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"Improving the quality of life in rural Africa through the development of water resources, increased food production and the delivery of health services."

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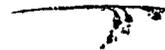
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ACTIVITES PAYSANNES
A ONE YEAR EXTENSION PROPOSAL
DIRE
SIXTH REGION
REPUBLIC OF MALI
WEST AFRICA

Submitted to:
USAID/Mali, Bamako, MALI
February, 1984



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I. INTRODUCTION

Africare was requested by the USAID mission in Bamako to submit a proposal for a one year extension of an on-going irrigated agriculture project, Activites Paysannes, in Mali's Sixth Region. The amount requested is \$

II. PROJECT PURPOSE AND DESCRIPTION

The goal of an extension of Activites Paysannes is to promote food production in the 6th Region through the support of the Farmers Association, enabling it to manage its farmers' pump support services.

A. Project Purpose

The purpose of such an extension is to solidify the institutional infrastructure required to meet the needs of the Association of pump farmers, thus improving their productivity and reducing their dependence on food aid. It will also study the productive potential of the area.

B. Target Group of Beneficiaries

This project continuation is designed to directly benefit approximately 250 pump-owning and 100 associated farm families in the region. An additional 150 farm families will benefit from the intended placement of 100 more pumps, subject to the procurement of spare parts. In addition, the activity will teach valuable skills to Association personnel thereby increasing their personal earning capacity. The machine shop, once established, will offer a valuable service to the community, and the activity in general will continue to stimulate the local economy. Local and regional businesses will benefit from increased demand for goods and services. The population as a whole will benefit from a more stable food supply and more diverse, improved diets. Studies and pilot efforts may produce viable alternatives for future expansion of activities to additional farmers who will also benefit.

The one year external financial assistance will be used to: continue farmer support services including mechanics, parts sale, fuel delivery and credit recuperation, management administration, agriculture techniques and marketing research; training Association management personnel in record keeping, payroll, financial statements, purchasing, credit sales and recuperation, inventory, parts sales and anticipating stock, and the continued training of village mechanics; and equipping the Association machine workshop.

This one year will provide an opportunity to improve the fuel and spare parts credit system, organize and make operational a machine workshop able to machine and sell spare parts, service pumps and other equipment as well as provide machining services to the community at large. The project will generate data for USAID and GOM development planning through economic, technical and institutional studies and supplement training of farmers Association management staff, mechanic and machinist personnel producing an organized functioning Farmers Association capable of managing the pump input delivery system and thereby forming the basis for developing a long-term project of expanded irrigation farming in the Sixth Region.

C. Description of Project

The project is designed to aid small wheat growing farmers in Mali's Sixth Region. The project will include direct support to farmers who have already purchased motor pumps under the earlier activities of the project which began as Action Ble Dire Project. An important activity of the project will be collection of yield data information. Earlier data collection indicates good possibilities for

production of not only wheat but rice, sorghum, millet, vegetables, tobacco and spices. The project will analyze the present motor pump technology and explore possibilities of using alternative sources of energy. In order to continue making decisions affecting small groups of farmers using irrigation techniques adequate information is required. These farmers do not have the means of collecting this information. Information that is available is not related to the practical needs of this region. During this project questions will focus on key economic problems.

D. End of Project Status

At the end of this project there will be :

1. Trained management, mechanic, machinist, and extension personnel;
2. A machine workshop able to manufacture and sell spare parts, service motor pumps and other equipment;
3. A generally improved business investment atmosphere;
4. Improved agronomic practices resulting in improved farmer productivity based on close collaboration and linkage developments among farmers, Action Ble Dire extension agents and researchers;
5. A well-established, locally managed credit program through which farmers can continue to obtain credit for fuel, spare parts and other agronomic inputs;
6. Alternative, expanded marketing options for farmers grain, vegetable, drug and spice crops resulting in greater economic incentive to increase productivity.

III. PROJECT BACKGROUND

A. History of Project Development

In 1978, USAID/Mali began financing the Action Ble Dire Project (688-0213) which was designed as program of aid to about 2,400 small wheat growing farmers in Mali's Sixth Region. The project included assistance in establishing new irrigation schemes using small motor pumps, a program of credit for financing the irrigation pumps, small agricultural implements and inputs, and support of extension services provided by the Action Ble, the local rural development agency, to the participating farmers.

Based on Audit No. 688-81-139 dated September 24, 1981, it was decided to discontinue project implementation effective January 1981. USAID/Mali proposed a one-year program of focused, direct support to the wheat-growing farmers who had previously purchased motor pumps under the project. This "phase-out" program in which Africare participated, has repaired pumps, delivered diesel fuel, trained some farmers and mechanics in pump maintenance and repair, provided some spare parts and fuel barrels, and implemented a credit program. In addition to these on-going activities, USAID/Mali is now working on the last component of the planned program, constructing and equipping a workshop.

