:

The team will submit a work plan to ADO three to four days after the entire team has arrived in Niamey. Two days after completing their field work and returning to Niamey, the team will submit a first draft of their report. The team will make ten copies of this report, which will be discussed with ADO and other interested Mission staff. The team will then spend the remainder of their time in-country completing the final draft of their report. Completion of the final report will occur only after feedback is received from an IFPRI research fellow that was involved in the recent FFW study in Niger. After the final draft is approved by the Mission, Abt Associates will send the Mission fifteen copies of the report in English, and fifteen copies in French.

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Level of Effort (LOE)

The original SOW prepared for this study proposed a level of effort among the three team members (Team Leader/Natural Resources Management Specialist, Food Aid Expert and Community Development Expert) of approximately 22 person/weeks. Because of a series of circumstances beyond the control of all concerned, including availability and time commitments of the selected team members, security concerns in the northern fringes of the study area, and a lengthy postponement to the actual start date, the level-of-effort was subsequently reduced to approximately 17 person/weeks including travel time.

Given the tremendous complexity of the task, the team is not convinced that this reduction was particularly meaningful in terms of their ability to fulfill the mandate of the SOW. Both the team members, as well as various professional informants felt, with perfect 20/20 hindsight, that in order to develop a firmer grasp of causal relationships as concerns the linkages between program food aid and natural resource management would have necessitated a much longer study. One might envisage a study of the kind modeled after a systematic effort at monitoring project activities built on the basis of a comprehensive baseline. The ultimate judgement in that regard must, however, be that of the interested reader and the utility he/she finds in the report which follows.

APPENDIX B

APPENDIX B
LIST OF PERSONS MET

Washington, D.C.:

Tim Resch, AID/AFR/ARTS
Mike McGahuey, AID/AFR/ARTS
Al Smith, FEWS Project Officer
Mary Little, FHA/OFDA
Stephen Bender, Dept. of Regional Development, OAS
Richard Record, Coordinator, Famine Mitigation/USDA/OICD/DRD/NRE
William Heiin, Food and Voluntary Assistance Coord./USDA FSP
Charles Owubah, Food Aid and Forestry Specialist, FAM
Asif Shaikh, President, International Resources Group
Patrick Webb, Research Fellow, IFPRI

Niamey, Niger:

George Eaton, Director, USAID/Niger
Valerie Dickson-Horton, Deputy Director, USAID/Niger
Helen Soos, General Development Office, USAID/Niger
George Taylor, ANP Office, USAID/Niger
Gregg Baker, Program Economist, USAID/Niger
Moussa Saley, Program Specialist, USAID/Niger
Charles Kelly, Disaster Relief Unit, USAID/Niger
Ellen Taylor-Powell, Social Scientist, USAID/Niger
Meg Brown, ANP, USAID/Niger
Barry Rands, NRM Specialist, ANP, USAID/Niger
Hamadou Bourahima, NRM Specialist, ANP, USAID/Niger
Robin Wheeler, FEWS Field Representative, USAID/Niger
Dale Puffenburger, USAID technical assistant to SAP
Andres Ravelo, FEWS Design Team
Hunter Farnham, FEWS Design Team
Andrew Stancioff, Team Leader, USGS/AGRHYMET
Charles Tapp, Country Director, CARE/Niger
Mana Diakite, Regional ANR Specialist, CARE
Boubocar Diallo, Monitoring and Evaluation, CARE/Niger
Zakari Madougou, Coordinator ANR Programs, CARE/Niger
Susan Farnsworth, Deputy Director, CARE/Niger
M. Kponou, World Food Programme/Niger
Bettina Fuhrmann, UNDP
Phillipe Andenmattan, UNDP
Mark Powell, ILCA
Jeff Gray, Director, AFRICARE/Niger
Amy Wilson, APCD (Agriculture) Peace Corps
Pascale Alloke, Independent Social Scientist
Francis Mody, World Bank
Moustapha Soumaila, Former Minister of Plan

Terèse Keita, Independent Sociologist
Diouldé Laya, Directeur, CEALTO
Hadiza Djibo, Rural Sociologist
Thomas Price, Anthropologist
Mamadou Guiri
Marthe Diarra, Sociologist, IRSH
Abdourachman Mahamadou
Peter Bloch, Land Tenure Center, Univ. of Wisconsin at Madison
Mounkaila Goumandakoye, Directeur de l'Environnement, MHE
Adamou Abdou, Directeur Adjoint de l'Environnement, MHE
Karsten Tolle, CTP, Programme de Mesures Anti-Erosives (PMAE)

Ouallam Arrondisement:

Namata Seidou, Sous-Prefet
Issa Seydou, Secretaire du Plan
Halamou Bourakche, Alphabetisation
Issa Soumana, USRC
Kano Issaka, Secretaire Agriculture et Elevage
Souleymane Liman, Agriculture
Hachimi Boubacar, Correspondent de Presse
Salifou Moussa, Elevage
Ramatou Aboubakar, Assistante Sociale
Villagers of Tondikiwindi

Filingue Arrondisement:

Garba Djibo, Responsable Volet G.R., Projet PMAE
Wolfgang Schwinn, Asistant Technique, Projet PMAE
Rahaman Brande, Conseiller Forestier, Projet PMAE
Villagers of Toukounous

CARE Galmi Project:

Ide Issafou, Directeur du Projet
Sanda Harouna, Agent Genie Rural
Madou Gapto, OPVN Stock Manager
Sani Soumaila, Site Foreman
Women of Guidan Koudidi and Sabon Kare

Projet Basse Vallee de la Tarka:

Daddy Mahaman Sabiou, Director
Issa Sadou, Technical Support Coordinator
Goumar Alhadi, Agent Genie Rural
Issifou Boube Tawaye, Agent Genie Rural

