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PD-AAB-653-B1

OMVS Agronomic Research Project

Fiscal Year Proposed for Financing	:	FY 1975
Appropriate Category	:	Special Sahel (Medium Term)
Date of Submission to Bureau	:	March 6, 1975
Project Number	:	625-11-120-616
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OMVS Agronomic Research Project

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OMVS Agronomic Research Project

I. Summary and Recommendations

1. Grantee: Organisation pour la Mise en Valeur du Senegal (OMVS)

2. Method of Funding: Special Sahel Medium Term Funds

3. Project Financing:

a. Total Project Cost			$ 3,560,000
CY 75 - CY 76 (two years)			
b. Amount of AID Assistance		$960,000	
1. Foreign Exchange			
-U.S. equipment	95,012		
-Technical assistance	60,000		
2. Local Cost Component			
-Equipment	504,988		
-Local Cost	300,000		
c. Grantee Contribution		$600,000	
d. Other Donor Input			
-UNDP		$2,000,000	

4. Description and Justification of Project

The OMVS Agronomic Research Project, which has been funded by UNDP since 1970, will be entering its second phase in the beginning of calendar year 1975. This project paper proposes a joint UNDP/AID financing of Phase II until the end of CY 1976. It will primarily consist of continued agronomic research work in three OMVS-sponsored experimental stations located in each member state of the OMVS.

The OMVS Agronomic Research Project is one of several preliminary efforts ultimately designed to contribute to the long-term goal of realizing the integrated development of the Senegal River Basin.

The three riparian states of the Senegal River, Mali, Mauritania and Senegal, form a regional organization known as the Organisation pour la Mise en Valeur du Senegal (OMVS) whose mandate is to realize an integrated development of the river basin's natural resources similar to that attempted by other large river basin regions. The regularization of the river's waters is viewed as a prerequisite to the larger scale development of agricultural production, river navigation, exploitation of mineral resources, and the eventual implantation of diverse industries.

In January 1970, the OMVS Chiefs of State decided to pursue the construction of two major dams, the creation of the port of St. Louis, and the improvement of various small river ports. While negotiations have been carried out with various donors regarding the financing of these vast infrastructural projects, parallel efforts have been made by the member states to work toward achieving a significant increase in agricultural production which would:

1. enable the states to meet their needs for food, thus reducing their dependence on foreign food imports,

2. raise the standard of living of the valley's population, and

3. promote a general "take-off" of the basin's economy by the rational use of water and land resources in order to assure social and political stability in the region.

Within the context of this long term development scheme, the OMVS Agronomic Research Project contributes more specifically to the subsector goal of increasing agricultural production in the Senegal River basin. All three riparian states, Mali, Mauritania, and Senegal, were severely affected by the recent Sahelian drought which crippled agricultural production, making them more dependent on imports of basic foods for survival. Amid this precarious agricultural situation it becomes essential to develop potentially productive areas, such as

the major river basins, which heretofore have remained essentially unexploited. Development of agricultural production in areas surrounding some of the world's greatest fresh water sources seems a possible solution to the depressed agricultural production in this area.

The purpose of the OMVS Agronomic Research Project is to prepare, through research and advance extension work, the technological package (i.e. high-yield irrigated cereals and forage techniques) which can be used in agricultural development projects which foster a balanced increase in both cereals and livestock production, before, during and after the regularization of the river. The primary assumption linking the project's purpose to the sub-sector goal is that member states and future donors will use the agronomic research findings in planning and implementing agricultural development programs. Research will not in itself effect production changes; it is rather the application of scientific research which eventually leads to change.

The combination of UNDP/AID joint financing for Phase II of the Agronomic Research Project and host country inputs will have the following expected outputs:

1. Studies on agrometeorology which will include more precise crop calendars and other weather and climate information as applied to agricultural production.

2. Identification of different systems of cultivation. In Senegal and Mauritania efforts are being made to develop workable irrigation systems for increased cereals production. In Mali dryland cereals production methods will continue to be emphasized.

3. Identification of better methods of forage production, harvesting, storage and pre-extension and methods for rationalizing both livestock and agricultural production in the basin area.

4. Identification of high-yielding varieties of grain which will be well adapted to specific regions of the OMVS area as well as proposed new techniques.

5. Perfection of agricultural extension methods through and as a result of various pre-extension activities.

6. Trained cadre of local personnel on all levels of agronomic research, from administrative to agricultural extension.

Inputs for this project will consist of the following:

OMVS

The member states of the OMVS will provide all the necessary local personnel for the Central Office in Dakar and the three experimental stations including: the co-director and a complete support staff, engineers, extension agents, meteorologists, machinists, mechanics, drivers, secretaries and day-laborers.

In addition, the member states will furnish the land for the experiments to be carried out by each experiment station. Buildings, offices, storehouses, hangers, and lodging used during the first half of the project will also be used. Offices and lodging will also be built in the new experimental areas in Matam and Diorbivol. Total contribution of the OMVS member states is estimated at 144,906,167 CFA or $589,049.

A governmental agency (possibly each Ministry of Agriculture) in each country will be designated to backstop the above responsibility. (See Annex E for a detailed breakdown of the OMVS contribution.)

UNDP

UNDP, through its executing agency, FAO, will complement the contributions of the member states by furnishing a full core of technical experts, including the director of the project, an agro-meteorologist, a cereals agronomist, a chief agronomist for each experimental station, a rice cultivation expert for Kaedi, pre-extension (direct and contract), a chief mechanic and consultant plus a support staff. In addition, material and equipment contributed during the First Phase will be used (see Annex B). Total contribution of the UNDP is estimated at $2,000,000.