The above described on-going activities are authorized by two documents:

1. a \$130,000 Limited Scope Grant Agreement (625-0929 - Emergency Relief Fund for the Wheat Farmers of Dire) which ended September 30, 1983; and
2. the \$300,000 of PM & R funds defined in Action Ble Dire Project Implementation Letter No. 7 dated September 24, 1982 as Activites Paysannes which specifies

funding for one year

The progress made during these "phase-out" activities has been so encouraging that the plan to "phase-out" has become highly inappropriate. The farmers have been very supportive, extremely motivated and responsive to these activities, after the less positive experiences with Action Ble Dire. It has been an opportunity for the people of the region to work together for the development of the area. For the first time since the pumps were introduced, the farmers have demonstrated what they are potentially capable of. Estimated wheat yield data gathered during the harvest indicates an average of approximately 2.9 tons per hectare. Some preliminary economic data indicates that spice crops (anise and cumin) are very significant cash crops, as well as tobacco and various vegetable crops. The pumps are also used in the sorghum-millet season for seedbed preparation and as a back up for the often irregular rainy season water supply. Contrary to the conclusions of the De Rafol report, the current survey and yield data information indicates the development potential of the area is considerable and that it is economically viable when the wheat, rice, sorghum, millet, vegetable tobacco and spice crops are all considered in an analysis that closely considers the local farmers' reality of costs and benefits.

With improved provision of necessary services and inputs, managerial and mechanical training, continuation of the credit program, development of marketing options, effective testing and extension by ABD extension agents of improved agronomic practices and coordination with research results under this proposed project of Activities Paysannes, we will begin to see greater returns, despite the considerable sunk costs.

The Malian Government support for the one year extension

is split. On the one hand the Ministry of Agriculture, effectively removed from the project, is still looking for a way to restore and redeem its parastatal organization Action Ble Dire. On the other hand, the President of Mali, after completing a recent visit to the 6th and 7th Regions this past December, is said to have singled out Dire and two other towns (Kidal and Menaka), as development targets in the upcoming years. This activity has received overwhelming local Dire GOM Party support. It is a concrete realization of the GOM's five year plan which proposes that "Operations of development, such as parastatals, are a temporary measure necessary until the 'organisms de bases' -- cooperatives and associations -- are capable of conceiving and implementing their own development activities." Thus the GOM is supportive of this activity as it does not drain their resources while still meeting its long-term goals.

2. Africare's Experience in Mali

Africare is a private, non-profit organization. Africare works to improve the quality of life in rural Africa. It conducts self-help programs to cultivate the land's full potential, develop water resources, provide health care, teach literacy and deliver emergency assistance to refugees.

In 1971, when Africare was founded, West Africa was experiencing one of the worst droughts in its history. People and animals were dying in large numbers. Crops could not grow. Villagers were driven from their homes in the often-futile search for water.

Relief agencies throughout the world were responding to the crisis by shipping food, medicine, equipment and personnel.

Many African leaders foresaw that, once the drought came to an end, once the massive starvation of the people ceased, they would have to develop long-term plans to strengthen the

rural economy and improve health care. This would decrease both the likelihood and severity of future disasters

A strong rural Africa can be brought about only by Africans themselves. The African people want to work. They know they can prosper only to the extent that they can learn to help themselves. What they need most are training and technical assistance.

To provide training and technical assistance -- to educate Americans about the needs and potential of Africa -- the President of Niger, other African leaders, and American leaders and development specialists conceived and founded Africare.

Africare projects are African projects. Responding to local initiatives, Africare cooperates closely with African planners, field experts, village leaders and workers -- complementing rather than preempting local resources and skills. Africare marshals only the technical counsel and funds that may be necessary to sustain and encourage African efforts at the national and grassroots levels. Financial assistance is applied in stages carefully monitored by Africare and African project managers

During its first years, Africare concentrated on helping to avert mass famine in West Africa. Africare shifted its emphasis during the mid-1970s from drought relief to long-term programs in the fields of agriculture, water supply and health. Since 1978, Africare has expanded its operations to respond to the critical problems of refugees and displaced persons in, particularly, the east and south of Africa: Africare has given major help to the refugees in Somalia since 1980, and began assisting refugees in Rwanda in 1983 and in Chad in 1983, for example.

Africare has worked in most of the major areas of Africa. Since its establishment, Africare has assisted Chad, Egypt, Ethiopia, The Gambia, Guinea, Kenya, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, Somalia, Sudan, Uganda, Upper Volta, Zambia and Zimbabwe. Africare maintains field offices in Chad, Mali, Niger, Senegal, Somalia, Upper Volta, Zambia and Zimbabwe

Africare is currently operating more than 40 programs in Africa. They range in budget from \$1,000 to \$5.9 million.

Support for Africare comes from private foundations, corporations, small businesses, churches, private voluntary organizations, the Agency for International Development, the United Nations High Commission for Refugees and many thousands of individuals.

With a regional office in Bamako, Mali since 1974, Africare has undertaken a number of programs of rural development in the Sahel. These programs have been in the domains of famine relief, water resources development, rural health food production and integrated rural development.

In Mali, in particular, Africare's permanent representative has worked closely with the people and Government of Mali to establish projects consistent with the aspirations and needs as defined by the people and the Government. Accomplished projects have included well construction, construction and furnishing of a rural dispensary and maternity, and vegetable gardening. In a joint effort with the United States Peace Corps, Africare has become involved in a fish production project in Mali. Our most recent project has been a women's community development center at Tien-Soke, Segou

Africare provided relief assistance in the form of food stuffs and medicines during and after the 1973 drought. As part of a Water Resource Development/Well Construction Program in the Sahel, Africare assisted in the construction of

eleven wells for domestic and animal use in the circles of neighboring Goundam and Timbuctu in 1975. Today Africare is engaged in a Rural Dispensary Construction Project, begun in 1978, with the GOM Ministry of Health in the circle of Goundam approximately 35 Kilometers from Dire.

Africare provided a master mechanic to the Action Ble Project. The mechanic provided support to the project between October 1982 and October 1983.

