

REPORT OF THE EVALUATION MISSION
TO
THE TARA INTEGRATED RURAL DEVELOPMENT PROJECT

Dates of Mission: 20-31 July, 1981

Prepared for:

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I. TARA IN PERSPECTIVE

"Five years ago Tara was an obscure, unknown country village. Today Tara is known throughout Niger and Benin. Villagers in all the region want the same development activities to occur in their villages. The President of the Republic of Niger has visited Tara three times to observe the results of the Project."

-Elhadji Hanki Baye, President
Tara Rice Farmers Cooperative

Tara is only one of hundreds of rural villages dotting the landscape of the southern one-third of Niger. The human condition and life security in most of these villages is at best precarious, at worst a struggle for survival. One of the major preoccupations of the Government of Niger (GON) is to reduce this precariousness, to increase life security, and to improve the quality of life of the rural inhabitants of the country. This has been and continues to be the overriding challenge of Niger's Ministry of Rural Development and its several agencies.

Since its creation the Ministry has had to deal with many serious constraints to rural development processes. Major constraints include extreme limitations of (a) capital for investment in rural development activities, (b) numbers and levels of training of specialists in various areas of rural development, and (c) long-term and proved experience

in integrated rural development. The Ministry has had to face such questions as:

- What are the financial costs of development?
- How does the development process happen?
- What is the Government's role in rural development?
- How can the Government accelerate the development of the rural people of Niger?
- Is there a proved development model which can be used effectively in Niger?
- What external assistance is available to Niger for rural development activities?

From the beginning of the Tara Project the development plan called for an integrated approach which would involve all the inhabitants and major activities and needs of Tara. The Tara Project was developed largely on the basis of a socio-economic study conducted in the mid-1970s in Tara. The Project was designed to develop the total village and surrounding agricultural area.

In the mid-1970s an interesting chain of events led to the opportunity for Africare to participate in the design and implementation of an integrated rural development project at the village of Tara, located on the bank of the Niger River opposite the country of Benin. This opportunity centered around an irrigation scheme for rice to be developed on an area of the Niger River floodplain to be enclosed and protected by dikes and irrigated with water from the River.

During the ensuing years Africare has participated with the Government of Niger in the design, acquisition of external

funding and implementation of the Integrated Rural Development Project at Tara. External funding during the period from 1976 to 1981 has been provided by the Lilly Endowment, Inc., the United Methodist Committee on Relief, the U. S. Agency for International Development and private donors. The Government of Niger has provided technical and administrative support through the Ministry of Rural Development, Office National Amenagement Hydro-Agricole (ONAHA), and Institute Nationale de Recherche Agronomique du Niger (INRAN).

II. OBJECTIVES OF THE MISSION

"The Tara Project has brought significant changes to the Gaya Subdepartment. All of the villages in this area have been affected. Many farmers from other villages have traveled to Tara to learn from the Project experience. Travel and commercialization throughout the Subdepartment have increased as a result of the Project."

-Mainssara Issifou, Sous Prefet
Gaya Subdepartment

The objective of the Mission was to travel to Niger and to document any observable evidence of successes and failures, beneficial and detrimental effects, and long range implications for the people of Tara resulting from the design and implementation of the Tara Integrated Rural Development Project. In the light of the evidence obtained during this Mission the Team was charged with the responsibility of assessing the desirability and feasibility of Africare's participation in a second phase of the Project. The Mission was particularly timely in that external funding for Project support is nearing depletion. Support from the U. S. Agency for International Development terminated in September 1981.

The approach of the Evaluation Team to accomplish these objectives included the following components:

1. Briefing with Africare/Washington personnel; review of Tara Project documents.
2. Orientation and discussions with Africare/Niger personnel.

3. Observations made during visits to the sites of various components of the Tara Project.
4. Discussions with all levels of Nigeriens with any involvement in the Tara Project.
5. Discussions with officials of USAID/Niger.

Throughout the Mission members of the Team sought for a variety of indicators which might suggest changes which have occurred in Tara and the surrounding area as a result of the Project. Evidences of change were recorded in a great diversity of things and activities--increased food production, increased income, general appearance in homes and the village, new buildings, new equipment and farm implements, greater disposable income and purchase of consumer goods, improvements in transportation and communications, improved services and labor-saving devices, general health conditions, a flurry of educational activities, attitudes and aspirations of the people, a general climate of hope throughout the village of Tara.

III. OBSERVATIONS OF THE EVALUATION TEAM

"Before the Project the people of Tara seldom had enough to eat--not even an onion. Now they have plenty to eat--rice, millet, vegetables, goats and beef. This supply of abundant food is a direct result of the Project."

-Mr. Son Allah Bagna, Treasurer
Rice Farmers Cooperative

The Tara Project means many things to many people. To some it means abundant food; to others it means enough money for the first time ever to purchase a radio or mobylette. To some it means a drink of clean water every day of the year; to others it means the elimination of the drudgery of manual tillage practices in the fields. To the women it means improved health care for their children. It means writing one's own name for the first time, doing arithmetic, improving the home, producing eggs, participating in local government. To all the villagers the Tara Project means hope and rising expectations.

This generally favorable impression does not mean that the Evaluation Team found no problems at Tara. Indeed, in several areas the Tara Project has fallen short of the original goals. The Team attempted to document the results to date of the Project objectives and to understand the reasons

and/or factors which made it impossible to accomplish the desired ends. In searching to understand the shortcomings of the Project, the Team endeavored to formulate recommendations for corrective measures to strengthen the integrated development processes in Tara.

The Evaluation Team attempted to capture and document the feelings of the people of Niger, villagers and officials alike, toward the Tara Project. Although different Project documents refer to the Tara Hydro-Agricultural Project or the Irrigated Rice Project, the Evaluation Team considered the irrigation scheme as one of many components of the much broader and more inclusive Integrated Development Project of Tara (Figure 1).

A. Meeting the Food Needs of Tara

As was so eloquently stated by Mr. Son Allah Bagna, treasurer of the Tara Rice Farmers Cooperative (Co-op) the people of Tara now have enough to eat as a result of the Project. Three components of the Project have been designed to improve the quantity and quality of food--irrigated rice, poultry and fish.

When the Evaluation Team arrived in Tara, they were received by Mr. Alzouma Sounna, Tara Project Director, assigned to this position by the Minister of Rural Development. The

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Figure 1. Gerald Mills, Africare Representative in Niger, stands by the Tara Project sign located at the Tara turn-off from the Gaya/Benin highway.

Team was accompanied by Mr. Gerald Mills (Africare Representative in Niger), Mr. Hugues Sylvain (Africare's resident agronomist assigned to the Tara Project), and an irrigation specialist of ONAHA (Office National Amenagement Hydro-Agricole).

The Evaluation Team visited the sites of each of the sub-projects (rice, poultry, fish) and discussed in detail the history, current status, and results obtained for each.

1. The Irrigated Rice Project

Four components of the rice project will be considered and described:

- irrigated area enclosed by dike
- irrigation pump facility
- rice farmers cooperative
- processing of rice

For a rural area of Niger which produced very little rice five years ago, Tara has made a dramatic adjustment to the production and consumption of rice. This adjustment has not meant a shift away from traditional dryland cultivation of millet, sorghum, corn, peanuts, and okra. In fact, new methods and equipment made possible through the rice project have resulted in the expansion of dry land farming activities as well.

Although extensive data do not exist, on-site interviews by the Evaluation Team with local farmers revealed two direct effects of the addition of rice cultivation to the area:

- Food shortages have ceased in Tara. Repeatedly the Team heard from villagers that prior seasonal food scarcities had ended since the first rice harvest in 1979. Although it is difficult to quantize this statement, this fact is unquestionably the most important benefit of the agronomic component of the Tara Project.
- Nutritious crops such as peanuts and okra remain a part of the local diet. Rice has been added but has not replaced these items in the local diet.

