Africare

L'Amélioration de la vie en afrique rurale en développant les ressources hydrauliques, la production agricole et les services de santé

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ACTIVITES PAYSANNES

PHASE II

Project No. 688-0934 A

Grant No. ASB-0000-G-SS-6013-00

FINAL EVALUATION

A joint evaluation conducted by:

- Secretariat Technique de Suivi et Evaluation des Actions des ONGs
- USAID
- Africare.

June 1989.

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I. Executive Summary (GERBER)

From June 5 to 10, 1989 a team composed of Government of Mali (GRM), USAID and Africare representatives conducted a joint evaluation of the Activites Paysannes Phase II Project. The team was composed of:

Mr. Hamed Bangoura: Sociologist - Sec. Tech. de Suivi et Evaluation des Actions des ONGs - MATDB
Mr. F. Traore: Director of the CAC, Dire
Mr. Richard Byess: Project Development Officer - USAID
Mr. Hamacire Daou: Engineer - USAID
Mr. Mamadou Augustin Dembele: Agronomist - USAID
Mr. Dana Hovig: Project Coordinator - Africare
Mr. Dan Gerber: Country Rep.and Team Leader - Africare.

The Activites Paysannes Phase II Project's goal, as explained in the proposal, was to promote food self-sufficiency in Mali's Sixth Region through agricultural production activities and management of water and soil resources. This was primarily to be done by helping support the area farmers increase production of their irrigated wheat, millet, rice and spice crops. The logical framework of the project proposal listed thirteen implementation targets: increased production of food crops; organization of farmer cooperatives; fuel and oil delivery logistical capability; pump and parts service supply capacity; management of a credit fund; establishment of a mechanic maintainance service; strengthened extension services to farmers; service supply capability for seed, fertilizer and other inputs; establishment of a mechanics shop; establishment of a cooperative training program; establishment of a mechanics training program; alternative energy pumping demonstration and research; and collection and analysis of data.

This final evaluation of the Activites Paysannes Phase II project was undertaken to help assess the progress made towards achieving project purposes during the three and one half years of the project and to help make recommendations to direct the new follow on Phase III project. Although it was originally intended as solely an in-house evaluation, Africare requested the participation of both GRM and USAID in the evaluation. Together the members of the evaluation team decided to produce a joint evaluation rather than separate documents.

The evaluation team spent the period June 5 - 10 in Dire and conducted site visits to three project sites (Kessou-Korey, Ganganiberi, and Sadjilambou). The evaluation team also attended a meeting of the Administrative Council of the Union of Cooperatives. Selected farmers, government officials and local-hire Africare employees (those who are envisioned to become Union employees prior to the end of the Phase III) were interviewed. The evaluation team also visited the fuel storage facilities in Dire, the workshop/project headquarters in Bourem, and the Ganganiberi grain storage warehouse.

The major findings of the evaluation team were:

1) The project was designed and generally implemented in conformity to GRM, USAID and Africare policies and goals.

2) The project was generally efficient and effective in its implementation, especially in the areas of training counterparts, assuring credit and logistical inputs and adaptability to changing circumstances. The project could have been more successful in cooperative development, marketing and agronomic extension.

3) The project did not attain all its implementation targets regarding increased production of food crops. This was due primarily to a decision (which the evaluation team endorses) made during project implementation to emphasize sustainability and thus credit recuperation over mere attainment of production goals. The limited marketing possibilities of the zone - due at least in part to smuggled wheat from Mauritania and imported food aid given as Food for Work - has seriously jeopardized the ability of all but the most successful farmers to be profitable under current circumstances.

4) The project had a positive impact in the project zone and on beneficiaries. The project has greatly assisted the project associated farmers through giving them access to credit and irrigation and agricultural inputs (including pump repair facilities and fuel).

5) Much has been already done towards the goal of training counterparts and establishing an organization to take over the role of Africare in the project. Nevertheless much more work is needed in helping the cooperatives become viable and sustainable entities and this should be a major focus of Phase III.

6) A second major focus in Phase III should be in marketing. The limited marketing possibilities which currently exist threaten the long term sustainability of the project. Wheat transformation and diversification of crops should be explored.

7) Improved agronomic practices and irrigation techniques would help the farmers reduce their costs of production and help improve the outlook for the long term viability of the project. This should be the third major focus of Phase III.

8) In the long term the future viability of the project will in large part be determined by outside factors such as: the GRM's role in monitoring and providing farmers extension services at EOP; GRM policies regarding enforcement of tariffs for imported grains; farm credit and pricing; foreign donor policies regarding food relief and subsidies to their own farmers; and other donors' policies towards motorpump selection, availability and terms. The

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project's success in maintaining the credit fund (which to date has been reduced to two thirds of its original size), training and marketing will also be a determining factor for long term viability.

Major lessons learned from this project which may have application in other similar activities in the future include:

1) Emphasize task and job specific skills in training. Make certain the trainees have an understanding of their self interest in the training.

2) A complicated undertaking (introducing a modern irrigated farming system to farmers used to bucket or calabash irrigation) takes substantial time and effort. This should be anticipated and planned for in project design.

3) Marketing and political forces beyond the control of the project greatly affect the outcome (both positive and negative) of the project and should be planned for.

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II. Project Identification Data Sheet

A. Country: Mali

B. Project Title: Activites Paysannes Phase II

C. Project Number: 688-0934 A (Grant No. ASB-0000-G-SS-6013-00)

D. Project Dates:

1. Project Start Date: October 25, 1985.

2. Final Obligation Date: October 25, 1985.

3. Project Assistance Completion Date (PACD): July 31, 1989.

E. Project Funding:

1. AID	USD$	1,723,000
2. Africare Match	USD$	695,193
3. Host Country Counterpart Funds (only includes 62,500,000 CFA PL480 credit at @ $1 = 300cfa.	USD$	208,333

F. Mode of Implementation: Operational Program Grant.

G. Project Designers: Africare.

H. Responsible Mission Officials:

1. Mission Directors: Gene Chiavaroli
Dennis Brennan

2. Project Officer: Boubacar Daou

I. Previous Evaluation:

Africare In-House Evaluation dated March 1987.

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IV. Body of Report

A. Purpose of Evaluation (GERBER)

The purpose of this final evaluation of the Activites Paysannes Phase II Project is: (1) to measure progress towards accomplishment of project objectives; (2) to review the extent to which the project has been successful in providing economic and environmental benefits to the receipients; and (3) to examine project implementation in the hope of providing helpful recommendations for the follow-on project (AP III) and to draw general conclusions regarding undertaking similar projects in the future. The evaluation was conducted jointly by the GRM, USAID and Africare. The different members of the team agreed in principle to most of the findings and recommendations. However it was only natural, due to the team members different perspectives and relations to the project, that there were some disagreements regarding some of the conclusions and on the emphasis placed on the various accomplishments, problems and potential solutions. Rather than eliminate the differences of opinion that did exist in the evaluation document it was decided that inclusion of different points of view would increase the value of this joint evaluation. The name following each section heading is the principal author of the section.

1. Project Background (GERBER)

In 1978, USAID/Mali began financing the Action Ble Dire Project (688-02133) which was designed as a program of aid to small-scale wheat growing farmers in Mali's Sixth Region. The project included assistance to participating farmers in establishing new irrigation schemes using small motorpumps and agricultural inputs, and support of extension services provided by the Action Ble local rural development agency.

In September 1981 AID decided to discontinue the project effective January 1982. At that time USAID/Mali proposed a gradual one year phase out program to focus direct support to the wheat-growing farmers who had previously purchased motorpumps under the project. This phase out program in which Africare participated, repaired pumps, delivered diesel fuel, trained farmers and mechanics in pump maintenance and repair, provided some spare parts and fuel barrels and implemented a credit program. While the phase out implied a gradual decline in activity, the program in fact showed considerable progress. This progress was encouraging to farmers, GRM officals and USAID. Estimated wheat yields during 1982-3 were 2.9 tons per hectare. Data collected at the time also indicated the possibility that certain spice crops (cumin and anise) and various cash crops could be profitable. Because of what was viewed as the positive results of the phase out, a decision was made to support the activity beyond the phase out completion date.

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USAID decided that in the long term a PVO's assistance would be most useful in providing specialized management for a project in such a remote region. In 1983 Africare was requested to submit a one-year extension proposal for this project, renamed by that time, Activites Paysannes. Africare's proposal was approved and a $500,000 Cooperative Agreement was authorized for the period July 1, 1984 to June 30, 1985. This one year project was then followed by a three year follow up project AP Phase II.

The total AID funding for AP Phase II was $1,746,988. As part of the Grant Agreement with USAID, Africare agreed to match the total of AID funding with $582,333 of non-USAID funds. This has been surpassed through the following projects:

Afr/Project No.	Project Name	Donor	LOP Expenditures
1501	AP Food Production	USA for Africa	$310,000*
1502	Ganganiberi Coop.	USA for Africa	83,344
2402	VARS Arham	private	4,265
2501	AP Food Production	UMCOR, Ford Mo Co.	273,000*
2602	Bourem Women's Mill	NYC Africare Chapter	15,135
2504	Bourem Reforestation	private	881
(3026)	Bourem Cooperative	private	4,949
(3038)	Kessou-Korey Well	AME	3,619
		TOTAL	$695,193

* Projects not completed - amount listed is total budget and amount received from donor for program. Both these projects are expected to be completed by PACD date of July 31, 1989.

2. Logical Framework Recapitulation (BYESS)

The project was guided by a logical framework, albeit one prepared in an unusual manner. According to the project officer and others interviewed, the logframe was modified jointly by the AID Project Officer and Africare over the course of implementation, but was never revised in such a manner as to develop a clear project purpose. Instead, the entries at the project purpose level are expressed in the form of implementation targets.

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A comparison of the benchmarks against project achievements reveals that the targets established were extremely optimistic. One is tempted to claim that the authors were unrealistic in their projections, but in fact the orientation of the project changed significantly over the course of implementation, as the original design was oriented toward expansion, both in terms of crop production and in terms of the number of participating farmers and villages. The current approach is one of retrenchment and consolidation, as manifested by the implementation team's approach that nonperforming villages should be dropped from the project and that project resources should be concentrated on those cooperatives and farmers who were successful in producing wheat and consequently in repaying their debts. This is an altogether reasonable approach in the light of the results of implementation.