This has given Africare first-hand knowledge of most of the technical and mechanical problems that confront the project.

3. Malian Activities in Project/Program Area

Grain production deficits in most of the 6th Region have long been a problem. The area around Dire, however, has been identified with significant potential for irrigated crop production although the introduction of wheat culture in this region is linked to Moroccan influence traced back to the 15th century.¹

The recent history of efforts to develop the "Plain of Dire" begins in 1921 with the establishment of a large (3-4,000 hectare), private irrigation system by the French C.I.C.O.N.I.G.² Agricultural production efforts were concentrated upon cotton, although some peasants were given small, individual plots for the growing of wheat. The C.I.C.O.N.I.G. system failed 25 years later due to a combination of factors including low world market prices for cotton, politics in post-war France and high cost, increasingly scarce fuel (firewood) for the large, steam-driven irrigation pumps.

In the late 1950s a group of retired civil servants established the "Cooperative of Dire" and purchased and installed a pump capable of irrigating 150 hectares of wheat

1. Seydoux, L. and P. Damien, "Developpement Integre de la Zone Dire-Goundam", p. 31, 1970.
2. Compagnie Indigene du Coton du Niger.

land in the former C.I.C.O.N.I.G. perimeter. The cooperative continued to function for 13 years.

In 1962 the Centre d'Animation Rurale, (rural training center) at Dire put back into production another small part of the former perimeter on land adjacent to the Center. A Russian made pump was installed at an existing pump site and operated for approximately six years.

In 1974, the GRM, concerned by the growing need to increase grain shipment to the 6th Region and faced with large import requirements for cereals, focused its efforts on maximizing grain production in this region. It was determined that the development of the "Plain of Dire" could contribute significantly to increased food production for the region. Thus, the GRM's 5 Year Plan (1974-1978) included the "Experimental Perimeter of Dire" designed for 300 hectares, of which 270 hectares would be distributed to local farmers and 30 reserved for experimentation with wheat, sugarcane and forage production.¹

French financial assistance for this pilot perimeter was secured in June of 1975 for the development of the 300 hectare irrigation system, the purchase of pumps, office equipment and supplies, vehicles, housing and technical assistance.² A second tranche of funding (approximately \$500,000) was secured when cost overruns threatened the completion of the project. Another major investment in the Dire area is the solar energy powered SOFRETES heat exchange irrigation pump. FAC also financed the 3 volume feasibility study conducted in 1975 by the French firm SCET International. The study encompassed the entire Dire Plain (95,000 hectares in all) and examined, in the following priority, the suitability of (1) sugar cane, wheat, and vegetable production; (2)

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1. Plan Quinquennal 1974-1978, "Perimetre Experimental de Dire", August 1974.
 2. FAC project 206/CD/74/VI/B/13, "Mise en Valeur de la Plaine de Dire", June 1974.

the establishment of a flour and sugar mill; (3) forage production; and (4) a feedlot.

The SCET study did not focus on the potential of small farm irrigation units but limited its study primarily to the engineering/economic feasibility of the rehabilitation of the large irrigated perimeter. It placed major emphasis on agricultural diversification and related agri-business development. Irrigation, as projected in the SCET study, would be done through the provision of large diesel pumps, much as in the manner of the former C.I.C.O.N.I.G. investment. Producers would lease land on a three year basis from Action Ble.

The SCET study summarizes wheat production potential: "The development of wheat in the study zone should not encounter particular difficulties...and could reach yields in the order of 4 tons/hectare."¹

Rural Development Program, Regions 6, 7, Timbuctu and Gao Regions

The main objective of the project is to use integrated regional efforts to trigger very rapid economic growth in both the Lake and Mali Northeast regions.

The secondary objectives can be summarized as follows:

- increase production and productivity of the herd and other natural resources (in grains, animal products, fish, firewood) to the self-sustaining level for both regions
- increase per capita income in the 6th and 7th regions by around 13 US dollars during the course of the first five years of the program;
- meet local needs more effectively through the creation of centers for sales of local products and for supplies of imported provisions, all of the foregoing to be supported by establishment of the necessary road network.

1. SCET, International "Schema d'Amenagement de la Plaine de Dire", Republique du Mali, 1975, p. 77.

The accomplishment of these objectives will require:

- effective application of a coherent strategy of regional socioeconomic development;
- the creation and management of "Unites d'Exploitation Sylvo-Agro-Pastorales" (UESAP - Forest, Farm, and Grazing units -- about 150 of them -- 50 in the lake region and 100 in the North-East) during the course of the first five years of the program. Given 5,000 tropical livestock units set up by UESAP, close to 46% of the region's herds will thus be affected by the program;
- reorganizing the producers to incorporate them effectively into a rational system of production, marketing and consumption;
- the creation of a Joint Rural Development Fund (FCDR) supported by the direct beneficiaries of the project the GRM, and outside sources of financing;
- set up or expand a central clearing-house for coordination and supply of equipment to obviate the anarchy and duplication of effort that have hitherto hampered project completion. This center is called the Rural Development Support Center (CADR)

The 6th and 7th regions cover about 817,980 km² and in 1978 they had close to 707,000 inhabitants. There are three climate systems:

- Sahelian system with 300 to 400 mm annual rainfall
- Subdesert system with 50 to 300 mm annual rainfall
- Desert system with less than 50 mm annual rainfall.