The original project document proposed that 200 hectares of the Niger River flood plain be developed for intensive agriculture, under controlled irrigation. From Project reports and on-site discussions (Figure 2) with ONAHA and Project officials, the Team derived the following estimates of land areas in the rice project:

Area enclosed by dike	140 ha.
Area unsuitable for cultivation	
depressional (too wet)	12 ha.
high (too dry)	14 ha.
other limitations	20-30 ha.
Suitable for irrigated rice	80-90 ha.

The irrigated rice scheme was designed to produce two crops (campaigns) of rice per year, one campaign at the time when the level of water in the Niger River is high, the other when the water is low. The two rice campaigns differ considerably in (a) the number of parcels cultivated, (b) yield



Figure 2. A representative of ONAHA discusses the Tara Irrigated Rice Project with Hugues Sylvain, Africare's resident agronomist assigned to the Project.

per parcel, (c) amount of water applied per parcel, and (d) fertilizer practices.

The original project document proposed that 300 farm families be participants in the irrigated rice scheme. With the effective area of irrigated rice reduced to approximately 86 hectares only 246 families have been assigned parcels which range in size from 0.25 to 0.40 hectares.

Four diesel pumps with a capacity of 420 m³ of water per hour were installed at a site on the dike near the Niger River. According to ONAHA's recommended water applications for irrigated rice in Niger, this capacity is inadequate for the Tara Project. The ONAHA guidelines suggest that 2,220 m³ of water per hectare would be required during January, the month of peak usage. This water requirement, if applied, could provide adequate irrigation for only 70-75 hectares.

Unfortunately, records for the rice program do not include the number of hours of pump operation nor the amount of water applied per parcel and the time of application. Any estimate of the amount of water applied is further complicated by the unanswered question of possible leakage under the dike.

The dates of planting and transplanting of rice by the farmers in the Tara Project vary considerably because of time competition from dryland farming operations and the sharing of animal traction units among farmers. The dates of transplanting rice may range over a period of several weeks.

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The Team was informed that rice farmers follow the general fertilizer applications for rice recommended by the Institute Nationale de Recherche Agronomique du Niger (INRAN). The recommendations include 500 kg/ha of 15-15-15 (N-P₂O₅-K₂O) and 200 kg/ha of 45-0-0 (urea). At the levels of management being practiced and the yields of rice being obtained, these fertilizer applications seem to be quite high, especially when we were told that all parcels are receiving the same nutrient dosage with no account taken of the amount of water applied or differences in soils.

Current research results suggest that nitrogen applications in excess of 90 kg/ha may reduce yields of irrigated rice. The Team was unable to obtain data on which the INRAN recommendations are based. When the Team visited another irrigated rice project near Niamey, members were told that the same fertilizer recommendation is followed without regard to soil differences and with the assumption of optimum soil moisture conditions.

Soils vary considerably within the irrigated rice area of Tara. This variation ranges from the coarse textured soils to medium to fine textured alluvial soils. A general soils map of Niger published by the French Office de Recherche Scientifique et Technique d'Outre Mer (ORSTOM) in 1967 shows the dominant soils of the Tara area as a weakly desaturated ferrallitic soil in association with soils that are not as highly leached. This suggests that the soils within the diked

area may vary significantly in water holding capacity, fertilizer retention and response, and potential productivity.

For both rice crops each year land preparation is done with animal traction. Harvest is done by hand. Yields vary from a high of 7-8 tons per hectare to as low as one ton per hectare. The yield seems to be primarily dependent upon the amount of water applied. It was noted that in general the parcels nearest the pumping station had the highest yields, those at greatest distance the lowest yields. An exception to this is the parcels where their higher elevation does not permit sufficient water to flow by gravity from the canals.

Although the four diesel engines and pumps have served the irrigation project well, there have been severe problems (Figure 3). When the water level in the River is high, the pumping arrangement works quite well and delivers water to most parcels adequately. When the River is low, however, the pumps at their normal positions cannot lift the water. To correct this situation three of the pumps were moved from their concrete foundations to a lower level near the edge of the River. This was a much less than satisfactory arrangement, but it did provide enough water for half or more of the parcels. ONAHA provided the technical assistance and the cost for moving the pumps. With the lower position of the pumps, the water had to be transported from the pumps through plastic pipe to the level of the distribution canal at the crest of the dike. There have been many problems with breakage and

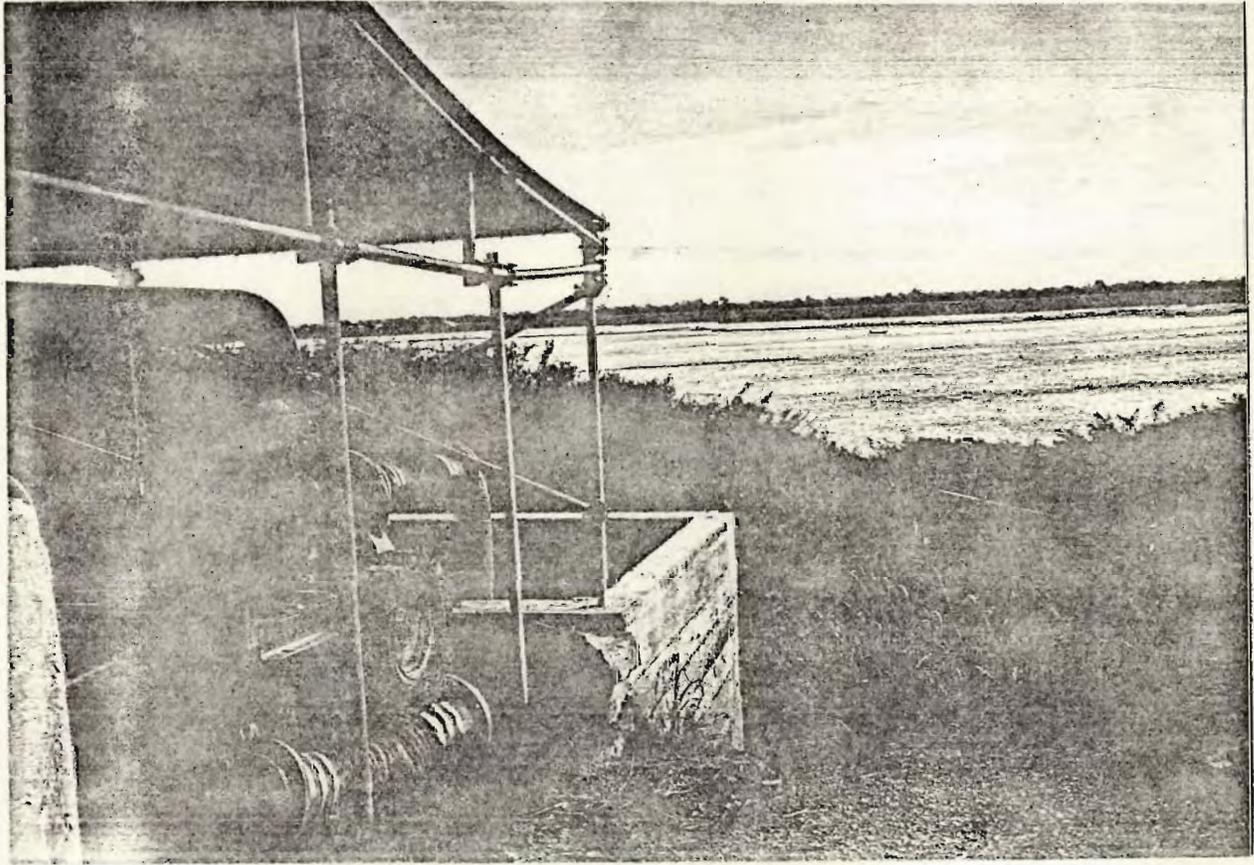


Figure 3. The Niger River pumping station for the Tara Irrigated Rice Project has provided water for five crops of rice. Because of subsidence and cracking of foundations for pumps, and because of difficulty of lifting water during season of low water level in River there is critical need for improvement of pumping station and water availability for irrigation throughout the year.

replacement of plastic pipe. This semi-annual change in pump location is considered a temporary, partial solution to a serious problem. The Team was told that the local labor force did not have sufficient technical skills to maintain and operate the pumping station.