The decrease in production for certain crops can also be viewed in a favorable light, in the sense that it indicates that the farmers and cooperatives themselves have adopted responsibility for production decisions rather than relying on the project, which is a desirable achievement.

A target-by-target examination of the logical framework reveals the following:

1a) Increase wheat production from 1100 tons/year to 1800 tons/year.

Wheat production has in fact declined significantly from the beginning of the project, as the number of village associations participating decreased and the areas planted decreased. Yields have not attained the over-two-ton targets projected by early studies. The project figures and estimates (see page 32) for wheat production were some 900 tons for the 1989 campaign. (The campaign was started too late because of locust threat.)

1b) production of rice and millet increases from 400 tons/year to 900 tons.

(See page 32 for estimates.)

1c) production of spices increases from 50 tons/year to 120 tons/year.

After an unhappy experience last year with cumin and anise, which was eventually sold after considerable effort in Niger for less than the cost of production, the farmers have for the most part abandoned spice production. Oral interviews indicate that this year's production is only around some 10 tons.

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2a) Create one general cooperative and 10 pre-cooperatives

In this target realizations reached planned levels. At the close of the project there were five cooperatives juridically recognized -- Ganganiberi, Horogoungou, Kirchamba, Kabeme II and Kessou-Korey. The remaining five organizations are Hara I and II, Arham, Tangassane and Sadjilambou.

In view of the developments that occurred, the importance of this target to the project is hard to determine. The CAC representative explained that cooperative registration is largely an administrative matter, and the requirements for approval are are not laid out anywhere. One establishes a dossier which is approved by the governor and cooperative status is granted. This does not confer any additional advantages to the farmer group, which is eligible for project credit with or without cooperative status.

2b) Committees established for procurement, debt repayment, storage and commercialization.

In the villages visited by the evaluation team, it appeared that these committees have been organized in each association. The team did not have time to verify that the committees were functional or what role they played.

2c) Management committee organized.

This target was rendered irrelevant by the creation of the Union of Cooperatives, an event which was not originally envisioned at the time of project design. The functions set aside for adoption by the management committee are currently being assured by the Union.

As mentioned elsewhere in the evaluation, though, it is not clear that the Union is an effective vehicle for representing farmers' interests, and it may be that individual management committees might prove to be a good adjunct to the Union.

3a) Gasoline storage capacity increased to 200000 liters (50000 in Bourem and 150000 in Dire).

This target has been met. Through an arrangement with the COMANAV, the Union has signed a contract to purchase a 150000-liter installation in Dire. In Bourem, there are three rubber cisterns of some 8000 liters' capacity each, and a sufficient number of barrels in place to contain the difference between the cistern's capacity and the target.

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3b) Establish a system of regular procurement.

In current planning, the magasinier in Bourem is responsible for receiving spare parts and other inputs procured by Africare. Once the Union takes over the procurement function completely, they may wish to establish some sort of branch office in Bamako or elsewhere to assist in procurement of these supplies. This is an item that the team has said they will investigate during the next phase of the project.

3c) Establish a logistical system.

Although there is as yet no single reliable source of supply for fuel and oil, the cooperatives have been able to find adequate supplies each year. The arrangements Africare worked out with the Petrostock company did not result in an assured supply. As of this writing, they have made arrangements with private suppliers who have proven to be reliable.

4a) 300 pumps are working.

At the time of the evaluation, there were some 65 pumps on the list established by Africare. This figure is misleading, because the capacity of the individual pumps on the inventory is much higher than was that of the Cooper pumps on which the original target was based, so the number of pumps is much less than 300. Furthermore, some cooperatives rent, others own and others lease their pumps, so that the total pump capacity may or may not be in excess of the target originally established.

5a) Credit available to 300 peasants.

The project lent to some 640 farmers last year, but many did not repay. Some figures relating to the size of the credit program are available, but they are not provided here and should be interpreted carefully.

Africare estimates that the credit fund has been eroding at the rate of some 20% or 30% per year for the last several years. As noted elsewhere, the erosion of the credit fund will severely limit the Union's ability to lend in the future. In view of the performance of the fund to date, and the apparent absence of discipline to repay, further injections of credit capital are strongly discouraged.

5b) 90 - 100% recovery rate.

This target is far from being met, and the gradual erosion of the credit capital poses a serious threat to the future of the project. This is discussed elsewhere in the evaluation.

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5c) Credit system administered by the cooperative.

Once funds are provided to the cooperative, the credit system is in fact administered by the cooperative members, and there exist subcommittees within the cooperatives established for this purpose. The reasons for which they have not been any more successful in credit recovery is a topic beyond the scope of this evaluation and should be much better understood before any future funding is provided in this area.

6a) 30 mechanics trained to serve farmers.

With the advent of the larger-capacity pumps, there is no need for 30 mechanics. Five were trained, and it is now thought that even this figure is too high.

7a) 10 Agricultural agents in the field.

There are no agricultural agents in the field. There was an agricultural engineer assigned to the expatriate team, but his qualification were in the area of earthworks rather than agronomy and extension. It should be the responsibility of the Direction Nationale de l'Agriculture of the Ministry of Agriculture to provide agents, but they are clearly not equipped to field agents at any time in the near future. One positive development in this area is that the President of the Union of Cooperatives expressed interest in putting pressure on the regional agriculture offices to provide such an agent.

7b) Two cooperative agents in the field.

There are no cooperative agents in the field. This is an area that could be greatly improved, but is not an important target for the project's third phase, which is designed to reduce rather than expand the range of services provided by external agencies.

8a) 90 tons of seeds provided each year.

This target has been met.

8b) 90 tons of urea and phosphate fertilizer available.

This target is regularly met, but the system of procurement is variable. For example, this year the project ordered a large quantity of fertilizer commercially and then learned that the GRM had arranged to provide the fertilizer at greatly subsidized prices. It is possible to say that the system could be improved, but one would have to provide a better control over the outside factors affecting supply and price.

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9) Atelier equipped to repair motorpumps.

This target was met adequately. The atelier is staffed and equipped and functioning quite well, in the views of the evaluators.

10a) 250 farmers alphabetized.

Some project personnel estimate that only some four were really trained adequately. Possibly as many as 50 or 100 received some sort of training, but this was inadequate. Many farmers interviewed stated that training in alphabetisation, and more specifically in cooperative management, was their highest priority for the next phase of the project.

10b) Farmers trained in cooperative management.

There was no quantitative target established, but few farmers were trained.

10c) 10 management committees formed.

This target is not appropriate in view of the creation of the Union of Cooperatives [see above].

11a) 30 mechanics trained.

Five were trained, but as noted, this number is largely adequate to service the new pumps, which have a larger capacity.

11b) 16 recycled.

Three were recycled, plus the chief mechanic.

12a) Study solar energy, windmills and animals.

A Peace Corps Volunteer has produced some studies.

13a) Collect and analyse statistics and project documents.

Much has been done in regard to project economics, and less has been done with regard to social issues and within-cooperative political dynamics. To the extent that this can be done within the next two years, project personnel should pay more attention to these issues than they have in the past.

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3. Study Questions (GERBER)

Below are the study questions the evaluation team set forth to answer. The questions raised are addressed in section C "Findings of Evaluation". The questions are:

a. Was the project consistent with GRM, USAID and Africare policies and goals ? Was the design of the project appropriate?

i- sectoral emphasis
ii- methodology (self-help, women, institutionalization)

b. Was the execution of the project effective and efficient ?

i- components

(a) Mechanics/Workshop
(b) Credit
(c) Cooperative Development
(d) Engineering
(e) Training
(f) Administration/Logistics
(g) Agronomic/Research

ii- other factors

(a) External factors impacting on success/failure of project
(b) Occurrence of unplanned results
(c) Economic efficiency
(d) Financial control of project funds.

c. What was the impact on the project zone and project beneficiaries ?

d. How successfully has the project addressed the issue of sustainability ?

B. Context of Project

1. Economic (BYESS)

The historical backdrop to this project, which should not be obscured by the details of the last decade's developments, is that the variety of wheat currently under cultivation is the same as that which has been produced in the Dire area for hundreds of years. Further, the cultural practices apparently changed very little over time, at least until the arrival of mechanical irrigation, which seems to have coincided with the beginning of AID-funded activities in the early 1980's. People in the area

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produced enough wheat to satisfy their needs but not enough to export from the area.

It should also be kept in mind that the country's wheat production is really quite small -- an anomaly of sorts due most probably to the Dire areas' cultural and commercial ties with the Arab countries -- and is for the most part limited to the Dire-Tombouctou area. It is prepared in the forms of desert bread (a larger cousin of pita bread), couscous with large and small grains and a sort of whole-wheat noodles, and a variety of other dishes.

The advent of mechanized irrigation and its spread in the early 1980's caused a mushrooming of production from which the local market has not yet recovered. There are frequently surpluses of wheat in the cooperatives' warehouses that are not easily disposed of, and the Union is making efforts to sell the surplus production in Bamako, Gao and other places. Despite that the project and its predecessors (Action Ble Dire and Activites Paysannes I) have been active for nearly ten years, the project personnel continue to agonize regularly over whether wheat production is really in the long-term interests of the farmers in the project. Reports I consulted dating back several years agree with each other at least in the respect that they reflect grave concerns about the ability of the cooperatives to continue to produce and sell wheat. Many farmers have a somewhat more sanguine approach, believing that all cereals at present are selling poorly and that wheat is not a special case.

Because of the large number of externalities which affect the project (including relief aid, donations of pumps and vehicles from donors, and smuggling) and which vary from year to year, it is difficult to conclude definitively that wheat is a good or bad crop from the farmer's point of view. It seems impossible on the surface that irrigated wheat production in the middle of the Sahara desert could be economically justifiable. One author (Soule) performed an economic analysis in 1987 of the planned Activites Paysannes III project which demonstrated high financial and economic rates of return. One could challenge some of her assumptions, although the basic analysis was sound. For example, she based her calculations on US-based adjusted production prices, rather than Malian border prices (which vary enormously from year to year with the level of food aid). She also assumed that the wheat produced in Dire is of the same quality as that imported for flour in the urban areas, which may not be true. The amortization formula for pumps should also be reviewed in the light of pump performance (shed used a cycle of eight to ten years, whereas the true figure may be closer to five, and maintenance costs increase sharply after the first couple of years).