Although characterized by a low and unequal distribution of rainfall in time and space, this region has enormous potential for forestry, agricultural and animal husbandry. In effect, the population of cattle and small ruminants was estimated respectively at 1,319,000 and 5,601,000 head in 1980 by the technical services. The cattle of the region

represent around 23% of the national total, whereas the small ruminants account for about 48%. Furthermore close to 94% of the camels and 61% of the mules of Mali were located in that region in 1980. The region offers the finest seasonal grazing for the migratory herds of many cattle growers from Mopti, and from certain bordering countries during a large part of the year

Significant human, material and financial resources have been mobilized through projects during the course of the last two decades, with a view to increase productivity and production in forestry, agriculture and livestock activities and to improve the living conditions of the population. The results obtained were often disappointing for the following reasons:

- poor matches between project goals and those of the direct beneficiaries, resulting from a long-standing habit of planning "from the top down."
- the absence of the environment essential to get the participation -- especially financial participation of the direct beneficiaries in execution of the projects
- the multiplicity of interventions, often without any lasting effect, and the lack of coordination of activities between projects of the same nature in the same area
- the forms and terms of financing project activities, the complexity of the financial disbursements, and the poor efficiency of certain national and expatriate staff attached to the projects.
- errors in project management.

Furthermore, the animal husbandry projects were concentrated in areas often without comparative advantage over the 6th and 7th regions of Mali, but where convincing results appeared to be easier to achieve.

A. Economic Effects of the Project

Wheat has been grown in the Dire area for centuries. The climate and soil conditions are ideal and a ready, nearby market exists at remunerative prices. This project plans to help the people of the Dire-Bourem area improve their productivity and thus their standard of living.

The purposes of the Activites Paysannes continuation include:

1. Training management, extension, machinist and mechanic personnel competent to assume responsibility and able to provide needed services and inputs through local businesses for the association of farmers;
2. equipping and maintaining a viable machine repair shop capable of servicing irrigation pumps and providing parts;
3. developing marketing alternatives; and
4. maintaining a credit fund for farmers.

At present approximately 450 hectares are under wheat, 40 hectares under secondary crops including tobacco and spices, and 20 hectares under other cereals. The yield of wheat is estimated at 2.9 tons/hectare. All wheat produced can be marketed. The farmer sells only what he must to pay his credit. He obtains cash from the sale of his spices, tobacco and vegetables. In 1983 wheat was sold at MF 212/Kg.

"An average farmer will plant 2.1 ha. of wheat with 14 ha. of cash crops. A farmer must produce a large quantity of wheat to cover his expenses and still be able to feed his family. This can be done if he has access to a working pump. If the farmer can increase with irrigation the area under cash crops to .5 ha. he would then be able to conserve his cereals for his family and sell his cash crops to meet his input expenses." (Linda Smith, Project Administrator,

Activites Paysannes, Survey of the 6th Region Pump Farmers 1982-83, Wheat Campaign.)

In April 1982 a consultant, W. de Rafols, evaluated the Action Ble Dire Project. In his report, Economic Analysis Update, he states that:

Considering the present conditions, the Action Ble-Dire project is not economically viable.

This conclusion is based on a cost benefit analysis, which has been done to demonstrate that the returns are negative, and most of the farmers are losing money.

A sensitivity analysis also has demonstrated that with higher yields and selling wheat at prices above the present ones, the operation might result in positive returns.

The individual farmer will benefit financially from increased production in wheat, millet, rice, vegetables and spices. He will have mechanic services, spare parts, fuel and oil made available to insure timely agricultural inputs needed to accomplish cost beneficial yields. A group of farmer Representatives capable of managing this development program and providing other community services will be organized and trained. An additional ten new project mechanics will be trained to meet the increasing demand for skilled pump mechanics throughout the inland delta of the Niger River. An increase in the number of farmer campaigns, from one to two, per year will also increase the demand for manual labor needed to harvest, thereby providing supplementary employment for many young people in the area.

B. Technology and its Appropriateness

The present technology employed is an inexpensive diesel motor pump made in India. This model pump has proven to be easy enough to maintain by both mechanics and farmers over the past year. The only drawback, aside from technical assistance to maximize pump efficiency, is the availability of spare parts. Parts must be purchased in India and are

costly. During this one year extension, new model pumps will be introduced and tested in order to measure appropriateness.

In general, most of the farmers do not have a positive return. The insecurities of having gasoil available at official prices, lack of mechanics for the pumps, very limited knowledge of operating the pumps as well as water management, lack of proper spare parts, limited knowledge of agricultural practices, lack of proper distribution of selected seeds, poor storage facilities, uncertainty of market prices, etc. leads to a very poor economic situation for the project. The farmers might harvest wheat for their own subsistence and that of their families, and that would be the only profit.

According to the frequency table on yields done by Mr. Badot included in this report (see YIELDS), the average yields of wheat are around 1 Ton/Ha. Only one farmer obtained 3 Tons/Ha. in 1979/80 crop and another obtained more than 3 tons/Ha. in 1980/81 crop. With average yields so low, the project can not be successful. (Rafols 1982 Report).

1. Pump life cost

If the cost of spare parts and mechanic services paid by farmers are close to actual costs then it appears that, judged by activity of two year old pumps, the life of the pump could go beyond five years. Amortization of pumps over five years is difficult to accomplish given current economic environment of farmers.

2. Fuel

The per unit cost of fuel has increased threefold, from 156 FM/l to 425 FM/l. The quantity of fuel used per hectare appears to be greater than projected. Since fuel is one of the major cost factors, efforts should be made to see if the use could be reduced.