Another problem observed at the pumping station is that erosional undercutting of the soil fill has occurred below the concrete foundations on which the pumps are mounted. Severe cracks have developed in the concrete and subsidence is beginning to occur. A major redesign and rebuilding of the pumping station will be required soon if severe deterioration of the irrigation program is to be prevented.

The result of these problems with water delivery is reflected in a decrease in yield and the number of parcels that are producing rice, especially during the period of low water in the River. Again, no firm data are available, but maximum yields drop during this season to five tons or less per hectare, and an additional 20 hectares or more are not cultivated because of shortage of water. Fertilizer applications during this season are reduced to 200 kg of 15-15-15 and 100 kg of urea.

To put this into perspective we spoke with a farmer whose field was some distance from the main distribution canal. During the low water season the uncertainty of the water supply causes him to spend his efforts on traditional dryland farming when rainfall permits. During the season of high

water in the River, this farmer's plot yields about four tons per hectare.

Another important aspect of the rice project has been the organization of the Tara Rice Farmers Cooperative (Figure 4). Officers have been elected and trained in crop management. Under the Project a permanent building has been constructed and provides the following facilities:

- large storage area for rice, fertilizers, equipment, supplies
- meeting room, classroom with capacity of 30-40 persons
- offices for Project Director, officers of Coop.

This facility provides a safe and dry place for storing grain. Traditional grain storage methods do not provide adequate protection from rodents, insects and rain (Figure 5).

Outside the Coop Building is a large concrete floor which is heavily used by rice farmers for drying rice.

On the initiative of the Rice Farmers Cooperative a rice dehuller was purchased and is housed in a small building adjacent to the drying floor (Figure 6). This facility is in operation many hours per day as village women bring rice for processing at a cost of 7.5 CFA per kg.

While the Team was visiting these facilities, they had an opportunity to discuss the Tara Project with the officers of the Rice Farmers Cooperative (Figure 7). These men expressed concern over the problems related to the pumping station and in equitable distribution of the limited water supply during the low water season.

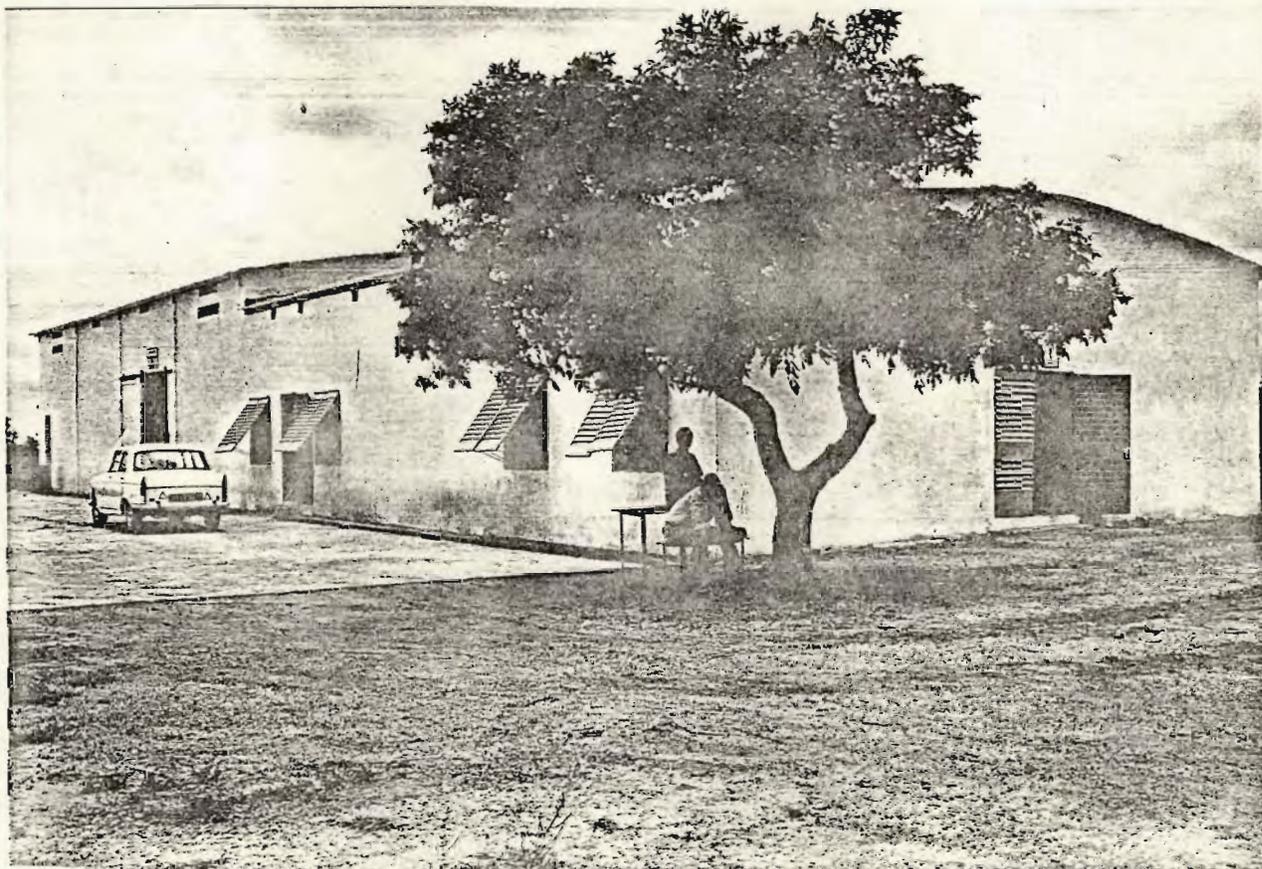


Figure 4. Multipurpose building constructed by the Tara Project includes a classroom/meeting room (30-40 capacity), offices for the Project Director and the President of the Rice Farmers Cooperative, and a large storage shed for bagged rice, fertilizers and other supplies.

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Figure 5. Hugues Sylvain describes the construction of traditional grain storage bins in the village of Tara. It is difficult to prevent losses from stored grain pests (insects, rodents) in these mud/straw bins covered with thatch.