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One of the other points made by Soule bears further discussion. She examined the cost effectiveness of the AP III project in contrast with the most likely alternative form of food supply in time of drought, emergency food shipments. Her analysis produced the conclusion that the proposed AP III project was some 1.5 times as cost effective as emergency shipments. This is an interesting point, as it provides an important rationale for continuing to provide funding.

It is not clear, though, that the commodities produced by AP result in improved nutrition for the farmers. Farmers produced wheat in Dire before the AP projects, and will continue to do so long after AP is gone. It is not clear that they have increased their consumption of wheat relative to other foods. One could argue that pumped water is a more stable source of food production than rainfall, but there was in fact "calabash" irrigation in practice prior to the advent of AP and it was likely to have been just as stable a form of irrigation as diesel pumps have proved to be. A more interesting question is whether people's lives have been improved by the project (their short-term incomes certainly have) and whether the program is sustainable (unlikely without significant external assistance).

Second, the decisions on levels of food aid, for whatever reason, are unlikely to take into account the food produced by the Dire project. Wheat production in particular is too small to affect the relief agencies' ordering decisions, and there is such widespread informal transportation of emergency food that even the overflows from the Mauritania programs have been reported in the Timbuktu market. While the argument that the Dire wheat production reduces the needs for food aid is an appealing one in theory, it is unlikely that the benefits will ever be realized due to the scale of the operation.

(HOVIG): Activites Paysannes' wheat production alone cannot change the Sixth Region from a grain-deficit zone into a grain-surplus zone. Thus, AP, if viewed by itself, probably will have no impact on food distribution decisions. However, AP represents only one of many projects in the area, all of which have encountered the same difficulties in marketing their products. BIT cooperatives in Dire currently have over 250 tons of rice in their warehouses from last year's campaign; Kouriame in Tombouctou had serious problems this past year in marketing their rice production from their 500 hectare irrigated plain; UNICEF, Euro-Action-ACORD and FENU provide similar examples. Taken in this larger context, the marketing problems of Activites Paysannes and the impact of distribution and other externalities on Activites Paysannes are symptomatic of all irrigated agriculture production in the 6th Region.

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2. Social and Political (BANGOURA)

Mali is one of the poorest countries in the world and has recently experienced several years of critical difficulties. The principal resources are in agriculture and livestock (involving 85% of the active population). These sectors are those which have been most severely affected by decreased rainfall, increased population pressures, and displacement of people from the 6th and 7th Regions to the more habitable southern zones.

Faced with those problems, the GRM has concentrated its efforts on a number of socio-economic objectives identified in the 1981-85 Development Plan. These are:

Principal Goals

- Food self-sufficiency
- Efforts to combat drought and desertification

Subsidiary Goals

- Water resource development (which is meant to increase production in rural areas)
- Training and employment

In concert with these last objectives, the GRM also has long term objectives of improved human resources by:

- creating, through training and an information campaign, the political and psychological conditions for the implementation of a planned, independent and national economic policy;

- orientation and promotion of studies and research towards solving the economic, technical and social problem of the key sectors; and

- integration of women in development activities especially in their traditional rural activities where they do 70-80% of the work.

To enable attainment of these different objectives, the GRM's policy is fundamentally based on integrated grassroots development.

This strategy is based on organizing the rural communities in village associations, marketing and production cooperatives and in more advanced groups, into "ton villageois".

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Inspired on the traditional system of solidarity, these cooperatives are, in the philosophy of the GRM, instruments of self-help. This system will allow the groups to work with the participation of each member to manage, protect and exploit the assets of the rural communities. The creation of these groups also foresees the responsibilization of the villagers to identify and execute rural development projects based on the priorities and needs established by the populations themselves. It is a means conceived to help the village groups take responsibility for their own development.

Additionally, the GRM has undertaken a program of decentralization which is meant to enable regional and local planning through, at the Cercle level, "Conseils Regionaux de Developpement" and, at the arrondissement level, Local Development Committees. As institutions of programming, coordination and evaluation in matters of social and economic development, the committees' function is to assist the chief administrative officer of the zone in the work of development. At the level of the Conseil Regionaux, the populations' representatives can meet to discuss and find answers to the local problems, conceive development projects of direct interest to the local community, and give advice and make decisions regarding projects and problems faced by the communities.

It must be noted that the installation of this system has not totally taken place due to the lack of both financial means and lack of philosophical changes in the minds of those implicated in adopting this new approach. Also the interventions of local development committees have to date largely been sporadic instead of systematic and organized with the appropriate resources. At the national level, the principal administrative structures directly implicated in this policy are the Ministry of Plan and the Ministry of Territorial Administration and Development from the Base.

C. Findings of Evaluation

1. Consistency with GRM, USAID, and Africare Policies and Goals - Appropriateness of Project Design.

a. GRM (BANGOURA)

Based on the economic, social and political context as described in the section above, the GRM representative found that the AP project was well conceived with its emphasis on meeting certain priority needs as expressed by the beneficiary population. Nevertheless, the GRM representative found that AP could have put more emphasis on working in conjunction with the GRM development structures and put more emphasis on integrating women into the project.

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AP II targeted community groups to enable them to improve their socio-economic conditions. The project planned to help these groups by helping them identify, plan, implement and manage their own cooperatives. Thus the AP project directly ties in with the development plans of the GRM authorities as detailed in the GRM plans of 1981-1985 and 1987-1991.

The GRM priorities include attacking the problems of development by putting the emphasis on local, participative and self-help initiatives. The approach of AP clearly conforms to these policies.

The GRM's development agencies desire a policy of decentralized action. In this light, the role of AP is important for it must reinforce the capacity of the local development committees to plan and follow the project activities. During implementation certain constraints have limited AP's action in this regard. These constraints are found at two levels:

(i) GRM - the local development committee does not have the means to effectively provide literacy training and other assistance to the beneficiaries.

(ii) Africare - it appears that the original Africare team could have involved the local development committee to a greater extent in project monitoring and implementation. The current coordinator works closely with the local development committee. This will need to continue to have the development committee completely involved in following the project prior to the complete disengagement of Africare.

The end of project indicators of the AP II proposal were ambitious when looking at the difficulty of the work. The three year timetable of AP II was too short. Even the two years foreseen for AP III appear inadequate in view of the enormity of the objectives of self-help, training, and takeover of all activities by the local population.

b. Relation of the Project to AID Strategy (BYESS)

Although Activites Paysannes II cannot be described as a key element of the present AID program in Mali, either from a sectoral or a geographic point of view, it nevertheless directly supports many of the Mission's objectives and directly and indirectly supports other AID-funded efforts in the country. The project was conceived and approved prior to the adoption of the current country strategy which was approved in 1988 (see the USAID/Mali FY 1990 CDSS), but it demonstrates complementarity with many AID objectives.

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AID is active in a number of sectors, including agricultural research, cooperative development, and PVO support, that are directly addressed by the Activites Paysannes II project and that are proposed for inclusion in Activites Paysannes III. Furthermore, to the extent that the project continues in its present approach of devolving implementation responsibility from the government or external organization to indigenous and authentic farmer organizations, it supports USAID Agency and Africa Bureau objectives of private sector development and more rational resource allocation between public and private sectors.

An often-cited consideration in AID programming documents is that it is in the interest of the AID program in general to maintain the presence of dedicated and responsible Private Voluntary Organizations in the poorest and most deserted areas of the country for two reasons: first, to assure that the PVOs and local organizations with which they work are prepared for emergencies likely to arrive in the future; and second, to lay the groundwork for sustained development among the populations of those areas. In retrospect, the AP II project was successful in achieving these two goals.

In a more general sense, because Mali has been and will continue to be subject to drought and food shortages, projects that promote drought preparedness complement other relief efforts such as locust control and emergency food shipments. One analyst [Soule] has suggested that the Activites Paysannes program should be evaluated in terms of providing a means of reducing the requirement for emergency food in the region in times of drought. She found that an investment in an activity like the present project is a cost-effective alternative to costly grain shipments and merits support on those grounds.

C. Africare (GERBER)

The Activites Paysannes II project squarely falls within the realm of Africare's mission and expertise. With emphasis on helping rural farmers grow irrigated food crops, the project targets improving the lives of the rural population by increasing their agricultural production to meet their own needs and by increasing their income through sale of the surplus. The project has fostered training of counterparts and of farmer organizations to enable the project participants to continue the benefits of the project once outside funding has been removed. Training at this time continues to enable the Union of Cooperatives and member cooperatives to takeover all management, logistical and credit operations implemented by Africare.

It should be noted that unlike other projects in the area, much of the leveling and preparation of the irrigation canals and fields and literacy training have been done without monetary or food payments. This is a clear indication of the self-help

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philosophy the project has been able to maintain - a philosophy strongly adhered to by Africare.

The lack of significant women's involvement in the project is one area in the project in which the project has not sufficiently conformed to Africare policy and goals. Some efforts have been made to involve women in the processing and marketing components and one hopes this will be increased in AP III.

While the project's efforts in testing alternative pumping devices (solar, wind, and animal traction) was not as extensive as planned, what work was done also falls within the current Africare Mali development strategy. This strategy stresses continuation of working in the zones where Africare has projects (the 2nd, 4th, 5th and 6th Regions) and in the areas of agricultural production, water resource development, income generation and renewable energy. With its emphasis on water resource development, agricultural production, income generation and to some extent renewable energy, the AP II project thus clearly fits into Africare Mali's programming scheme.

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2. Efficiency Effectiveness of Project Implementation

a. Components

i. Mechanics/Workshop (BYESS and HAMACIRE DAOU)

The project depends for its continued functioning on the existence of the pump repair workshop. Our view of its functioning and equipment indicate that it is a very well run installation.

It is in danger, however, of losing its best personnel when the Union takes over, as it appears that the Union's receipts are insufficient to keep it operating. Africare should make strong efforts to set up a system under which the atelier becomes self financing and performs its services on a fee basis. The Union's suggestion that the atelier become involved in manufacturing furniture and other items should be examined with a critical eye.