3. Hectarage .

- a. The average surface cultivated per pump is less than half projected by the project paper. It seemed that the most critical factor limiting surface exploited is the risk of possible crop loss due to pump failure. Some farmers interviewed appeared to have reduced the risk factor by exploiting adjoining plots of land with inter-linking canal systems. Three pumps on about 12 hectares appeared several times.
- b. The majority of farmers did not intend to cultivate the same land on a continuous basis. This fact, plus the land tenure problem which became known late in the exercise, may have some bearing on surface cultivated.

4. Cost of repairs and maintenance of pumps does not appear excessive, assuming that prices paid by farmers reflect actual costs. Given the remoteness of farms and the lack of motorized transportation for mechanics, pump down-time will continue to present a risk hazard to farmers.

5. Labor

The quantity of hired labor used by farmers appears to be about the same as projected. The average price of labor paid last season was 940 FM per man-day, about twice the price anticipated in the project paper. A part of this increase reflects the effects of inflation. The outlay of hired labor remains about 10% of total variable costs and is not considered a factor limiting marginal increases in production.

6. Yields

An attempt was made to measure yields. However, only

on 6 out of 22 farms was there wheat to be measured since harvest was well underway. This was not considered large enough of a sample to make an accurate projection. The analysis herein used the average yield given in Crystal's report. (Economic Assessment of Pump Irrigation: the ABC Zone of Operation no date, Anonymous.

C. Pertinent Sociocultural Factors

1. Economic benefits. Pump irrigation was directly responsible for an augmentation of surface area cultivated in wheat (by sample farmers) of 19% over the 1979-1980 season. Given an average production of 1500 kg/ha., each pump owner can expect to earn 806,250 MF gross profit for his 1980-81 wheat crop.
2. Target population. Despite the emphasis placed on selling pumps only to those who earned their livelihood from farming, "marabouts", merchants, school teachers, and fishermen have been sold 21% of Action Ble pumps. Most of the others have been bought by village chiefs or wealthy farmers who are probably descended from noble families. On the other hand, because of their greater wealth and access to means of transportation, these farmers will succeed regardless of Action Ble whereas the poorer farmers who depend on Action Ble for their agricultural inputs are likely to fail. It would be interesting to redo this survey in a few years to determine which farmers are still cultivating successfully with diesel pump irrigation.
3. Social costs. Farmers who continue to irrigate by calabash will probably be worse off because of the project than they were before. In terms of the

availability of seed, cost of labor (which has increased since the project paper was written from 400-500 MF per day to 1000-1500 MF/day) and their ability to satisfy various needs through barter, exchange of labor and other flexible social arrangements, non pump owners will be experiencing increasing economic difficulties. Because the market prices of grain were not monitored in the months following the 1981 harvest (due to project management difficulties), it is not possible to determine whether wheat prices have been depressed by the additional production due to the project which would further harm non pump owners' economic situation. (C.H. Crystal, An Analysis of the Socio-Economic Factors which Distinguish Innovators from Traditional Farmers in the Action Ble Dire Project, July 1981)

D. Project Relationship to other Considerations

Reaching people beyond the reach of public services.

As relevant technical packages become available this information will be provided to all farmers in the region. Monitors and the extension service will provide information necessary for each cropping season. Monitors will also be encouraged to demonstrate improved techniques on their own plots. Technical staff should be trained to demonstrate various types of improved irrigation systems that can be adopted, easily understood and can solve some of the immediate problems of the poorer farmers.

Tie in with other Programs.

The need for information from any source is obvious.

The project will be constantly adopting results of agronomic and socio-economic research to the needs of the farmers in the area.

V. PROJECT DESIGN AND IMPLEMENTATION

1. Project Implementation Plan

The project will use a technical assistance team consisting of a Project Manager stationed in Bamako. He will perform administrative backstopping, coordinate logistics and be responsible for implementing the project. A Project Coordinator who will supervise the field activities and all site based personnel and a Shop Administrative Assistant will be permanently stationed at the site. A Machinist will also be posted for the first six months at the project site. Thus 3 personal service contracts will be needed. The procurement of services by U.S. nationals to serve as such special hire staff will be accomplished by Africare Headquarters in Washington. Two of these contracts will be offered to persons already working at the site in order to assure rapid, timely implementation of this one year extension avoiding the normal 3 month delay usually experienced by expatriate personnel trying to adjust to their new post.

Under this project, the United States Peace Corps will provide at least 2 individuals to work as Peace Corps Volunteers. The Peace Corps will supply them the regular allowances and benefits associated with their tours of service. Once the Peace Corps Volunteers are placed at their work site, Peace Corps will be responsible to provide them any further technical, language or cross-cultural support they may require to serve effectively as technicians within the project.

The Project Manager with Project Coordinator will program a quarterly calendar of activities with attached financial plan (budget) to ensure timely execution of project inputs based on the farmer planting schedule. They will formalize with the Association, a farmer credit system and policies governing fuel, spare parts and new pumps. They will also help define, and revise as necessary, roles and work plans for project technical personnel (based on individual strengths, farmer needs and project objectives).

All project commodities will be purchased and delivered within the first 3 months.

Training of mechanics and Association workshop personnel will begin once materials arrive at the site.

The Association workshop will begin well construction and wiring for the generator once estimates are done.

The project Machinist should be identified and at the project site no later than the third month of the project. During his first three months he will make an assessment of machine needs and submit a report giving his observations and recommendations; once approved, procurement installation and a training program will begin.