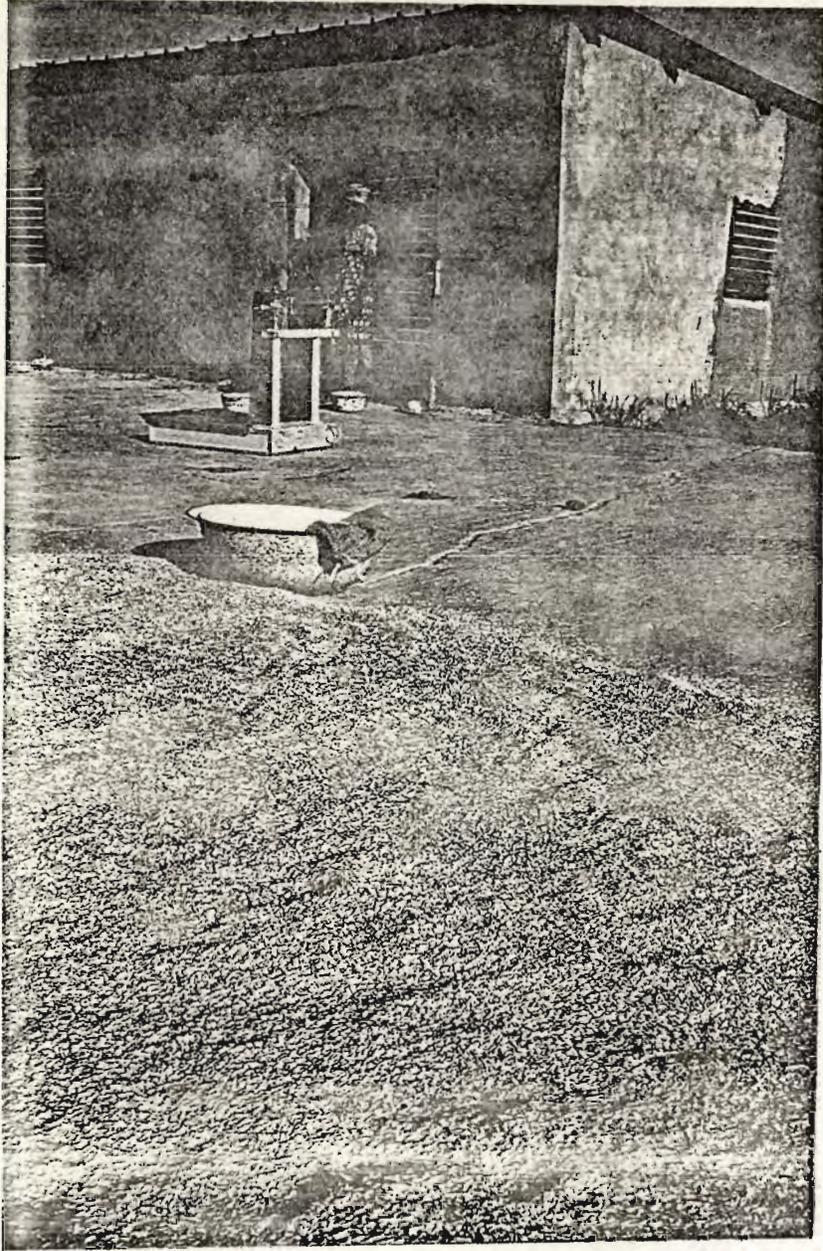


Figure 6. Initiative from farmers in the Rice Cooperative resulted in the purchase of a rice huller housed in this small building across the concrete drying floor from the Multipurpose Storage/Office/Classroom Building (Figure 4).



Figure 7. Officers of the Rice Farmers Cooperative pose with the Tara Project Director.

Left to right:

Elhadji Hanki Baye, President of the Rice Cooperative

Alzouma Sounna, Tara Project Director

Son Allah Bagna, Treasurer of the Rice Cooperative

During the team's visit we were able to discuss other rice projects with officials at ONAHA and visit the Saga Rice Project run by ONAHA near Niamey. From these discussions and examination of statistics published by ONAHA, three conclusions may be drawn:

- Yields of rice at Tara are equal to or exceed those of other projects.
- Capital costs appear to be significantly lower than those of the Saga Project which is considered a model by the GON.
- Animal traction introduced at Tara has succeeded where mechanization has failed in other projects.

Rice yields in other projects run by ONAHA average 4.6 tons per hectare during the dry season and only 3.7 tons during the wet season. At Tara the Team found that even on a water deficient field four tons were possible during the wet (high water) season. Yields on better plots averaged 7 to 8 tons according to local agronomists.

The model rice project at Saga, near the capital of Niamey, was built in 1974 with assistance from the People's Republic of China. Saga provided some interesting features and data for comparison with those of Tara. Eight large pumps (the field manager did not know their capacity) were installed in a two-stage pumping system. Irrigation ditches were concrete lined. Pumping facilities were housed in imposing concrete structures. While the amount of land irrigated at Saga was 355 hectares vs. about 100 hectares at Tara, operational costs were seven times those at Tara. Mr. Sadou,

scheme for commercial production of poultry be developed in Tara and that women of Tara be trained in poultry management and be supplied with birds by 1979. The plan called for two buildings for confinement production of 300 birds each. For various reasons initiation of the poultry scheme has been delayed.

At the time of the Team's visit, the two poultry houses, each with 250 young laying hens, had been completed. Birds in one house were received one month prior to the visit; birds in the other house had been there only a few days. Dual purpose poultry stock is obtained from Niamey. The plan is to produce both meat and eggs. As hens are sold for meat new laying stock will be added.

The poultry project site is adjacent to the Rice Farmers Co-op Building and consists of a fenced area of approximately one fourth hectare. Rows of newly planted Eucalyptus trees will provide shade for the poultry houses. The poultry project is owned and operated by the 43 members of the Women's Poultry Cooperative (Figure 8). The members have recently received training in poultry production and management by a GON poultry specialist. The training period consisted of two hours per day, Monday through Friday, for a total of twenty days. Six of the women were sent to Niamey in October 1980 for a one-week intensive training course. Madame Koirra Hadi, president of the Tara Women's Poultry Cooperative, described with enthusiasm their interest in and hopes for the success

field manager of the Saga project, told the team that expenses at Saga were 18 million CFA per growing season or 36 million per year. At Tara, Mr. Sylvain, the Africare agronomist who has been with the project for three years, told the team that the expenses of the rice project have never been more than 5 million CFA per year.

In spite of these much greater costs the project at Saga suffered from the same basic problems that one finds at Tara. Even with the larger pumping station there was a scarcity of water during the low water season as the low river level made it impossible for the pumps to provide an adequate supply of water. Unlike the Tara project there was no way to reposition the pumps. Mechanical problems with Chinese built equipment were frequent and maintenance has been expensive and difficult. As in Tara it has been extremely difficult to convince the farmers of the importance of planting and replanting rice at an optimum date.

In contrast to attempts to introduce mechanized rice culture into Niger, the animal traction program at Tara with 88 units has worked well. At Saga attempts to mechanize were abandoned because of maintenance problems, a common constraint to modernization in West Africa.

2. Poultry Production in Tara

The poultry component of the Tara Project is in the early stages of development. The project document proposed that a

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Figure 8. Members of the Women's Poultry Cooperative pose with the poultry specialist who is training Co-op Members in poultry management and production.

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of the poultry project (Figure 9). She revealed that her interest in having a poultry project came from radio discussions of the importance of economic development, and she felt that by being active in the poultry project she would be participating in the development of Niger.

Laying units are being built and will be installed in the houses within the next few weeks (Figure 10). No provision is being made to trap each hen in laying units or otherwise keep a record of each bird's egg production.

3. Fish Production

Perhaps the weakest component of the Tara Project is the program for improvement in the commercialization of fish. Although a building has been constructed to house drying, freezing, storage, and classroom for training activities, there is little discernible fishing activity related to the project. As long ago as 1979, twenty fishermen received specialized training.

The major reason for the delay appears to be a disagreement within GON over the acceptability of design of the fisheries project submitted by French volunteers. Although the Team could not discern the exact nature of the objections to the French plan, we were told by project officials that new plans submitted by UNICEF were more acceptable by GON.

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Figure 9. Madame Koira Hadi, President of the 43-member Women's Poultry Cooperative, enthusiastically discusses the Poultry Project during our meeting outside her home in Tara.

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Another cause for delay was unavailability of equipment. The Project has been unable to acquire a freezer which fits their needs.

The Team learned from the Prefet of Dosso that he orders fish from Tara for special occasions and that fish from Tara are marketed in Gaya. However, these activities did not seem to be related to the fish project. Indeed, in visits with local villagers the fish project received almost no mention while other components such as rice, poultry, animal traction and health were discussed enthusiastically. Although further investigation is needed, one might question the amount of local interest in fisheries.