After visiting the Africare workshop and discussion with the chief mechanic, we learned that some mechanics have received some training in some pumps, but their training is not completed. Some other outside mechanics are "playing games" with pumps newly arrived on the site and completely different from the first 500 pumps which arrived from the first project.

Good tools are available and mechanics are willing to help farmers for pump maintenance, but farmers always come to the mechanics when pumps are too far damaged to be easily repaired. Spare parts are not available in adequate supply for all pumps.

The workshop area needs to be enlarged and a pump testing facility should be constructed to verify that pumps were correctly repaired.

The spare parts garage is well run but still a lot of former broken pumps are still available. Some of the missing spare parts which are not available since the factory is closed might be manufactured in Mali, for example by in EMAMA in Sikasso, ACM in Markala, Societe Malienne de Fonderie Bamako, or similar places.

Training of mechanics should be continued on several kinds of equipments and a wider variety to support the people in the zone.

(ii) Credit (BYESS)

Without a doubt, the biggest implementation problem facing the project over the medium term is the rapid and unrelenting erosion of the credit fund, which is used to provide funds annually to the farmers to prefinance the cost of diesel and other inputs. The project target of a 90 or 100% repayment rate has never come close to being attained, and the figure for this year was around 70%. The figures available indicate that the fund as a whole has been disappearing at the rate of some 30% per year. At the present time, out of the 40MCFA in credit funds for Activites Paysannes I (resulting from the sale of PL 480 commodities in 1985) and what remained of the 30 million or so Malian francs inherited from Action Ble Dire, there remain only around 27 or 28 million in the project coffers.

To the extent that these funds are needed to finance annual production, erosion of the credit fund at this rate will result in effects more serious than a loss of donor funds. Many persons interviewed said that if the credit were not available the farmers would not be able to irrigate. This may or may not be true in the light of past experience.

One of the best-performing villages last year which clearly had the means to repay chose to pay the minimum payment required by the Union, which was established at 70% of the amount borrowed. They used the difference to invest in a new dry season rice irrigation scheme, which discouraged the credit personnel and suggested that the farmers had not accorded sufficient importance to the credit system.

Some suggestions come to mind as to how to address the credit problem, and we discussed these ideas with the project's credit personnel who are clearly eager to find a solution.

The first is to impose an immediate ban on lending to villages who do not repay at 100% for the prior year. This has been implemented in part, but consistant with the Bank Accord the

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Union has permitted lending to villages which achieved a minimum payment in the prior year of 70%. They are requiring collateral for any difference between the 70% and the target. It is not clear what the long-term effect of this policy will be.

The second is to reduce the size of the borrowing entity from an entire village to a "common interest" group consisting of no more than a few farmers. This may change the group dynamics and result in a better performance for the portfolio. A social scientist with experience in working with these farmers might be called in to pronounce on whether this is a feasible option. Common wisdom in West Africa states that the group's interests and the village's interests are coterminous.

Despite assurances to the contrary from all the Union members we interviewed, it was clear to us that there is little or no popular participation in decisionmaking, and that the Union of Cooperatives is a politically oriented organization that does not make decisions through popular consensus. They have achieved some quite visible results in soliciting assistance from donors and the GRM, but this appears to be the result of the efforts of a few highly-placed individuals rather than the group's common effort. As it currently stands, the long-term survival of the Union will depend entirely on the ability of the politically influencial members to obtain concessional assistance from donors on a regular basis.

(HOVIC): The credit picture for Activites Paysannes has changed dramatically since the beginning of the project. In the first years of AP, credit was given to individuals, with little or no control mechanisms established. Thus even if an individual farmer defaulted on his loan, he encountered no real penalty as he could easily get fund from another farmer in the village who still had a good credit record.

The arrival of cooperatives has transformed the system, providing a certain measure of control to the credit operations of the project. In the past year, 3 cooperatives were denied access to new credit, as their outstanding debts did not meet the minimum requirements for access to new credit as detailed in the DOA agreement. Two of the three cooperatives have reacted by stocking enough cereal from the most recent agricultural campaign to pay off their outstanding debt; the third cooperative will probably never reimburse the Union, and thus should never have access in the future to Union agricultural inputs. This weeding-out process, although diminishing the credit fund in the short run, is a necessary step in order to separate the most serious cooperatives from those who continue to view credit as a gift.

It is also important to note that although credit figures show only a 70% recuperation rate between 1982 and 1988, this does not necessarily indicate that the credit fund is decreasing

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in value 30% annually. Essentially, Activites Paysannes credit fund has only been lending part of its available funds every year. Thus, 30% of the credit distributed has been lost every year (an average), while the balance remaining in the bank has remained untouched. Indeed, the net worth of credit fund has been recently calculated at 51,694,718 FCFA (this figure includes assets having a real market value, such as fuel and fertilizer; outstanding credit which is still believed to be recoverable, and the amount of money currently in the AP Guarantee Fund). Thus since the time of Action Ble, the credit fund has lost approximately 35% of its value, and not 30% per year as original credit figures indicated.

In recent years, credit recuperation rates have become a function of the project's ability to market its grain. For example, cooperatives taking out credit for the most recent wheat campaign have already received in-kind repayment from their members that would enable each of the cooperatives to pay back in full their debt (assuming that they receive a minimum price of 100 CFA/Kg for their stored wheat). It would appear, then, that resolving the marketing problem would subsequently resolve the problem of credit recuperation that the project has encountered every year.

(iii) Cooperative development (TRAORE)

To achieve the specific objectives of cooperative development, AP should have worked in collaboration with local structures from the beginning to establish and define the institutional structures. Unfortunately such was not the case, the structure being unknown or poorly defined by the project.

This has had some consequences that jeopardized achievement of the cooperative formation objective since, from the start up of Phase II in 1985 to its end (1989), there were only five official cooperatives over the planned goal of ten.

The lack of collaboration between the development assistance agency and the local structure endangered project implementation (establishment of cooperatives).

Farmers should be willing to organize themselves into cooperatives and if, in its priority objectives, AP in collaboration with the CAC had made efforts towards developing awareness and organizing cooperative animation sessions, more progress would have been achieved.

It was only in the second quarter of 1986 that AP and the CAC worked together to establish the first cooperative : the Ganganiberi Agricultural Cooperative in Bourem Sidi Amar. It should be noted that prior to this, there was a pre-cooperative structure in this village: the Central Cooperative for

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Procurement and Commercialization ("Centrale Cooperative d'Approvisionnement et de Commercialisation - COPAC").

So this village community had already the idea of getting together and organizing themselves for the collective well-being of the community.

It is not surprising to find a contrary phenomenon in the second agricultural cooperative in Kessou-Korey, in the Cercle of Goundam. Here there was no cooperative structure and the community had no idea of organizing themselves. They rather had a tendency towards individualism.

This cooperative was established by the same time as the first one but took time to be officially recognized due to major technical and administrative difficulties.

Implementation of the cooperative formation program was resumed later, after a one year interruption, thanks to a more frank and more direct collaboration between AP and the CAC. Animation sessions and awareness for cooperative organization were carried out in more than twenty AP member villages among which eight were responsive.

Presently, there are five official agricultural cooperatives, over the original goal of ten, with four in the Circle of Dire and one in the Circle of Goundam.

These cooperatives have been organized into a Union of Cooperatives whose major tasks is to coordinate individual cooperatives' activities, procurement of agricultural inputs, and help market production.

By the end of AP, the Union of Cooperatives should be able to take over responsibilities.

(MOVIG): Cooperatives in the AP zone generally exhibit few democratic or populist characteristics. Vertical linkages are few, as most cooperative members are mere producers of wheat and are neither implicated in the management of the cooperative nor in the decision-making process. The presidents of the various cooperatives believe that their role is to make the important decisions, only informing the members after the fact. Such methods are contrary to cooperative principles, as the president's role is to guide and to coordinate, and not to impose and control.

Training during Phase II of AP appeared to lack consistency and regularity. In other word, two months of intensive training would be followed by four or five months where no training or follow-up took place. Thus rather than training being a process of building upon past themes and past sessions, many lessons were

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forgotten, sessions had to be repeated, and training efforts were unable to build up momentum.

Finally, intervention at the cooperative level focused to a large degree on the process of creating a cooperative that could be officially recognized by the GRM, at times neglecting the actual training of cooperatives and an evaluation of their performance. For example, much effort was put into amassing the documentation that would allow Kabeme II to be recognized as an official cooperative. However, even though Kabeme II is officially recognized by the government, it is a cooperative that has effectively disbanded, owing approximately 2,000,000 CFA to the Union credit fund. It is important that the cooperatives are recognized by the GOM for both administrative and judicial reasons but the CAC and Africare should concentrate their time and resources on those cooperatives which have proven themselves through their actions and their organization to have potential.

(iv) Engineering (HAMACIRE DAOU)

There should be a simple soil survey in the project zones to help farmers to make good land leveling. This is not a complicated undertaking. Land leveling can be done by hand or with light equipment. A flat wood level can be dragged by people or animals.

The interior surfaces of the canals are not sufficiently waterproof. A lot of water is lost by seepage on the sides and bottom of the canals. Farmers can be trained to ram the earth with a hand dam. Plastic sheeting may also be used, but it may be expensive. Woven mats may be used as well. The length of the canals makes the farmer use pumps for a long time to be able to reach the end of the field. The canals should be shorter and as straight as possible.

In the perimeter we visited which was planted for a nursery and rice, we noticed that the "cuvettes" constructed were particularly small, 5x5 or 4x4 meters. The largest we saw was 6x5 meters. This makes the farmer use a lot of time to prepare the small "cuvette", to prepare the small dikes and to cut a lot of water passages for each "cuvette". This may damage the feeder canal, as a separate passage must be cut for each small "cuvette". This also will increase the number of canals and thus lead to more wastage of water.

We found too many sizes and models and types of pumps (Hatz, Deutz, Cooper, Lombardini, Guinard, and others). Farmers are running three kinds of pumps on the same perimeter. This makes an enormous requirement for spare part inventories and training of mechanics and pump surveillance. Pumping time is not set up rationally. Farmers should establish timing according to wind, sun, and size of plot.