The Farmers Association of Bourem will work with Africare to establish a system suitable to both parties for the management and administration of project equipment, operation, commodities and funds provided by Africare under the grant, or earned at the workshop as a result of its services, controlling the use of those funds for Association operation and eventual replacement of capital.

The overall responsibility for receipt and administration of project funds, and for reporting on the project through written reports to USAID, will rest with Africare.

Support from Africare's Central Office in Washington will be accomplished in part by existing personnel and offices (controller, Accountant, Program Development Team, etc.), and through consultants hired specifically for the project. All grant funds received will initially pass to Africare Washington, and that portion intended for local currency expenses in Mali will then pass to Africare's Representative in Mali to be managed by him there.

With respect to this project, the Representative will maintain a continuing liaison with host government officials at the national and regional level and with incountry representatives of Peace Corps, and USAID, for continued planning, supply and coordination of Africare inputs. Working with in-country and Africare/Washington Staff. The Representative will recommend suitable communication and logistics systems for the management, support, implementation and evaluation of the project. The Representative will arrange the procurement of project commodities in Mali and in neighboring countries. The Representative will be responsible to ensure the complete and accurate maintenance of Africare official in-country accounting records on local currency expenses financed by USAID, and provide any reports required on those expenses.

Revolving Credit Fund

In order to insure two harvesting seasons annually the project will support a revolving credit fund. A contract will be signed between the borrower and the Farmers Associations and the farmers. F.A. will supply diesel fuel and oil during the period and provide mechanics to assure maintenance of the farmers' pumps. The farmers will repay all credit within thirty days after the harvest.

A short term credit fund will also be made available to provide the farmer with inputs he needs for each cropping season.

Credit personnel will be trained within F.A. to maintain a credit section and design ways of distributing, accounting, and receiving the repayment of loans.

An adequate rate of interest will be charged on all short-term credit.

Farmers Associations

Assist and train F.A. personnel to manage credit. This including distribution, control and exerting the necessary pressure to ensure a satisfactory credit repayment rate.

Assist the F.A. to assure a continuous and timely supply of inputs to project farmers.

Provide and supply farmers with adequate seed for planting.

Assist F.A. to recognize and overcome the tremendous logistical problems : no roads, no navigable water ways at loan recovery time.

Assist F.A. to fix prices which will include costs of transportation, and handling and interest charges.

Exploring with F.A. the concept of villagers distributing and controlling project inputs at the village level. The village will then reimburse F.A. in cash or in kind.

Support System for the Pumps

There will be an adequate number of mechanics to assure repairs and maintenance of the pumps. Village youth will be trained to serve. The mechanics-shop will be made functional. A system of spare parts distribution and control will be part of the service offered to pump farmers.

Mechanics will be paid on time, provided with adequate tool sets and transportation so that they will be able to respond to pump break downs.

The repair shop will provide storage for pumps and spare parts. Spare parts will be inventoried and stocked in the warehouse.

Practical training on pump maintenance and operation will be given to owners of pumps. Every effort will be made to upgrade the quality of service given by mechanics.

Project Management

Project management will be decentralized. The Africare Representative will perform the logistical, procurement and financial management functions. He will make periodic visits to Dire.

The Project Coordinator - PC

The PC will be responsible for implementing, coordinating, and supervising all field activities. He will manage an operating fund in Dire.

The Administrative Assistant - AA

The AA will see that inputs arrive on time and in sufficient quantities, that agents are paid their salaries and that Farmers Associations pay their debts and keep their promises.

Study Teams

The objective of the various studies are to determine conditions in the region and their priority needs for development.

Based on information collected through community surveys, systems should be developed to :

- establish basic social and economic trends such as migration, employment, and changes in agricultural production;
- specify the problems faced by farmers such as marketing, credit, fuel, power and parts
- provide a comprehensive inventory of infrastructure, services, rural enterprises, and irrigation systems;
- indicate the magnitude of development problems such as kilometers of canals requiring construction and improvement;

- .-- establish priorities for types of projects between villages;
- indicate perceived community priorities for development projects and
- provide a baseline against which the effectiveness of programs can be measured by comparing the number, type and location of projects completed compared to the needs established by the research program.

2. Measurement and Evaluation of Project Accomplishment

During the implementation phase monitoring will continue on a periodic basis. Due to the short time frame of the project there will also be on-going evaluations. These will be in the form of sample surveys, spot checks, and workshops with and without outside consultants.

Toward the end of the project a full-scale evaluation will be conducted to review project effectiveness. During this evaluation concerns will be about the strengths and weaknesses of the project, innovations, claims and insights.

During the evaluation we will look at the project's impact as reflected by both numbers of farmers and productivity. One of the primary concerns of this project is to leave in place a farmers association with a functioning capacity to manage, fund, maintain and operate the associations developed. Will the development of the farmers associations make the region less dependent on outside assistance?