CARE SALAMA Project:

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Al Mansour Souleymane, Chief of Environmental Service
Zezi Dade Moutari, Representative of the Ministry of Plan

Keita Project:

Hachimou Sidibe, Technical Director
Abdou Hassan, Chief of Environmental Service
Giovanni Simonelli, Director M & E

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APPENDIX C

USES OF FOOD AID -SUMMARY MATRIX

Description	Pros	Cons	Other Remarks
2. Food Aid for Stability of Food Supplies			
2.1 Food to Start/Replenish Grain Reserves	• Grain reserves can perform a number of important functions simultaneously.	• Reserves are expensive. • They also need a high level of storage/management	• A high level of government/donor co-ordination is needed.
2.2 Food for community/village Food Banks.	• In emergencies stocks are on site. • A high level of local participation is involved.	• Needs other inputs, including training. • A danger of control by local elites exists.	• Direct donation, swops or monetization could be used. • CARE has a proposal for a village bank in Kenya.
2.3 Food for local Food Funds.	• This can result in a revolving fund operation.	• Control of the food could be a difficulty.	• These can help to meet local emergency needs rapidly.
2.4 Food for Market Development (i.e., access roads, market facilities).	• Proper markets are the ultimate food security mechanism.	• Increased cash cropping is not always desirable.	• Local food markets are very undeveloped in Africa. • If the market system is a bad one it should not be supported.
3. Food Aid for Access to Food Supplies			
3.1 Food for Feeding/Nutrition purposes (emergency, institutions, FFW)	• Direct targeting of poor occurs. • Disincentive effects should be low.	• Most traditional criticisms of food aid can apply. • Withdrawal can be difficult.	• Food management can overcome many difficulties. • There is a shift away from this use of food aid by donors.
3.2 Food as an Income Transfer (food to increase general living standards).	• Recipients are allowed greater discretion in the use of their own resources. • Use of market channels can minimize PVO involvement in logistics.	• Price disincentive effects may occur. • Nutritional impact cannot be guaranteed.	• This approach is still developing. • Market channels also have applications in traditional uses (e.g., food for work—1.1 and nutritional programs 3.1)
3.3 Food for Income Generation (an input to enterprise development)	• Allows people to earn money for food purchases. • Assists private enterprise.	• There is not much experience as yet. • Nutritional impact cannot be guaranteed.	• Title 1 food can be used for small business loans (Section 108). • A multi-year commitment is needed.

USES OF FOOD AID -SUMMARY MATRIX

Description	Pros	Cons	Other Remarks
3.4 Food as part of Structural Adjustment policies (aid targeted at vulnerable groups)	• This places food aid in national policy context. • It can be temporary by nature.	• Structural adjustment policies can be controversial.	• Donor co-ordination is crucial. • PVOs could dovetail with policy context without necessarily full participation in IMF program.
3.5 Food for Skills Training (assistance to schools, institutions, adult education, agricultural training).	• A very basic aspect of development is being supported.	• There is a danger of merely substituting for government resources. • Results can be difficult to quantify.	• This is in favor with donors. • Counterpart funds can be generated. • A long term commitment is needed.

USES OF FOOD AID -SUMMARY MATRIX

Description	Pros	Cons	Other Remarks
1. Food Aid for Increased Food Production			
1.1 Food for Work (FFW) on agricultural infra-structure, (e.g., dams, irrigation, feeder roads).	• It can be targeted on poor; • It substitutes for free food distribution; • Low price disincentives; • Attractive to women.	• Agricultural price and other disincentives occur if there is too much food or if it is badly administered.	• FFW can be difficult in Africa due to needs for technological/ managerial inputs and to dispersed population; • Best if integrated into wider projects; • Seasonal factors are important in avoiding disincentives.
1.2 Food to Attract Labor, (to remote or unattractive areas)	• Food is often needed in remote areas.	• This can become a "bottomless pit". • Delivery to remote sites may be costly.	• Farmers should not be attracted from their farms during peak agricultural periods. • A reliable delivery system is crucial.
1.3 Food for Resettlement (from over-populated areas, for manuals and refugees).	• Allows settlers some initial food security. • It makes settlement less risky. • It can be limited time-wise.	• Settlement/resettlement can be controversial policies.	• A reliable supply will be important for the dependent population
1.4 Food to Leave Land Fallow (when there is over-cultivation).	• Could be an important environmental use.	• Other long-term solutions are needed, so other inputs are also required.	• There is no experience of this use.
1.5 Food Exchange for Seeds (new varieties or post-famine).	• Suitable in post-emergency situations	• May be administratively complicated.	• This has been done already (e.g., by CARE in Ethiopia).
1.6 Food for Dairy Development (NFDM and butter oil as an input to liquid milk supplies)	• There is a lot of experience already. • Milk production can help small-holders.	• Is dairy development the best use of agricultural resources? • On farm milk consumption could be reduced.	• There is considerable experience already (e.g., Operation Flood in India, but no PVO involve-ment).
1.7 Food for Livestock Development (e.g., stock reduction, animal feed).	• This may be the only way to help pastoralist.	• Animal feed is now allowed by the donors.	• WFP had some projects in the 1960s.
1.8 Food for Soil Conservation (food as wages, as compensation or incentive)	• It tackles a major problem in many countries.	• It can lead to dependency in the wrong circumstances. • It can also result in price disincentives	• WFP has been extensively involved (e.g., in Ethiopia).
1.9 Food as Risk Insurance (to allow farmers to experiment).	• Actual distribution may not be required, thus avoiding logistical costs and any disincentives	• Administratively difficult. • No nutritional impact if no distribution occurs.	• This idea has been much discussed but little tried.