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The water basin is not correctly designed and was built by farmers without proper guidance. Farmers can be trained in measuring the difference in elevation and the distance between the water intake and the basin. This will make a better installation of the pumps along the riverside. Knowing this, the farmer can adjust the height of his pump relative to the basin.

(v) Training (BANGOURA)

Training is aimed at two groups: the project beneficiaries and the local hire staff. In both cases one observes that while training seems to have been a constant concern of the project, that concern has been met with variable success at the level of activities.

For the beneficiaries the major emphasis was placed on production and agronomic aspects. Nevertheless a certain (undetermined) number of villages were trained in cooperative structure and organization of work. Special training is given to the members of the cooperative management committees and for those responsible for maintaining and supervising the use of the motorpumps. While project documents indicate training occurred for maximum water use and water scheduling, trips to Sadjilambou and Kassou-Korey and interviews with farmers showed there was, at least in these cases, little or no knowledge retained by the farmers. Training needs in agronomic and irrigation practices remain but the project currently has no such component.

In other training activities such as cooperative organization and accounting, activities are still limited despite of their emphasis in the proposal of AP II. Literacy training as well has not succeeded as envisoned in the proposal.

Training of local hire staff has been done well with particular emphasis on the mechanics. The head mechanic, credit officer and warehouseman all appear knowledgeable and capable of managing their components of the program.

(vi) Administration/Logistics (BYESS)

We interviewed a substantial number of persons involved in project implementation, from farmers to administrator to government officials, who had a uniformly favorable opinion of the Grantee's performance. This is remarkable in view of the very difficult environmental and political atmosphere in which they have had to work.

We found that the quality of the Africare staff and the local staff is high. In particular, the credit and workshop sections are well-run and worthy of note. They demonstrate a real understanding of the problems facing the project and have good ideas about what to do to keep the project going after Africare

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departs. Africare should pay particular attention to equipping the Union to assure that the staff are able to continue their work and to be paid adequately.

Administration/Logistics (GERBER)

The project has had to adapt to various logistical realities. The Sixth Region is in an isolated zone making logistics problematic. Fuel delivery at first was assured via barges coming up the Niger River but when this operation ceased the project had to adjust and rely on private transporters. These suppliers have been inconsistent in their dependability. Nevertheless the project has adapted and realized that given the impredictability of the suppliers, assuring fuel delivery will be a recurring concern. As for motorpump parts, the project has been forced to adjust to changes in pump models used in the project zone and introduction and selection of new brands of pumps which was beyond its control. Efforts are now in place to train the Union to take over all logistics responsibilities from Africare by the end of Phase III.

(vii) Agronomic Research (DEMBELE)

a. Production

The goal of increased production has not been met for all crops. To date, estimated levels of annual production as compared to goals set forth are as follows:

- Wheat: 900 tons versus 1800 tons;
- millet/rice: the goal (900 tons) was achieved if we calculate that 680 ha were under cultivation in 1988 yielding at least 1.5 tons/ha;
- spices were grown but production data are not available.

Although objectives were not fully met, farmers state that the present level of production increase helps meet their basic needs (food) and improve the quality of their life. Furthermore, quantities of grain ("redevances") are stocked in cooperatives' warehouses due to the lack of market outlets. High sale price (e.g. project wheat cannot be sold under 115 FCFA/Kg while prices in the market place range between 45 and 90 CFA/Kg) is said to be a considerable constraint to project grain marketing. This indicates high production costs. To maintain food self-sufficiency, farmers should be able to market their production or have another source of income (and no other source exists presently) in order to buy cooperatives' grain stocks for food or buy fuel to continue production.

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b. Extension

Extension agents (Ag. Monitors) worked with the project for 2 years (from 1985 to 1987). They contributed in data collection for areas under cultivation and yields but did not fully play their roles as extension agents. No new techniques were transferred to farmers. Even though soils were new and therefore fertile so that little could be expected from research efforts, extension agents could help improve the quality of seeds and introduce animal traction.

An important aspect that was interrupted, due to the removal of extension agents from the project, was the activity of joint trials lead by these agents in collaboration with Research Station. Through this collaboration, the agent mastered the new techniques before transferring them to farmers. Therefore, the project's collaboration with the Research Station was an important factor in reinforcing extension activities. Research and extension activities should continue since the cooperatives' goals of increasing yields and improving their economic conditions could be more easily achieved through good cultural practices and improved use of motorpump and irrigation system maintenance.

c. Alternatives for Production Sustainability

Existing agronomic alternatives

Some of the innovations introduced and deemed appropriate by the Dire Agronomic Research Station could serve as alternatives to reduce production costs.

Wheat:

* New variety of soft (vs hard) wheat, "siete cerros". Provides better yields (2.5 ton/ha versus 2 tons/ha for the local "tetra" variety), larger grains which do not fall down at maturity and has the same short cycle as tetra.

* Irrigation frequency: 500 mm of water/ha every 7 days. Some farmers already observe these norms.

* Fertilization: 50 Kg/ha for ammonia phosphate and 50 Kg/ha for urea is the economical dose. Soils that were planted with wheat for 3-4 consecutive years need fertilizers. However, farmers should continue bringing organic fertilizers.

* Animal traction with 20 cm deep plowing. Farmers are afraid of the cost of oxen care and would rather rent a tractor (is this more economical ?)

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Rice:

* New rainy season varieties: BG90-2 or IR15680-03.

* Larger doses of fertilizer may be applied, for example 100 Kg/ha for ammonia phosphate and 50 Kg/ha for urea (or 100 Kg/ha of urea for worn soils). With these doses, rice may yield up to 6 tons/ha.

Niebe:

* New varieties: gorom-gorom. It has a short cycle and provides fodder.

Results of project soil samples

Interpretation of these results would allow us to determine the needs in nutrients for new and worn out soils.

With improved yields, farmers may either reduce areas under cultivation or maintain their present level and grow the same crop every 2 or 3 year according to marketing conditions. This would obviously entail establishing adequate storage and conservation facilities.

d. Future alternatives to improve marketing conditions

* Transformation of wheat into flour. This would require identification of conservation techniques for the flour. The Food Technology Laboratory of the section of research on food crops (Section de Recherche sur les Cultures Vivrieres et Oleagineuses - "SRCVO") and other companies.

* Transformation of rice (information may be available at ARPON project ["Amelioration de la Riziculture Paysanne a l'Office du Niger] and at CMDT [Compagnie Malienne du Developpement Textile] in Koutiala).

* Support to the Dire Research Station to allow it to analyse crop rotation trials carried during 2 campaigns. This would determine the effect one crop may have on another.

* Measures to be taken by the government to prevent fraudulous imports of rice and wheat flour.

* Controlling external food assistance and preventing food donors from buying grains in one region for another.

* Continuing market studies for various products that may result in a positive economic impact in Dire area.

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e. Training

Training is the key factor for continuity of activities by the farmers themselves. Training is needed for farmers and extension agents. Both agents and farmers may visit other irrigated agricultural projects (for example in Gao). Farmers should be trained in literacy and management by the extension agents so that they may take over responsibilities and train other farmers. Thus farmers will be able to use written technical information (technical sheets and newsletters).

Conclusion

Key factors for the implementation of AP III project should include the introduction of improved production techniques (as well for water resource management) to reduce production costs, appropriate training and identification of markets.

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b. Other Factors

i. External factors impacting on success/failure (BYESS and GERBER)

1. Pumps

The question of long-range sustainability, which was uppermost in the minds of the evaluation team, cannot be adequately addressed without discussing the question of the recurrent provision of free pumps as well. With very few exceptions, the pumps that form the core of the project were all given free of charge or under credit terms that are the equivalent of a gift. This complicates any sort of economic study or analysis of sustainability. The approach at the origins of these donations of equipment is certainly an honorable one -- as one member of the team stated, one must begin somewhere to "help farmers help themselves". The problem is that once accustomed to receiving free pumps, farmers cannot now be convinced that an amortization program is necessary. One would like to be able to wish away the fact that the pumps and project vehicles were donated, as it would make the economic analysis easier, but in fact these gifts are key to the project and the practice is unlikely to cease at any time in the near future. One heard rumors of an order already underway for some 150 new pumps to be financed by expatriate Malians living in Saudi Arabia.

A week before the evaluation team arrived yet another pump model was introduced to the project as the Local Development Committee gave one Guinard pump capable of irrigating up to 1000 ha to the Ganganiberi Cooperative. The mechanics unfortunately have no training on this model nor is there any information

regarding availability of spare parts. According to the President of Ganganiberi installation of this pump will cost between 3 and 4 million CFA as a concrete platform will need to be constructed and modifications made for the irrigation canals.

There is no doubt that provision of pumps by outside agencies has greatly contributed to the success of the project in the short-run. Nevertheless it should be noted that certain problems have occurred as well. As cited in various reports the choice of pumps is more than a mere technical issue. The choice of pumps affects training needs, logistical operations and mechanics shop needs. The nature of the technology also affects the organization of the farmers. The project began with one or two farmers individually using a small Cooper motorpump. A cooperative in the Union now has a pump capable of irrigating 1000 ha around which several hundred people will be regrouped. The social and political consequences of the choice of technology are thus also important to consider. The changes beyond the control of the project have had and will continue to have much impact on the project.

2. Food Assistance/Donor and GRM Policies (GERBER)

International donors are planning to give out during 1989 in food-for-work over 2,500 tons of food in the Dire Circle as well as over 1,000 tons in nearby Goundam. The markets in the area currently sell US food aid corn flour for sale at extremely low prices (2,500 CFA or less for 50 kilos). Smuggled wheat from Mauritania also holds up to half of the flour market in the zone. This wheat, which many people claim is dumped by the Western countries in Mauritania, is smuggled into the zone to avoid import duties. The combined effects of the international food assistance and smuggled flour is to severely depress the grain markets in the zone. The project has talked with WFP in Bamako regarding the possibility of the purchase of local wheat but they have no interest.

3. Effect of Other Projects (GERBER)

During implementation of the project, AP was influenced by the policies of other projects in the zone. This was not only true for questions regarding marketing as other project also produced grains, but for project policies. For example, BIT-ACOPAM paid farmers cash plus FFW to attend literacy training sessions during the first years of AP II. Since AP refused, most AP farmers refused to attend the literacy training programs offered.

ii. <u>Occurrence of unplanned results</u>

No major unplanned results appear directly attributable to the project.