Intersectoral Relations. The project will be affected by the institutional environment within which it is implemented. During the evaluation we will examine the ways the project tried to minimize negative cross-sectoral effects and enhanced positive effects.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>GOAL</u></p> <p>To assist the people of the Sixth Region of Mali to improve productivity and to reduce their dependency on food aid.</p>	<p>Farmers of the Sixth Region self sufficient in wheat production.</p>	<p>GOM technicians reports for the sixth region.</p>	<p>(1) GOM will continue to support the project. (2) Interventions such as fuel, seeds, credit, spare parts will be provided on a timely basis. (3) Association of pump farmers can be strengthened to meet the farmers needs.</p>
<p><u>PURPOSE</u></p> <p>(1) Increase wheat production in Sixth Region.</p> <p>(2) Strengthen the infrastructure required to service the needs of pump farmers.</p> <p>(3) Strengthen the management capability of the Farmers' Association.</p> <p>(4) Develop small pump technology appropriate for Sixth Region.</p>	<p>800 tons wheat produced per season.</p> <p>Farmers Association supporting pump farmers with credit and other inputs.</p> <p>Farmers Association members managing the organization efficiently and effectively.</p> <p>Test various pumps and sources of power.</p>	<p>Extension workers reports. Africare reports.</p> <p>Africare reports.</p>	<p>Wheat produced locally will reduced the need for millions of dollars in food aid.</p> <p>New model pumps must be constantly tested to find those most appropriate for the region.</p>

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<u>INPUTS</u> <u>Salaries</u> Project Manager 12 mos. 21,000 Coordinator 12 mos 32,000 Machinist (6 months) 15,000 Consultants 11,520 Admin. Assistant (shop) 19,200 PCV agronomist 2,500 PCV Bus. admin 2,500 Host Country Hires: 14,715			
<u>Travel & Allowances: 131,587</u> <u>Equipment : 41,600</u> <u>Supplies : 6,500</u> <u>Construction: 12,585</u> <u>Training: 9,400</u> <u>Other Direct: 60,000</u>			

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<u>OUTPUT</u>			
(1) Design baseline studies on technology, sociology, economics, and marketing.	(1) Studies conducted and data analyzed.	(1) GOM technicians report from REgion. (2) Africare Reports	(1) Effective projects in this and similar areas require documentation of the economic, social and technological viability
(2) Establish a credit program.	(2) Farmers increasing production through revolving credit from		
(3) Establish a machine shop for maintenance of pumps.	(3) Machine shop operational Pumps maintained/repaired/replaced.	(3) Machine shop report.	(3) A capable machinist will be willing to work in Dire.
(4) Extension training program for farmers designed.	(4) 350 farmers trained.	(4) Extension agents reports Africare reports.	(4) Extension training is effective in improving farmers agricultural practices.
(5) Training program designed for Farmers Association management personnel.	(5) Personnel trained.		
(6) Training program designed for mechanics.	(6) 12 mechanics trained. 5 mechanics re-trained. 1 machinist trained.		
(7) Tested small pumps appropriate for Sixth Region.	(7) Small pumps operating in Sixth Region.		(7) Mechanics can be trained to maintain the pumps and the workshop.

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ACTIVITES PAYSANNES
One Year Budget.
(Dollars)

<u>CC</u>	<u>Description</u>	<u>TOTAL</u>
	<u>AFRICARE EXPATRIATES SALARIES</u>	
01	Project Manager	21,000
01	Project Coordinator	32,000
01	Administrative Assistant/Shop	19,200
01	Machinist (6 mos.)	15,000
	<u>AFRICARE FIELD STAFF</u>	
02	Secretary/Bamako	1,640
02	Stock Clerk	1,715
02	Stock Clerk	1,715
02	Chief Mechanic	1,715
02	Mechanic Supervisor	1,286
02	Driver	1,286
02	Driver	1,286
02	Truck Crew	1,500
02	Boat Driver	515
02	Guard	343
02	Guard	343
02	Worker	343
02	Worker	343
02	Radio Operator	685
	<u>AFRICARE/W STAFF</u>	
03	Project Officer/W 1 da/mo	1,716
03	Secretary/W 1 da/mo.	720
	<u>AFRICARE CONSULTANT</u>	
05	Evaluator 192 X 15	2,880
05	Agronomist 192 X 15	2,880
05	Sociologist/Econ. 192 X 15	2,880
05	Appropriate Tech/Energy/Pump 192 X 15	2,880
	Sub Total Salaries	115,871
11-20	<u>FRINGE</u>	
	01,03	13,445
	02	3,679
22	<u>RECRUITING</u>	
	Ads, 3 positions X 3 ads at 300 ea.	2,700
	Travel 6 X 300 RT	1,800
	Per Diem 6 X 75 da. X 2	900
	Sub Total Fringe/Recruitment	22,524

RELOCATION AND INCIDENTALS

23	Orientation Per Diem 3 X 50/da X 14 da.	2,100
	3 X 25/da X 14 da.	1,050
24	Travel Incidentals (Shots, Physicals, medicine Photos, Passports, Visas)	6,000
25	Relocation: Pers. Freight, 3 X 4,000	12,000
26	Relocation: Transportation 6 RT X 2000	12,000
27	Relocation: Subsistence 8 da X 75 X 3 8 da X 38 X 3	1,800 912
28	Settling In 3 X 500	1,500

HOUSING COSTS

29	Household Furn. 5,000 ea.	15,000
30	Household Maint/Repair 3,000 ea.	9,000
31	Housing Rental Proj. Manager Machinist 6 mo. X 50/mo. Proj. Coordinator 12 mos. X 150 Administrative Asst. 12 mos. X 150	5,250 300 1,800 1,800

GENERAL TRAVEL

32	General Transp., gas Toyota/Project Manager Toyota/Project site Hino Truck/Project Site 2 boat/project site 2 PCV	2,400 5,000 10,500 2,600 2,500
33	General Subsistence Project Manager Project Coordinator Admin. Asst. Machinist 2 PCV Per Diem	2,400 4,000 1,000 1,500 2,500
34	Light Vehicle Repair/Service All Vehicles	9,000