4. Other Observations Related to Food Production

One of the problems in Tara related to poultry production and health of the villagers is the seasonal shortages of water and perennially polluted water. To safeguard the health of the poultry flocks it was necessary for the Project to provide a deep well (20 m) to assure a constant supply of clean water throughout the year (Figure 11). At the time of the visit of the Evaluation Team, technicians were installing a pipe into the well and a pump powered by an internal combustion engine. The well is located near the poultry houses and first priority is to supply water to the flocks. It will be a great improvement to have the pump so that the well may be covered to prevent pollution of the well.

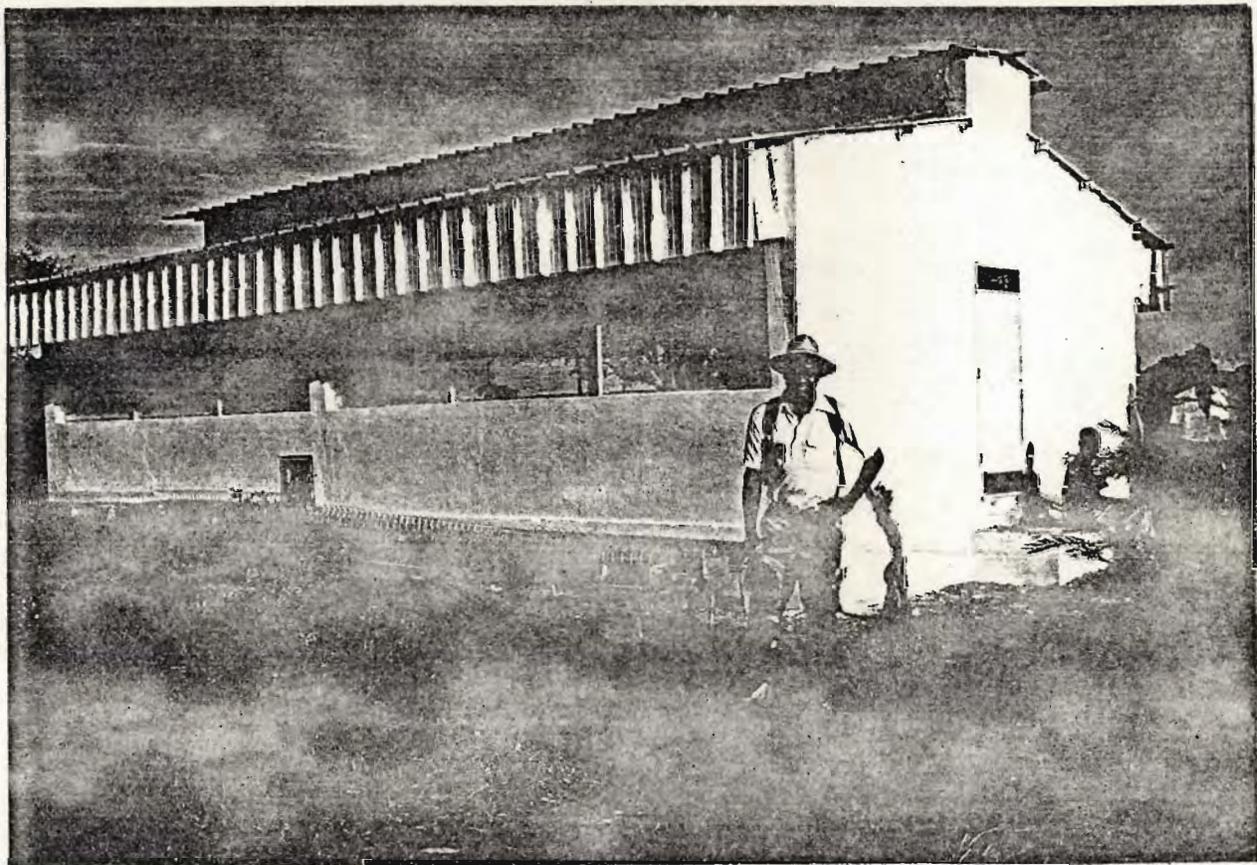


Figure 10. In a late afternoon visit to the site of the Poultry Project Russell Barbour, member of Africare's Evaluation Team, stands at the corner of one of two buildings designed for 250 birds each. The day before our visit the second flock of 250 chickens had been delivered to Tara.



Figure 11. Workmen are in the process of installing a pump in this 20-meter deep well constructed by the Project near the poultry houses. This well, once covered and equipped with a pump, will for the first time assure an adequate supply of quality water for the villagers and the poultry flocks.

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Although the Project design placed little emphasis on the improvement of dryland farming, it was observed that the Tara Project has had a real impact on this activity. Before the Project began, a few donkeys were owned by villagers and were used primarily for transportation. One of the objectives of the Project was that 300 farm families would be equipped with animal traction units. A unit consists of a pair of oxen, a two-wheel (rubber tires) cart, two plows and a cultivator. Through the Tara Rice Farmers Cooperative credit was made available to purchase animal traction units. To date 88 units have been purchased (about thirty families have two units). Now all irrigated fields are plowed by animal traction. Those farmers who do not have units pay 5000 CFA per 0.25 hectare for custom plowing. Further, the use of these units has made it possible to double the area of upland, non-irrigated cultivation of millet, sorghum, peanuts and okra (Figure 12). The Team was told that by the end of 1981 every farmer who borrowed funds for purchasing animal traction units will have completely repaid the loans.

Extra income is also earned by owners of animal traction units through provisions of custom hauling services.

In a discussion with Madame Koira Hadi, president of the Tara Women's Poultry Project, several other aspects of village agriculture emerged:



Figure 12. The principal upland, non-irrigated crop in the region is millet (Pennisetum typhoides). The 88 animal traction units purchased by members of the Rice Farmers Cooperative has made it possible to increase significantly the cultivated area for millet.

- Although women may work in their husbands' rice fields, they do not have their own rice plots and thus no direct income from the rice project. Many women have their own income from dryland farming crops, especially from peanuts and okra.
- Peanuts are the most profitable dryland crop, and okra the second most profitable.
- Sorghum and millet are grown extensively but are mostly retained for domestic consumption.
- Storage problems and post-harvest grain losses are extremely serious.
- Insecticides are in common use. The Team noted with some concern the use of toxic chemicals by persons who can neither read nor write and who have had little or no training in the safe handling of pesticides.

Another activity accomplished by the Project is the construction of an all-weather farm-to-market road (20 km) which connects Tara to the Gaya-Benin highway (Figure 13). The effects on the village of having this road have been dramatic. The effect is in two directions. It is easy for the people of Tara to travel from Tara to other areas; Tara now receives many visitors from far and wide.



Figure 13. The condition of virtual isolation of the Village of Tara has changed dramatically since the beginning of the project. This change may be attributed in no small part to the Farm-to-Market Road constructed by the Project. This photo shows the road entering Tara.

The Evaluation Team met with many people to discuss the Tara Project--past, present, and future. One of the more enlightening sessions was with a group of rice farmers (Figure 14). Team members were pleased with the rapid progress which these farmers have made in learning rice production methods, care and handling of nimal traction units (animals and implements) and participation in cooperative activities.



Figure 14. Ten Tara farmers and 12 to 15 boys met with the Evaluation Team to discuss the attitudes of the villagers toward the Tara Project and to express their concerns for future and further development of Tara. Boubacar Noma (in white shirt) provided assistance in translating French to Djerma to French.



Figure 15. Members of the Evaluation Team and Africare Staff pose with Prefet of Dosso Department. Left to right: Hugues Sylvain, Africare, Tara Project Agronomist, Thomas Knowlin, Evaluation Team, Irahim Hassane Prefet of Dosso, Russell Barbour Evaluation Team, Gerald Mills Africare Representative in Niger.