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iii. Economic efficiency (GERBER)

During the life of project of AP II a total of $2.4 million was spent in USAID and Africare match funds. With approximately 900 current project farmers associated directly with the project beneficiary cost is approximately (900 X 6 family members = 5400/2.4 million) or $444 for each beneficiary over the 42 months of the project. The project is also estimated to produce up to 10% of the food needs of the entire region.

As pointed out in Soule's Economic Analysis of AP "aiding local farmers to produce their own food is less costly and more efficient than responding to the recurrent crises of famine in the Sixth Region by donating foreign grain". This is all the more the case since Soule did not include the cost administrating food aid relief - an expense which would increase the final cost per ton of relief food.

Since the economics of the project have been extensively studied, the evaluation team felt that no further analysis is warranted here.

iv. Financial control of project funds (GERBER)

The project funds were handled according to Africare procedures and policies. The non-Africare evaluation team members did not have sufficient time nor the means at their disposal to evaluate this aspect of the proposal.

3. Impact on Project Zone and Project Beneficiaries (GERBER)

From discussions with the area farmers and government authorities it appears that the project has had a positive impact in the zone and on the beneficiaries. Not only did project associated farmers produce substantial amounts of food, as indicated in the table below, but the project has helped stimulate economic activities in the area. There are also formerly AP associated farmers and staff who continue to work in the area who have benefited from the previous relationship with AP (e.g. a former AP head mechanic now has a private business repairing pumps in the Dire zone). According to GRM officials, this and other irrigated agricultural projects in the area have helped stem the tide of migration to the south and helped give hope to area farmers.

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AP Associated Food Production

1986	Wheat	1078	1988	Wheat	787
	Rice	10		Rice	1020
	Millet	378		Millet	n/a
	Spices	25 tons		Spices	10 tons
	Total	1491		Total	1817
1987	Wheat	644	1989	Wheat	900
	Rice	88		Rice	- harvest pending
	Millet	520		Millet	- harvest pending
	Spices	20 tons		Spices	-
	Total	1272		Total	900 tons to date

4. Sustainability of Intervention (GERBER)

Sustainability is the ultimate goal of most sound development programs and has been the major emphasis of AP during the last year. Phase III of the project will attempt to phase out all outside assistance yet have the project continue as a viable sustainable activity. Perhaps the best actual indication that this has an opportunity to succeed is the fact that some cooperatives have been able to repay their credit at 100% plus 8% interest. In the case of Kessou-Korey the cooperative has also been able to rent pumps in additon to repaying all credit taken.

To succeed in bringing sustainability to the project several components must be assured. The project has worked in the direction of training future Union of Cooperative employees to be able to manage all aspects of the program (credit, logistics, mechanic, etc.). More work is needed in training the cooperatives to be able to manage their own activities. Besides all the inputs what is also needed is marketing opportunities for the crops produced. As cited elsewhere, the marketing possibilities are highly dependent on outside factors which are likely in the long-term to determine the sustainability of the project. (Please also see "Other Factors" Pumps, page 29.)

D. CONCLUSIONS AND RECOMMENDATIONS

The major findings of the evaluation team were:

1) The project was designed and generally implemented in conformity to GRM, USAID and Africare policies and goals.

2) The project was generally efficient and effective in its implementation, especially in the areas of training counterparts, provision of credit and assuring logistical inputs and adaptability to changing circumstances. The project could have

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been more successful in cooperative development, marketing and agronomic extension.

3) The project did not attain all its implementation targets regarding increased production of food crops. This was due primarily to a decision (which the evaluation team endorses) made during project implementation to emphasize sustainability and thus credit recuperation over mere attainment of production goals. The limited marketing possibilities of the zone - due at least in part to smuggled wheat from Mauritania and imported food aid given as Food for Work - has seriously jeopardized the ability of all but the most successful farmers to be profitable under current circumstances.

4) The project had a positive impact in the project zone and on beneficiaries. The project has greatly assisted the project associated farmers through giving them access to credit and irrigation and agricultural inputs (including pump repair facilities and fuel).

5) Much has been already done towards the goal of training counterparts and establishing an organization to take over the role of Africare in the project. Nevertheless much more work is needed in helping the cooperatives become viable and sustainable entities and this should be a major focus of Phase III.

6) A second major focus in Phase III should be in marketing. The limited marketing possibilities which currently exist threaten the long term sustainability of the project. Wheat transformation and diversification of crops should be explored (perhaps through private Africare financing).

7) Improved agronomic practices and irrigation techniques would help the farmers reduce their costs of production and help improve the outlook for the long term viability of the project. This should be the third major focus of Phase III.

8) In the long term the future viability of the project will in large part be determined by outside factors such as: the GRM's role in monitoring and providing farmers extension services at EOP; GRM policies regarding enforcement of tariffs for imported grains; farm credit and pricing; foreign donor policies regarding food relief and subsidies to their own farmers; and other donors' policies towards motorpump selection, availability and terms. The project's success in maintaining the credit fund (which to date has been reduced to two thirds of its original size), training and marketing will also be a determinating factor for long term viability.

Major lessons learned from this project which may have application in other similar activities in the future include:

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1) Emphasize task and job specific skills in training. Make certain the trainees have an understanding of their self interest in the training.

2) A complicated undertaking (introducing a modern irrigated farming system to farmers used to bucket or calabash irrigation) takes substantial time and effort. This should be anticipated and planned for in project design.

3) Marketing and political forces beyond the control of the project will greatly effect the outcome (both positive and negative) of the project.

In addition to these major findings and lessons learned, more specific findings and recommendations were made by individual evaluation team members. These include:

1. Agronomic

(DEMBELE): Special emphasis should be placed on helping the farmers increase their yields for their crops. An agricultural extention agent should be hired and work with the Research Station to extend such information to the farmers regarding improved seed varieties, water scheduling, and fertilizer use (also see section "Alternatives for Production Sustainability" p. 25).

2. Engineering (DAOU)

The soil in the zones are of two kinds: sandy loam and sandy clay with a lot of clay in one and a lot of loam in the other. With this type of soil the project should watch farmers for better land levelling of the fields and the choice of crops for each kind of soil.

The size of the canals should be better controlled, and the farmers should be trained in protecting their canals. The pumping schedule should be established according to the size of the field and to the stage of growth of the plant for better water use.

The size of the cuvettes should be enlarged enough for better water control. The length of the canals should be reduced wherever possible, primarily because of the high evaporation rates.

Irrigation schedules should take account of wind speed and insolation. If the farmers can understand the effect of these two factors on their diesel charges they can increase their profits.

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3. Buildings/Infrastructure (DAOU)

A lot of space can be made available at the project site through reorganization for use of the atelier and for storage of parts and grain.

There should be a fuel gauge installed for gas from the atelier. This will increase fuel security and efficiency.

The buildings are in good shape and office space is adequate. Living space is available but not currently used (a former technical assistant lived on the site but the living area is now empty, only used from time to time for conference purposes). With modifications, this area may be better used in Phase III. There is much storage area containing solar pumps, grain, tools, and spare parts for Cooper pumps. All this storage area can be converted to better use, for necessary parts and grain storage, as the mechanical parts are not really well used.

4. Extension

(BANGOURA): The responsibilization of the village groups through extension and training is a fundamental requirement for the sustainability of Activites Paysannes. Extension is of primary importance. It is recommended that the project consider hiring one or two female extension agents to be able to reach more women in the project as in this social milieu it is essential to have women agents to reach women participants.

(DAOU): Farmers know irrigation well enough in the area, but they need technical and routine backup to secure yields, to save money and to promote the better development of the area. They will follow recommendations if they can be explained properly so that they make sense, and if they can be convinced that the recommendations are in their interest.

5. Cooperative training

(BYESS): In view of farmer requests, there should be more alhpabetisation courses and more training in area such as cooperative organization and financial management. The GRM has personnel qualified to do this, and they should be pressured to provide them.

(BYESS): The tenure of Union officers should be shorter than three years. Steps should be taken to promote democratic participation in decisionmaking. The project should explore ways to increase feedback from farmers. Efforts taken thus far to promote transparency in Union operations are good and should be continued.

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(BYESS): As it matures, the Union should become increasingly involved in commercialisation, extension, and training. They should investigate obtaining whatever juridical status is appropriate so they could qualify for GRM and donor-sponsored training, technical assistance, and commercial credit.

(GERBER): The project evaluation team noted several problems regarding procedures within the cooperatives and Union. For example, in Ganganiberi the President of the cooperative keeps the books for the cooperative rather than the Treasurer. The CAC and Africare must insist that each cooperative official correctly administers his duties. The CAC must take the lead in monitoring and verifying the books of all cooperatives as this will become increasingly their role with Africare's departure. From interviews conducted, it is clear that books at even the most advanced cooperatives (Ganganiberi and Kessou-Korey) are not adequately maintained. There is a lack of daily entries regarding receipts and expenses. Many of the problems in cooperative training during AP II are attributable to the numerous changes in member officers of cooperatives and difficulties in collaborating with the GRM literacy trainers and the former CAC Direction in Dire (e.g., demands for "primes" to do regular work activities which is counter to USAID regulations). A better understanding has recently been developed between Africare and the new CAC Direction in Dire. This will hopefully help improve the cooperative training component of the project.

(GERBER): The project succeeded in helping create an organization, the Union of Cooperatives, which theoretically will be capable of managing the inputs currently supplied by Africare. However, more training is necessary as well as more participation among the member cooperatives and individual farmer members. Training is essential not only in administration of various aspects of the cooperatives but also in increased understanding by the members on what a cooperative really is.

(TRAORE): Priority should be given to an adequate cooperative service and the means to this service for quick interventions in the execution of its tasks, mainly training in all aspects: technical, cultural, cooperative training and management, literacy and post-literacy, which are pre-requisites for a successful transfer of competence and responsibilities during and after project phase out.

(TRAORE): A closer and more direct collaboration between the local cooperative service (CAC) and the development assistance agency (Africare) in the interest of direct beneficiaries during and after AP III;

(TRAORE): Implementation of a large animation and "sensibilization" program for cooperative members during AP III implementation is needed in order to further define the goals and

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the roles of cooperatives as well as the rights, duties and responsibilities of cooperative members.