INT'L. TRAVEL

37	International Transportation Evaluator Sociologist/Econ. Appropriate Tech/Energy/Pump Project Officer/W Project Manager/India	2,000 2,000 2,000 2,000 2,500
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38	International Subsistence	
	Evaluator 21 da. X 75/da	1,575
	Sociologist/Econ. 21 X 75/da.	1,575
	Appropriate Tech 21 X 75/da.	1,575
	Project Officer/W 14 X 75/da	1,050
	Project Manager	1,400
	Sub Total Travel and Allowances	<u>131,587</u>
	<u>EQUIPMENT</u>	
40	Machine Shop Tools	12,600
	<u>VEHICLE PURCHASES</u>	
49	Toyota Pick up	15,000
51	Mobylettes (3)	5,000
	<u>OFFICE EQUIP. AND FURN.</u>	
52	Typewriter, calculator	1,500
53	Desk, chair, file cabinet	2,500
	<u>EQUIP/REPAIR/SERVICE/RENTAL</u>	
54	Generator/parts, fuel	<u>5,000</u>
	Sub Total Equipment	41,600
	<u>BASIC PROJECT SUPPLIES</u>	
56	Workshop supplies	5,000
	<u>GENERAL SUPPLIES</u>	
63	Africare Office Supplies	1,000
64	Photocopying	<u>500</u>
	Sub Total Supplies	6,500
	<u>CONSTRUCTION CONTRACTOR FEE</u>	
68	Construction Contractor Fee	
	Workshop wiring, Well Construction	<u>12,585</u>
	Sub Total Construction	12,585
	<u>TRAINING</u>	
80	Training materials motor, Engine Revision	4,000
82	Workshop Travel and Allowances	<u>5,400</u>
	Sub Total Training	9,400
	<u>GENERAL BUSINESS COST</u>	
84	Freight on Commodity Purchases	
	Vehicle spare parts	5,000
85	Vehicle Insurance	2,000
	<u>COMMUNICATION AND INFORMATION</u>	
89	Telephone and Telex	2,000
90	Postage and Delivery	1,000
97	Revolving Credit Fund (pumps, spare parts)	<u>50,000</u>
	Sub Total all other direct	60,000

INDIRECT

98	Salaries, Fringe, Travel 115,871 + 22,524 + 131,587 + 9,400 + 60,000 X 27.03 %	91,735
99	Equip, Supplies, Construction 41,600 + 6,500 + 12,585 X 13.51%	<u>8,199</u>
		<u>99,934</u>
	GRAND TOTAL	<u><u>499,999</u></u>

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APPENDIX

JOB DESCRIPTIONS

PROJECT MANAGER

The project management functions will be the responsibility of the Africare Representative in Bamako.

The Representative will maintain a continuing liaison with host government officials at the national and regional level and with the USAID incountry project management for the continued planning, supply and coordination of project inputs. The Representative will recommend suitable communication and logistics systems for the management, support, implementation and evaluation of the project. The Representative will arrange and manage in-country logistics support in the form of commodities to be procured in Mali and in neighboring countries. The Representative will be responsible to ensure the complete and accurate maintenance of Africare official in-country accounting records on local currency expenses financed by USAID. The Representative will receive and analyze periodic narrative reports prepared by the technical staff at the project site, condense these reports into the format required for its review by Africare/ Washington and final submission to USAID

PROJECT COORDINATOR

This will be a one year contract. The Project Coordinator will be living at the project site in Bourem Sidi Amar. A house with basic furnishing will be provided

The Project Coordinator supervising the work of the Machinist, Shop Administrative Assistant and PCVs, will be responsible for implementation, coordination and supervision of all Field activities. Responsible for the selection and training of Association personnel and for strengthening the farmers Association into a productive enterprise. Maintain good relationships with authorities and community leaders. Responsible for correct accounting and reporting procedures and for coordination with the Africare Representative in Bamako.

PROJECT SHOP ADMINISTRATIVE ASSISTANT

This will be a one year contract. The Shop Administrative Assistant will be living at the project site in Bourem Sidi Amar. The Shop Administrative Assistant will share a house with basic furnishings with the project coordinator

The Shop Administrative Assistant will maintain control of master parts stock including stock anticipation, selling and purchasing of pump parts and shop services rendered; all bookkeeping (cash and credit accountability); inventory control; with the machinist he will establish an effective maintenance and parts recording system for all project equipment and vehicles; and training the mechanics and personnel in specific shop operation procedures. Additional duties and responsibilities will be assigned by the Project Coordinator as needed.

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MACHINIST

This will be a six month contract. The machinist will be expected to live at the project site and have a working knowledge of French. The living conditions will be spartan. A house with basic furnishings will be provided. Due to this short term contract shipment of personal household effects will be limited.

The machinist will be required to set up and make functional a shop at the Farmers Associations workshop/studio in Bourem Sidi Amar. Initially this will demand an immediate assessment of all needed equipment, parts and supplies, based on the project's needs. The machinist will then be in charge of the machine shop equipment which presently consist of air compressor, welders (electric gas), drill press, open frame bench press, dial calipers, top and die set; parts and supplies purchase orders: required to establish an effective parts order system for all project equipment; training the mechanics and personnel in general shop operations, and finally maintain a smoothly operating machine shop. Additional duties and responsibilities will be assigned by the Project Coordinator as needed.

The machinist with creative, imaginative flexibility and an excellent sense of humor would be in the best position to make a positive contribution in this assignment.