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One of the highlights of the Team visit to Niger was the discussion with the Prefet of Dosso (Figure 15) and the Sous-prefet of Gaya (Figure 6). Both of these officials expressed hearty support of the Tara Project.



Figure 16. Mainassara Issifou, Sous Prefet of Gaya Subdepartment, expressed strong support for the Tara Project and described the beneficial effects of the Project on villages throughout the Subdepartment.

B. Meeting the Economic Needs of Tara

Project Tara is an example of local people taking the initiative to participate in their own development. Often, projects are viewed as positive only when they achieve technical or economic results, paying less attention to their social and psychological impact. Although most of the substantial social benefits cannot be measured in hard economic terms, there are many results of the Tara Project that are unambiguously constructive. It has brought an appreciable increase in the productive capacity of farmers at Tara that buys valuable time in the race between food needs and population increase. Such effects simultaneously make continued rural development activities feasible without contributing to inflation. It has substantially increased incomes of Tara village families. It has infused a pervasive upsurge of confidence in the ability of farmers to improve their standard of living. It has resulted in much greater attention being given to agricultural development by the national government (the President of Niger has visited the project three times), who now see that their agricultural sector need not be a disadvantage, but can set a valuable example in assisting the government to meet its objective for food production needs.

The project was a major factor in the reverse urban-to-rural migratory stream, wherein eighty farmers have returned to Tara Village reclaiming farm land. Farmers now realize that farming can be profitable and that it can repay capital

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invested in it at a very satisfactory rate. It has vastly improved the quality of life as evidenced by increased numbers of radios, bicycles, mobylettes, ox-carts, clothes, and house improvements. It has, of course, resulted in more land being cultivated, along with heightened awareness of the value of irrigated agriculture. Farmers now realize that the pathway to modernize food production capabilities begins with the application of modern science and hydro-technology to the problems of farming. Finally, the benefits brought about by the Tara Project are demonstrated through the interlocking cooperation of Niger government agencies (national, departmental, local), international funding agencies, and private donors. Through local initiative the Tara village residents are introducing a new realism into general planning for development.

Special note should be made of the encouragement the Tara Project has received from international donor agencies, both governmental and foundation. All have had a hand in it although it was the Lilly Endowment, the United Methodist Committee on Relief, the Kansas West Conference of the United Methodist Church, and World Vision practically alone that began and carried through the most important project activities that made it possible. Later, funds received from the Agency for International Development played an important part in helping to meet the total costs of the project by supporting selected aspects of the overall program. Everyone now knows that this kind of cooperation can be highly effective.

Some of these effects constitute objective gains already achieved--the increased productive capacity of farmers at Tara, appreciable increases in farmer's income, new cooperatives formed, new patterns of organizational cooperation--while others change the social, economic and political climate in ways that should facilitate additional gains in the future.

The Tara Project has demonstrated that there is a viable solution for a food-deficit country.

C. Meeting the Housing Needs of Tara

Quite apart from the food production components of the Project, another basic need, housing, had more or less been ignored in the original project design. The Evaluation Team found that inadequate housing was having a depressing effect on disposable farm income. A considerable portion of income received from the rice project must be used to repair housing following the torrential rains that are part of the climatic cycle. Just how large an amount was illustrated in the Team's discussions with local farmers. One farmer estimated that last year, after debts were paid, his disposable income was about 123,200 CFA. Housing repair for the year had cost about 50,000 CFA, or 41% of the farmer's disposable income.

Members of the team were impressed that government officials and farmers alike expressed concern that the housing issue be addressed and that new kinds of housing be explored.

Major concerns are that building materials be weather- and insect-proof and be affordable. Design and construction methods should be such that villagers unskilled in construction methods could provide the major portion of the labor of construction.

D. Meeting the Educational Needs of Tara

The educational component of the Tara Project has been a mixture of extension programs in rice production, fisheries, poultry management, water control and cooperative development tied to a functional literacy program. The extension activities, although in some cases late in starting, have worked well. The successful introduction of rice cultivation is an example of this. Training in fish and poultry have yet to show results, but having talked with participants in these components, it appears that these programs have succeeded in motivating villagers in these areas.

The functional literacy program, an important element in the training component, has been far too limited. At the time of the evaluation only about 83 men had participated in the program, and no women had been included. A separate literacy program for women will start later in 1981, but the level of participation does not seem to have been established.

Adding to this problem is the large number of school-age children who do not attend school. In our discussions with

the villagers it was apparent that very few children were attending school. The cycle of illiteracy has yet to be broken.

E. Meeting the Health Needs of Tara

The project document called for a rural health program to be operating for 400 families by 1981. The objectives of the health program are: to strengthen the health care delivery system in Gaya arrondissement and to extend preventive health care to the rural areas, especially at Tara Hydro-Agricultural project. These objectives were to be achieved through village health team training, supervision, health facilities construction/renovation and provision of medical equipment and supplies.

Eight volunteer village health personnel based at the Gaya Medical Center. A team consists of one lay midwife and two first-aid workers. Team members are selected from their villages by the village elders and sent to Gaya for two weeks of training. The training staff at Gaya was a multi-disciplinary team consisting of a registered nurse, midwife, adult literacy trainer, and a community development agent. The evaluation team met the village health team for Tara and learned they were providing primary health care on a voluntary basis. Referrals to the Gaya Medical were made by the Project Director (an agronomist). He used the project vehicle to transport the seriously ill to Gaya three or four times a week. Supervision of the village health teams is provided by the personnel at the Gaya Medical Center.

Health facilities at Gaya and the Village of Tanda were renovated. The medical center was painted inside and outside, windows, and doors were replaced, the well was covered and a pumping system installed to carrying water from the well to the inside of the buildings and the electrical system was overalled. A fence was put around the entire perimeter of the medical center in order to reduce the non-medical traffic on the center's grounds. Basic medical equipment and supplies including delivery room table, scales, bassinets, supply cabinets were provided medical center.

Tanda is approximately three kilometers from Tara. The dispensary at Tanda was completely renovated with new ceiling, windows, doors, painting and a well with a pumping system to carry water from the well to the inside of the dispensary. A six-bed medical ward was constructed and basic medical equipment and supplies were provided.

Construction of a clinic at Tara was proposed in the original project. However, the Ministry of Health felt a second clinic in Tara which is only 3 km from Tanda would require an over concentration of scarce trained manpower for a very small population. Therefore it was recommended not to construct a clinic at Tara.

There has definitely been an increase in awareness of health needs. Almost every Tara resident interviewed by the Team stressed health needs and the desirability of accessible systematic health care delivery.

IV. CONCLUSIONS

" I have followed closely and with keen interest the activities of the Tara Project. The effects of the Project on the villagers of Tara have been dramatic. Although there have been problems with some aspects of the Project, the benefits far outweigh the deficiencies. We must learn from our past experiences and make sure that the gains achieved at Tara in Phase 1 will not be lost. I will support the continuation of the Project (Phase 2) in every way available to me."

-Silimane Ganaua, Secretary General
Ministry of Rural Development

The Evaluation Team was impressed with the impact which the Tara Project has had in the community of Tara as well as the surrounding areã. Recognizing the time constraints of the study, the Team feels that the following conclusions can be defended and documented.

1. The Tara Integrated Rural Development Project has brought numerous measurable improvements in the lives of the people of Tara. These include improvements in quantity and quality of food, water, consumer goods (radios, mobylettes and bicycles, clothing), educational opportunities, health care, and economic well-being.
2. The Tara Project has provided the opportunity for the development and exercise of leadership among both the men and women of the village. This has been accomplished within the context of the GON's development plans and enjoyed strong, enthusiastic government support on both local and national levels.
3. Credit to farmers through the Rice Farmers Cooperative has been a successful endeavor and has had a remarkable educational and economic impact on those families participating in the credit opportunities.