(HOVIG): The CAC and Africare must organize their efforts to provide a consistent and regular training of cooperative members and leaders. Stops and starts in the training regime should be avoided, with training sessions conducted at regular intervals and with clear objectives in mind.

Literacy training should concentrate on those members of the cooperative who will use the skills required on a daily basis- the record-keepers, the managers, the motorpump operators. Alphabetizing 20-30 members per cooperative would be an expensive and ultimately futile exercise, as it has been shown that a farmer loses the literacy skills he has been taught if they are not used on a regular basis.

CAC accounting systems need to be simplified and adapted to the literacy and education levels of the record-keepers. It is important that the farmers keep their own records and do not wait for CAC or Africare agents to fill out their books. In this way, simple accounting systems designed to meet the particular needs of AP cooperatives are preferable to a complicated accounting system that is too difficult for most farmers to follow or verify.

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6. Marketing

(GERBER): Phase III of the project should emphasize marketing. Recent investigations in exploring possibilities in transformation of wheat into flour and pasta should be continued.

(TRAORE): Increased production and more emphasis on other crops is needed to assure substantial incomes to cooperative members allowing them to meet some of their needs.

(BYESS): More effort should be directed toward reducing production costs. This may seem a truism, but it seems that there are several technical reommendations that could save on pumping costs, for example.

(BYESS): The project should continue to explore the production of other crops.

7. Research

(BYESS): Although there has been some research in the past, there is little evidence that research results have been put in place. The project and Union personnel should explore and test new wheat varieties, with special attention paid to those that can be sold in other markets. The choice of varieties to produce beyond that which is consumed in the Dire area should be based on

the potential for marketability.

(DAOU): The solar pumps in the storage should be checked out by a qualified technician (like LESO) or another firm). A lot of solar equipment dealers are available in Mali. Support and maintenance can be obtained and the solar pumps, especially the two mobile pumps, can be used for testing irrigation systems and to help some farmers as backup equipment when diesel pumps fail. If this idea is successful, the project should consider acquiring more such pumps. There is a high rate of insolation for seven to ten hours a day, ideal conditions for solar pumping.

8. Credit

(BYESS): Continue to enforce the "no reimbursement--no new credit" policy. Give consideration to lending to groups smaller than an entire village, such as groupements.

9. Workshop

(BYESS): Many good recommendation have been made elsewhere about the atelier. In view of its importance to the smooth functioning of the project, the project should take steps to ensure its survival after Africare stops paying salaries. It should be gradually privatized and operated on a for-profit basis, rather than operated under the auspices of the Union (the regie suggestion made by the CAC) because it would be subject to political pressure. Some of the suggestions we heard, such as promoting the production of chairs and artisanal objects, do not sound very realistic.

(DAOU): Most of the storage area at the project site in Bourem is poorly arranged. The project can get rid of junk materials -- pumps, tubes, and unused equipment -- which can be sold or thrown away or distributed to members. This will free up space for better uses. There should be a complete inventory undertaken at the beginning and end of the new project.

The two wells in the compound do not produce enough water to justify the use of solar pumps. These pumps should be dismantled and installed in a better location, or the pumps can be used on better wells to make enough water available to the office compound and garage for pump testing and domestic use.

(BYESS): With regard to the mechanics' workshop, more mechanics should be trained and better distribution of existing pumps should be made between teams of mechanics.

(BYESS): There should be more frequent visits for preventive maintenance. Farmers should not run pumps to death before bringing them in for repair. The chief mechanic should undertake an

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inventory of all parts and pumps in order to determine which parts might be manufactured in Mali and which it is useless to keep.

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The Council on Foundations

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Executive Vice President
Riggs National Bank

WILLIAM KIRKER, M.D.
Honolulu, Hawaii

DELANO E. LEWIS, Esq.
Vice President, C & P Telephone

GEORGE I. LYTHCOTT, M.D.
Dean, City University of New York
Medical School

WILLIAM F. McSWEENY, President
Occidental International Corp.

ETHEL L. PAYNE
Columnist/Commentator

REV. J. ALFRED SMITH, SR.
Minister, The Allen Temple Baptist Church
Oakland, California

OSWALDENE E. WALKER, M.S., D.D.S.
Silver Spring, Maryland

HON. CURTIN WINSOR, JR.
Chairman, Winsor Pittman Co.

JOHN L. WITHERS, Ph.D.
USAID Director to
Ethiopia and India (Ret.)

Executive Director
C. PAYNE LUCAS

Africare

Africare House • 440 R Street, N.W. • Washington, D.C. 20001
Telephone (202) 462-3614 • Telex 64239

EVALUATION

ACTIVITES PAYSANNES PHASE II

DIRE, REPUBLIC OF MALI

June 2-10, 1989

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Scope of Work

A. Activity To Be Evaluated

PROJECT NO. 688-0934 A

LIFE OF PROJECT: - 3 YEARS

PROJECT COMPLETION DATE WITH EXTENSION JUNE 30, 1989

The purpose of this evaluation is to assess the progress made toward the acomplishment of project objectives, objectively identify and examine any constraints to the achievements of those objectives, and to the extent possible, cite recommendations to alleviate those constraints. Africare will use the findings of this evaluation to develop the course of action to be taken during the first year of activities under activity Paysannes III

Although Africare will be responsible for providing the evaluation team, assistance from USAID direct hire staff will be sought.

B. PROJECT BACKGROUND

1. History of Project Development

In 1978, USAID/Mali began financing the Action Ble Dire Project (688-0213) which was designed as a program of aid to small-scale wheat growing farmers in Mali's Sixth Region. The project included assistance to participating farmers in establishing new irrigation schemes using small motorpumps, a program of credit for financing the irrigation pumps and

agricultural inputs, and support of extension services provided by the Action Ble local rural development agency.

Based on Audit Number 688-81-139 dated September 24, 1981, it was decided to discontinue this project effective January 1981. At that time USAID/Mali proposed a gradual one year "phase out" program to focus, direct support to the wheat-growing farmers who had previously purchased motorpumps under the project. This phase out program in which Africare participated, repaired pumps, delivered diesel fuel, trained farmers and mechanics in pump maintenance and repair, provided some spare parts and fuels barrels and implemented a credit program. While a "phase out" implies a gradual decline in activity, during this "phase out " the opposite actually occurred and considerable progress was realized. The progress made was encouraging to both farmers and UASID development planners alike. The farmers were supportive, extremely motivated and responsive. It was and opportunity for the people of the region to work together for the development of the area. Estimated wheat yield data gathered during the 1982-83 harvest indicated an average yield of approximately 2.9 tons per hectare. Data collected at the time also indicated that some spice crops such as anise and cumin and cash crops such as tobacco and various vegetable crops were potentially profitable.

It was also discovered that in addition to growing wheat, the farmers were also growing rice in significant quantities. Thus, more food in general was produced than expected because the farmers were using their motorpumps year round -- even during the rainy season-- to supplement rainfall. Hence, yields of all crops were greater than before. As for the wheat crop, the Mid-Term Evaluation of Phase II (March 1987) notes that total production increased from 700 to 1,300 tons.

Because of the positive results of the phase out, USAID/Mali continued supporting this activity for several months beyond the phase out completion date. Even though the phase out was favorable, USAID recognized through project evaluations that in the long run, a PVO's (private voluntary organization) assistance would be required to provide specialized management for a project in such a remote region. USAID/Mali calculated that with this additional assistance and the improved provisions of necessary services and inputs, mechanics training, continuation of the credit program and coordination with the agriculture research station in Dire, the project would begin to see still greater returns.

In 1983, Africare was requested by USAID/Mali to submit a one-year extension proposal for this project, renamed by that time, Activites Paysannes. Africare's proposal was approved and a Cooperative Agreement between USAID and Africare was signed on

June 30, 1984. The Cooperative Agreement authorized Africare to continue the project, AP Phase I, for one year with $500,000 from July 1, 1984 to June 30, 1985. This one-year project was then followed by a three-year follow up project, A.P. Phase II, which was scheduled to be completed in October 1988 and extended to June 19, 1989.

In A.P. Phases I & II, project-associated farmers in conjunction with Africare have succeeded in accomplishing an extremely difficult objective, i.e. achieving increased food security through irrigated agriculture in Mali's drought-prone Sixth Region. During Phase II Africare has expanded the area under cultivation and established a reliable infrastructure to provide fuel, oil, credit, maintenance and other services to small scale farmers associated with the project.

The five-person Africare team based in Dire, and their two counterparts in the Bamako office, have been able to overcome numerous physical, political and environmental difficulties. Unforeseen external problems have hindered the completion of the Phase II objective of building up effective farmer cooperatives to take over the management responsibilities of the project. Part of the delay in achieving the AP Phase II infrastructural self-sustainability objectives is due to factors beyond the control of the project. First, the type of motorpump used in the

project has changed. Cooper Engineering Company, the manufacturer of the 3.9 horsepower motorpumps (the motorpumps which had been sold on credit to area farmers prior to Africare's involvement in the project) went out of business. This left the project with both a large inventory of unused spare parts and with the inability to order other needed replacement parts. Beyond this problem, the Islamic Development Bank's provision of two hundred and fifty 15.6 horsepower Deutz motorpumps in the project area undercut any possibility of Africare's choice of a replacement pump for the Coopers. The Islamic Development Bank's Project (which provides the pumps on long-term 25-year credit) has been beneficial to area farmers as they have provided a replacement pump for the Coopers. Nevertheless, the larger size and intricacy of the Duetz have necessitated additional training of project mechanics and have necessitated changes in the organization of the cooperatives. Unlike the Coopers which one individual or only two or three farmers could share, the Deutz pumps are larger and group ten or more farmers around one pump. This has forced the cooperatives to become more organized structures and called for intensified cooperative training. Other factors may have also contributed to AP Phase II's inability to institutionalize all its activities prior to the

end of the project. Among these are: the decrease in market prices for grains partially due to excess foreign relief grain which exacerbated credit recovery problems thus delaying other activities; and problems within the GRM's agricultural extension, their adult education and their cooperative formation services. However, it is also likely that the original timeframe for Activites Paysannes was just too short. The dramatic increase in food production which occurred in the area when farmers changed from "calabash irrigation" to motorpump irrigation was accomplished only through overcoming numerous logistical and technical constraints. These problems, however, have not prevented attainment of the significant objective of increased food production in the Sixth Region. Africare and project participants have now begun placing great emphasis on addressing the other formidable challenge, i.e. the transfer of project infrastructure to local institutions and, thereby long-term sustainability. This process, however, requires a period of time longer than which remains in Activites Paysannes Phase II.