4. The results of the Project have brought widespread and favorable attention to the village and have greatly increased Tara's awareness of the world beyond Tara.

V. RECOMMENDATIONS

" I would like to see the aspirations of the people and the accomplishments of the Tara Project repeated in every village in Dosso Department. "

--Ibrahim Hassane, Prefet
Dosso Department

Based on a wide range of observations of the many facets of the Tara Project and on discussions with farmers, village women, project personnel, and officials (local, subdepartment, department, national), the Evaluation Team has formulated these recommendations.

General Recommendations

It is recommended that a Phase 2 Development Plan for Tara be pursued and that Africare play an active and key role in the design and implementation of the Plan. Although improvement of the irrigated rice component of the Project may deserve highest priority, the rising expectations of all the people of Tara suggest that attention to and support of other community and family related activities during Phase 2 could make the integrated development of Tara more complete. Special emphasis should be placed on the development of management and decision-making skills of the leaders among the men and women of Tara.

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In considering specific recommendations, the Evaluation Team realized the uncertainty of the kind and amount of technical and financial support which might be available to the Tara Project in the future. Therefore, the Team has made recommendations under three different levels or scenarios of assistance:

Scenario 1 - High level of technical and financial assistance

Scenario 2 - Modest level of assistance

Scenario 3 - Very little assistance

Scenario 1

The set of assumptions used as a basis for these recommendations include the following:

- A Phase 2 of the Tara Project will be implemented and will provide continued financial and technical support for the next two to three years at a level similar to that provided the project during the 1977-1981 period.
- Africare and other non-GON agencies will provide technical/financial support to supplement that provided by GON.

Several special recommendations relate to specific components of the Tara Integrated Development Project. The degree of success of Phase 2 will be greatly dependent upon the extent to which these recommendations are carried out.

1. Irrigated rice project

- a. It is recommended that a detailed soil survey be made for the entire area in the irrigated rice scheme. It is essential that this survey be prepared by a qualified soil surveyor. The high cost of irrigation water and fertilizer makes it essential to have adequate soil information for rational and efficient management of the land resources. The soil survey should include a detailed description of the internal drainage characteristics, the textural and structural properties of the soil profile (1 meter in depth), and an assessment of the potential productivity for rice for each parcel.
- b. It is recommended that the entire area inside the dike be carefully surveyed and that an in-depth, engineering study be made to determine the cost of moving sufficient soil material to lower the surface of the high parcels and raise the surface level of the low (wet) parcels. Every effort should be made to bring into production all land which is suitable for cultivation within the diked area. This task may entail the redesign and reconstruction of the irrigation water distribution system and possibly the development of a drainage canal and pump for removal of excess water.
- c. It is recommended that a careful engineering study be made of the water requirements for all potentially irrigable land in the rice scheme and that the pumping station and accessory facilities be redesigned, reconstructed and re-equipped to assure that sufficient water will be available for all parcels during both the rice campaigns (high and low water levels in the River) each year. A careful study to determine the cost of implementing this recommendation is needed.
- d. It is recommended that a basic requirement for Phase 2 be the design and implementation of a system of record-keeping of statistical data related to soil management and irrigated rice production. Such records should be kept for each parcel under cultivation. The following kinds of data should be obtained during each campaign:

- date of seed-bed preparation (plowing)
- method of seed-bed preparation
- date and method of planting
- variety of rice planted
- population density
- dates and amounts of water applied
- dates and amounts of fertilizer applied
- methods and kinds of fertilizer applied
- dates of weedings
- observations of crop conditions during growing season (diseases, insects)
- dates of harvest
- yield

The methods being recommended for rice production in Tara were not developed in that area. They were "imported." The kinds of records being recommended could be analyzed after two or three years and be used to determine the best management practices to improve rice production in the Tara area.

- e. It is recommended that serious consideration be given to the assignment of a fulltime rice production specialist to the Tara irrigated rice scheme. This person should have a basic understanding of statistics and be assigned to manage field operations, keep accurate records, make agronomic observations throughout the growing season, and provide technical advisory service to the rice farmers.
- f. It is recommended that consideration be given to the installation of a basic meteorological station at the site of the irrigated rice scheme. The following data should be collected:
 - maximum-minimum daily temperatures
 - precipitation (recording rain gauge)
 - incoming radiation (albedo)

These data, kept on a regular basis, will become increasingly useful as production increases and agriculture develops in the region. Further, it would be useful to have stream gauges to collect data on rate and volume of flow of the Niger River.

- g. It is recommended that a few (2-4) parcels of irrigated land be used for research in irrigation practices, soil management and rice production. Such research should be under the direction of ONAHA or INRAN.
- h. It is recommended that consideration be given to the use of a common rice seedling nursery to be operated under the direction of the Rice Farmers Cooperative. Although the Evaluation Team did not have an opportunity to explore this idea with the Tara Project Director and the farmers, it is felt that such a common nursery might provide more timely and consistent quality of rice seedlings.
- i. It is recommended that Phase 2 include appropriate arrangements to assure regular technical repair and maintenance of the pumping station and irrigation water distribution system.
- j. It is recommended that consideration be given to the utilization of extra space in the rice storage building for grains and oil seeds (millet, sorghum, corn, peanuts) produced on the upland non-irrigated fields around Tara. These improved storage facilities could greatly decrease the loss of stored grains caused by rodents and insects.

2. Poultry Project

- a. It is recommended that the recently implemented poultry project be continued and supported. Careful attention must be given to assure a continuous supply of clean water for the flocks. Sanitation and medication must be adequate to control disease.
- b. It is recommended that training and technical advisory services be continued for the members of the Women's Poultry Cooperative.
- c. It is recommended that a program of literacy training be implemented for the members of this co-op.
- d. It is recommended that a study be made to determine the best methods of quality control and marketing of eggs and meat produced by the poultry co-op.
- e. It is recommended that consideration be given to the mixing of poultry rations in Tara with locally grown grain and imported protein supplement as an option

to reduce the cost of production. This might supplement or replace the currently imported complete ration.

- f. It is recommended that careful analysis be made of the poultry project after two years. If the project proves to be sound, technically, socially and financially, consideration should be given to the construction of one or two more poultry houses to increase the volume to the level proposed in the Phase 1 plan.

3. Fisheries Project

- a. It is recommended that technical support be continued in Phase 2 for the Fisheries Project. Although the Project is just beginning, there is ample evidence observed by the Evaluation Team that this activity is important for the development of Tara. The facts given to the Team suggest excellent potential for exploitation for commercial purposes of the many species of edible fish in the Niger River. Further, officials of the Government of Niger strongly support the Fisheries Project.
- b. It is recommended that fish farming in ponds and cages be implemented through appropriate training of villagers and development of ponds and facilities.

4. Domestic Water Supply

It is recommended that Phase 2 include the construction of a covered well equipped with one or more hand pumps to provide a year-round supply of clean water for domestic use for all the inhabitants of Tara. A more centrally located, covered well with a pump will relieve the women of Tara of the drudgery of drawing water and carrying it great distances. Further, the provision of clean water should reduce the incidence of infections and disease in the village.

5. Health Delivery System and Sanitation

- a. It is recommended that discussions be continued with the Ministry of Health in an effort to provide more adequate medical care for the families of Tara. Villagers and government officials alike expressed concern that basic medication and treatment be made

readily available to those in need of it. Greatly increased time in and contact with water and work with animals and mechanical devices increase the probability of physical injury and of contracting water-related diseases.

- b. It is recommended that an educational program on family health, nutrition and sanitation be implemented.