C. End of Project Status

At the end of this project there will be:

1. Organized farmer cooperatives.
2. A revolving credit fund and a well established credit system.

3. A well established input delivery system for supplying pumps, spare parts, motor oil, fuel, fertilizer and seed.
4. Functioning motor pump mechanic services.
5. 650-840 farmers engaged in pump irrigation practices.
6. 450-900 hectares producting 2 crops/year.
7. 1,800-3000 tons of wheat/year.
8. 390-650 tons of rice/year*
9. Comprehensive data collected; agricultural research and alternative energy options explored in the Sixth Region of Mali.

D. Statement of Work

The logical framework matrix will be the instrument which will be used as the basis of the evaluation process in order to determine:

- The progress achieved toward planned targets.
- The occurrence of any unplanned results.
- How progress has been measured.

* This does not include millet and sorghum.

- Whether the project design continues to have relevance in light of project design which have caused success.
- Elements of project design which have caused success.
- Elements of external factors which have caused success.
- Elements of project design which have caused failure.
- Elements of external factors which have caused failure.

The evaluation should entail a systematic objective analysis of the projects performance, efficiency, and impact in relation to its objectives. Lesson learned from this evaluation will be used to improve on the design and implementation of Activites Paysannes III, in order to improve on the over all development process.

The evaluation should attempt to:

- Determine the adequacy of the project to overcome the identified constraints to production
- Compare the actual attainments with the targets set and identify the reasons for shortfalls or overachievements
- Assess the efficiency of project implementation procedures and the quality of managerial performance
- Determine the economic efficiency of the project

Fully answer these questions:

Were project objectives consistent with national goals ?

Were the project components and strategies adequate to achieve the targets?

Were the targets realistic?

Was the intervention model basically sound?

Was the project able to complete major activities within the stipulated times?

Were services provided and pre cooperatives developed and stregthened in a timely manner?

Were staff able to effectively supervise project activities?

Were there in general satisfactory financial control of project funds?

To What extent did target groups use imputs provided?

Have changes occurred that can be attributed to the project activities?

The evaluation team will have full access to all data collected, written project reports and copies of the Project paper for their analysis.

Time permitting the team should interview:

- The Aid Liaison Officer for the project

E. Format for Evaluation Report should be as follows:

A. Executive Summary

B. Data Sheet

C. Table of Contents

D. Body of Report

Appendixes

A. Evaluation scope of work

B. Logical Framework

C. List of documents consulted

D. Individuals and agencies consulted

F. REPORTING REQUIREMENTS

The team will prepare a written draft report which will be submitted to USAID within a reasonable time after the completion of the evaluation. Additionally a copy of this report will be forwarded to Africare Washington. Lastly this report will be translated into French and distributed to Africare's implementation partners in this project.

Funding

As described in the Cooperative Agreement provisions for the source of funds of the evaluations were available in the financial plan of this grant.

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

PROJECT TITLE: Activites Paysannes

LIFE OF PROJECT
FROM FY TO FY
TOTAL U.S. FUNDING
DATE PREPARED

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
GOAL ote self sufficiency in food ugh production activities and management of water and soil urces	1. Increased food production 2. Increased irrigation projects 3. Increased Agro-forestry activities	1. Reports - Min. Agriculture 2. Reports - Min. Rur. Devel. 3. Reports - Eaux et Forets	1) Since GOM considers food production a high priority, it will devote a fair portion of its nat'l budget and resources to promote this policy 2) Because of the negative impact of the drought and famine, the int'l community will be willing to support food production efforts 3) That the drought and its impact on the environment is not further exacerbated
PURPOSE			
ncrease production of ood crops	1a) Wheat production increased from 700 tons/year to 1,800 tons/year 1b) Increase rice & millet production from 400 tons/year to 900 tons 1c) Spices production increased from 50 tons/year to 120 tons/year	1a) Project production data 1b) Action Ble production figures 1c) Cooperative & farmer records	An adequate supply of pumps & parts will be available
rganize farmer cooperatives	2a) 1 general cooperative and 10 sub-cooperatives 2b) Purchasing, recuperation, and storage/marketing committees 2c) Management committee	2a) Project reports and records showing official GRM recognition of coop 2b) Farmer participation in commodities management	2a) That farmers are willing to be actively involved in managing their agricultural activities

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Provide a service supply of fuel and oil	3a) Increased storage capacity to 200,000 l of diesel fuel (50,000 l. Bourem, 150,000 l. Dire) 3b) Establish reliable delivery system 3c) Procurement and logistical support system established	Project reports and records	3a) That nat'l transport systems, esp. boat traffic, continues to operate 3b) Fuel is available in-country 3c) That percentage of credit recuperation is high enough to maintain adequate cash flow
Provide a service supply of pumps and parts	4a) 300 pumps in operation 4b) Adequate supply of spare parts in stock room	4a) Project records 4b) Inventory records	4a) Sufficient funds will be available to purchase pumps and parts 4b) An economical pump is available and suited to the needs of the farmer
Establish the management of a revolving fund	5a) Credit available to 300 farmers 5b) 90-100% recuperation rate 5c) Credit system is managed by the cooperative	5a) Project credit records 5b) Centre Assistance Cooperatif audit reports	5a) High level of credit recuperation 5b) The management committee will supervise person(s) responsible for daily operations of the revolving credit fund. 5c) That CAC will regularly audit and control project credit records
Establish a mechanic maintenance service for pumps	6) 30 trained mechanics serving farmers	6) Project records & mechanics training program	6a) Sufficient mechanics will be trained & available to serve farmers 6b) Adequate system of payment established for work done by mechanics for farmers

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATIONS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
7. Strenghten the extension service to farmers	7a) 10 agricultural extions agents 7b) 2 cooperative agents supporting farmers 7c) 10 demonstration plots within farmer community per year	7a) Action Ble/Min. of Ag. reports 7 records 7b) CAC reports & records	7a) Min of Ag. & Action Ble have extension agents serving the community 7b) CAC has cooperative agents serving community
Provide service supply system for seed, fertilizer and other inputs	8a) 90 tons seed per year 8b) 90 tons urea/90 tons phosphate	8a) Project records 8b) Project records	8a) Seed supply will come from previous year's crop 8b) New varieties of tested seed made available through research services in Min. of Ag.
Establish a mechanics Shop	9a) Facility for repair and maintenance	9a) Project reports 9b) Project reports & records	9) Adequate equipment & supplies made available
Establish a cooperative training program	10a) 250 farmers literate 10b) Trained farmers management 10c) 10 officers local coop groups trained	10a) CAC records & reports 10b) CAC records & reports 10c) CAC records & reports	10) Farmers willing to accept training; wanting to participate in training program
Establishing a mechanics training program	11a) 30 mechanics trained 11b) 16 mechanics re-trained	11a) Project records 11b) Project records	11) Availability of people motivated to learn skills
Demonstrate alternative energy resource pumping programs	12) Solar energy, windmills, animal power	12) Project records	12) If funds can be made available
Gathering and analyzing data	13) Agriculture production, economic data, social, energy	13) Project reports	13) If computer and necessary software will be made available

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OUTPUTS			
1. Food Production:	1800 tons per year of wheat 900 tons other cereals (rice, millet and sorghum) spices 900 hectares under cultivation		
2. Farmer Cooperatives:	One general cooperative, ten sub-coops		
3. Fuel Supply:	200,000 liters available		
4. Pump & Part Supply:	300 motorpumps, adequate supply of spare parts		
5. Revolving Credit Fund:	300 farmers receiving credit		
6. Mechanics Maintenance Service:	30 mechanics serving farmers		
7. Extension Service	10 Ag. extension agents 2 Coop. extension agents		
8. Ag. Input Service Supply System:	90 tons seed per year, 180 tons fertilizer.		
9. Mechanics Shop:	An efficient pump repair and maintenance infrastructure to serve the farmers.		
10. Cooperative Training:	250 literate farmers		
11. Mechanics Training Program:	30 mechanics trained; 16 mechanics retrained		
12. Energy Demonstration Program:	improve efficiency of scarce resource utilization		
13. Resource Data Base	extensive data sets on project operations and outputs		
14. Construction:	Cereal warehouse, dike, completion of office, lab, & lodging facility; installation of 2nd generator		

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APPENDIX C: List of Documents Consulted

Bulletin Fews Mali: Feb. 1989.

Evaluation du Perimetre de Korioume - Ile de Paix de Tombouctou, Paul Mathieu, Juin 1985.

Activites Paysannes Institutionalization Proposal, Feb. 1988.

Activites Paysannes Phase II Proposal, June 1985.

Activites Paysannes Phase II In-House Evaluation, March, 1987.

Activites Paysannes Quarterly Reports 1 to 13.

John Berman Trip Report, June 6 - July 12, 1986.

Activites Paysannes, Economic Analysis of Phase III, Meredith Soule, October 15, 1987.

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APPENDIX D: List of Individuals and Agencies Consulted

- Boubacar Bah, Chief Mechanic
- Amadou Belle, Mechanic
- Ousmane Cisse, Mechanic
- Souma Maiga, Mechanic
- Soumeila Maiga, Credit Agent
- Alman Modi Sidibe, Assistant
- Jean Boniface Diarra, Radio Operator
- Mahamane Ibrahima, Fuel Tank Guard (Dire)
- Ibrahima Alassane, Local Guard (Bourem)
- Ammy Asseye Toure, Warehouseman
- Houmeyata Ousmane, Credit Agent Assistant
- Mohamed Aly Ag Mohamed, Mechanic
- Ibrahima Toure, Secretary
- Abdoulaye Toure, Africare Headquarters Guard
- Aliou Djouguel, Chief of Sadjilambou Village
- Mahamane Zeinou, President of Kessou-Korey Cooperative
- Almou Toure, President of the Union and Ganganiberi
- Ibrahim Diallo, Chef d'Arrondissement Central

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