6. Housing

It is recommended that the design, availability and costs of low-cost permanent family houses be investigated for possible use in Tara. If any such housing is economically feasible and adaptable to the environmental conditions of Southern Niger, it is recommended that several houses be constructed in Tara as a pilot study. If they prove to be satisfactory, a system of credit, technical assistance and training should be provided so that villagers could purchase building materials and participate in the construction of new houses for Tara.

7. Farm-to-Market Road

It is recommended that appropriate stone and/or concrete structures be constructed to provide permanent protection to the surface of the farm-to-market road in those areas which are currently susceptible to severe erosion during the rainy season.

8. Adult Education

Although training has been mentioned as components of other recommendations, the Evaluation Team recommends that emphasis be given to a broad spectrum of adult educational programs, including literacy, rice production, farm management, cooperative management, grain marketing, poultry production, and marketing fish production and marketing, animal production and marketing, nutrition, family health care and sanitation.

Scenario 2

The assumptions in this case are that no external (non-GON) support will be available, but that GON will continue to support the Tara Project with limited financial and technical support.

1. It is recommended that the irrigated rice scheme be continued and that GON provide as much assistance as possible to improve the reliability and delivery of river water for the production of two crops of rice per year. It is also important that Genie Rural make every effort to bring more of the diked land under irrigation by land leveling.
2. It is recommended that GON provide essential technical assistance to support the poultry and fish projects.
3. It is recommended that particular emphasis be given to the training of village leaders, men and women, in management and decision-making. It is extremely important that the people of Tara take the initiative in developing and utilizing the resources of the area and in making those decisions which will help to make their future more secure.

Scenario 3

In this situation it is assumed that little or no financial and technical assistance will be available to the Tara Project in the future. In discussions with leaders and rice farmers in Tara, the Evaluation Team asked if the Project could survive without assistance. The major concern expressed by the farmers was their inability without external aid to maintain, operate and improve the pumping station and the land under irrigation. They expressed fear that without technical assistance, the irrigation program would not continue.

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1. It is recommended that the Rice Farmers Cooperative explore the possibility of employing and funding a part-time irrigation engineer/manager. If no other assistance is available, such initiative by the cooperative may be the only way to continue the irrigated rice program.

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APPENDIX 1
ITINERARY OF THE EVALUATION TEAM

20-21 July 1981

Briefing and preparation for Mission to Niger,
Africare Office, Washington, D. C.

21 July 1981

6:30 p.m., Departure from Dulles International Airport

22 July 1981

7:50 a.m. Arrival in Paris
11:59 p.m. Departure from Paris

23 July 1981

4:15 a.m. Arrival in Niamey
10:00 a.m.-6:00 p.m. Briefing and planning with Staff
of Africare/Niger

24 July 1981

7:00 a.m. Departure by auto for Tara
10:30 a.m. Brief protocol visit with Prefet of Dosso
3:00 p.m. Arrival in Tara
Visit to and discussion of Rice Project
(Pumping station and fields)
5:00 p.m. Discussions with Director of Tara Project,
officers of Rice Farmers Cooperative
6:00 p.m. Visit to and discussion of Poultry Project

25 July 1981

10:00 a.m. Discussions with Sous Prefet of Gaya
1:00 p.m. Inspection of well constructed by the Project
to provide water for poultry flocks and domes-
tic use by villagers
2:00 p.m. Discussions with President of Women's Poultry
Project
4:00 p.m. Discussions of records and record-keeping with
Project Director
5:00 p.m. General discussion of Tara Project and its
future with rice farmers

APPENDIX 2
LIST OF PERSONS WITH WHOM THE EVALUATION
TEAM DISCUSSED THE TARA PROJECT,
ITS STATUS AND FUTURE

Government of Niger

Secretary General, Ministry of Rural Development
Mr. Silimane Ganava

Director, ONAHA
Mr. Cissé Amadou Alfaizé
Mr. Madougou Yaya (Regional Director)

Director, Service of Agriculture
Mr. Gumarou Ibrahim

Department of Dosso

Prefet
Mr. Ibrahim Hassane
Sous Prefet, Gaya Subdepartment
Mr. Mainssara Issifou

Village of Tara and Tara Project

Director of Tara Project
Mr. Alzouma Sounna
President of the Tara Rice Cooperative
Mr. Elhadji Hanki Baye
Treasurer of the Tara Rice Cooperative
Mr. Son Allah Bagna
President of the Tara Women's Poultry Cooperative
Madame Koira Hadi

Africare/Niger

Country Representative
Mr. Gerald Mills
Agricultural Coordinator
Mr. Hugues Sylvain (Agronomist)
Administrative Officer
Ms. Dorrett Lyttle

Appendix 1
Intinerary of Evaluation Team
Page 2

7:00 p.m. Departure for Dosso
9:30 p.m. Arrival in Dosso, Hotel Djerma

26 July 1981

9:00 a.m. Discussions of Tara Project with Prefet of Dosso
10:00 a.m. Departure for Birni N'Gaoure.
11:00-4:00 p.m. Visit to site of proposed Women's Vegetable
Project, Village Harikanasou
6:00 p.m. Arrival in Niamey

27 July 1981

9:00 a.m. Meeting with the Director of ONAHA
(Office National Amangement Hydro-Agricole)
5:00 p.m. Meeting with the Minister of Rural Development

28 July 1981

9:00 a.m. Discussions and report preparation
2:30 p.m. Meeting with USAID officials

29 July 1981

8:00 a.m. Meeting with Director of Agriculture
Ministry of Rural Development
9:00 a.m. Meeting with Chief of Division of Implementa-
tion, ONAHA
10:00 a.m. Visit to Saga Rice Project
1:00 p.m. Discussion with Africare staff; review of docu-
ments related to Tara Project; wrap-up
5:00 p.m. Departure for Dakar with stops in Ouagadougou
and Bamako
9:30 p.m. Arrival in Dakar

30 July 1981

9:00 a.m. Meeting with Rural Development Officer
USAID, Dakar, Senegal
10:30 a.m. Visit to Africare Office, Dakar
12:00 p.m. Visit to Peace Corps Office, Dakar

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Appendix 1
Itinerary of Evaluation Team
Page 3

31 July 1981

1:50 a.m. Departure for JFK, New York
5:30 a.m. Arrival in New York
9:07 a.m. Arrival in Washington
Oral report and discussion of Mission with
Washington staff of Africare

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Appendix 2
Persons With Whom Team Discussed Project
Page 2

The Evaluation Team also discussed the proposed Project Boboyé Women's Vegetable Project with the following persons:

Sous Prefet of Birini N'Gaoure.

Chief of Village Harikanasou
Mr. Maigari Mainassara

Chief of the Canton
Mr. Elhadji Maidinda

President of the Women's Vegetable Project
Madam Dariz Alzouma

Farmers:

Mr. Amadou Hima	Mr. Yacouba Ladakari
Mr. Seydou Elhadji	Mr. Flo Elhadji
Mr. Zakar Danrani	Mr. Amadou Adamou
Mr. Oumaran Labo	Mr. Hassane Sounnakaye

School Teacher (from Tara, teaches in village Kotumbu)
Mr. Boubacar Noma

--
Saga Rice Project, Niamey

Field Manager, (ONAHA)
Mr. Sadou Boulel-Hoze

President of Development Council (Saga Rice Cooperative)
Mr. Harouna Djibo

U. S. Agency for International Development

Acting Mission Director
Mr. John Lovass

Agricultural Development Officer
Dr. Wilbur Thomas

Design and Evaluation Officer
Mr. Cameron Pippett

Peace Corps Volunteers

Fisheries Project

Mr. Earl Meredith (Fish Biologist)
Mr. Ernest Winkenwerder (Fish Biologist)