AID

AID will provide agricultural equipment valued at $600,000 needed to replace worn equipment being used in the project, to carry out new applied research, and to be utilized in the pre-extension programs (see Annex C). AID will also finance an equivalent of $300,000 of the local operating costs for the three OMVS experimental stations (see Annex D for cost justification).

To monitor the delivery, receipt, use and maintenance of the equipment and the disbursement of the local cost component, AID will provide a full-time equipment technician ($60,000) for no more than one year, who will work closely with OMVS, UNDP and ADO/Dakar (see Annex G for project manager scope of work).

II. Introduction and Background of the Project

Since 1967 systematic agronomic research in the Senegal River Basin has evolved from attempts to improve the traditional mode of agriculture to the introduction of intensive high-yield irrigated agriculture.

The OMVS Agronomic Research and Agricultural Development Project was inaugurated in July, 1967 after a research agreement was signed between France, Mauritania and Senegal. Under this agreement the Institut de Recherche Agronomique et Technique (IRAT) concentrated its efforts on improving traditional rainfed crop production, rice production under controlled flooding, semi-intensive mechanized irrigated rice and sugar cane production. A third experiment center in Same, Mali was organizationally attached to the existing Kaedi (Mauritania and Guede (Senegal) stations. This made the OMVS Agronomic Research Unit a research effort involving all these countries.

In 1968, FAO decided that research results obtained in IRAT's experimental stations in Richard Toll, Guede and Kaedi could be used in a more concrete program emphasizing demonstration and extension and covering a trial period of four years (1968-1972). FAO was to concentrate on the improvement of traditional cultivation techniques including rice cultivation and sugar cane in the delta area. By 1970, the results of this experiment were judged to be very mediocre due principally to the irregularity of the rains. It was concluded that water remained the prime limiting factor for regional development of agriculture and a new approach to agronomic research was required.

In 1970, the United Nations Development Program (UNDP) through its executing agency, FAO, assumed full responsibility for the direction of the project under the policy guidance of the OMVS secretariat. Given the irregularity of the rains, the emphasis of the project became the development of more climatically appropriate agricultural techniques. Research was focused on irrigated agriculture based on the premise that "a healthy exploitation of agriculture necessitates the abandonment of extensive agriculture and the creation of a modern high-yielding and rationally organized agriculture". (UNDP Review of the Agronomic Research Project)

In April 1973, the UNDP requested AID participation in Phase II of this project. This was followed by a request from the OMVS Secretary-General Ould Amar and President of the Council of Ministers Mamadi Keita, during their July 1973 visit to AID/W. In November 1973 the Fei Task Force recommended that the project be considered for Medium-Term Sahel program funding. In February 1974 the Moore/Patterson mission included this project in their recommendations. The project was included in the FY 1976 FBS for funding under the Foreign Disaster Assistance Act of 1974, and the Project Paper begun in July 1974. Finally, in October 1974 AID participated in the UNDP review and evaluation of Phase I of the project.

III. Project Analyses

A. Technical Analysis

1. Evaluation of Phase I

With emphasis on intensive irrigated agriculture in the Middle Valley of the Senegal River basin, the UNDP/FAO Agronomic Research project set as its objectives to:

1) find high-yielding varieties of cereals adaptable to different ecological conditions of the valley,

2) determine crop calendars as well as cultivation patterns,

3) experiment with various cultivation techniques, and

4) study forage cropping necessary for livestock production in order to arrive at some association between agriculture and livestock production.

a. Detection of High-Yielding Varieties of Cereals

During the experimentation period, three major varieties of rice (Taichung Native no. 1, Tchin Chun Wei, I Kong Pao) were found to be adaptable to the heavy argile soils of the Middle Valley (estimated at 120,000 ha to 150,000 ha). It was found that these varieties could be rotated in lighter soils with other cereals crops (see Annex A). Planting techniques have been more or less perfected with a mode of mechanical preparation of the earth possible on a moderate parcel of land.

Other irrigable cereals crops (wheat, corn and sorghum) were found to be applicable to 120,000 to 150,000 ha of muddy soils less suited for rice. The MEXIPAK variety of wheat has proven to give excellent yields while the currently used varieties of corn and sorghum seemed best so far. More experimentation with high-yielding varieties of these latter two cereals will be emphasized during the second phase of the agronomic research project.

b. Studies Carried Out

Much emphasis was placed on agrometeorology, particularly in the creation of three climatological experimental stations designed to observe the effects of climate on irrigated agriculture. Although the period of observation has been too short to make any definitive judgements it is clear that diverse climatological facts determine production seasons because they have important effects on the yield, the biological and cultural cycles, and mostly on the division and implementation of agricultural work

(cold-dryness, hot winds, etc.).Existing provision crop calendars will be perfected during the second phase.

Another area of study, pedology, which was not investigated during the first phase due to lack of funds, will be studied in depth during the second phase, 1974-1976.

Through crop rotation, forage crops can play an important role as food for livestock and therefore refertilization of the soils. A large number of forage species were introduced to find the most productive and adaptable. Varieties such as gramineaus plants, Penisetum, Kisozi, Brachiaria, Rusisiensis, etc., were found to give more than adequate yields in addition to the use of the famous niebe bean as a leguminous restorer of soils.

Positive gains were made in the Middle Valley with respect to irrigated agriculture. However, in the Upper Valley the improvement of traditional dryland cropping has been emphasized with relatively mediocre result. Varietal selection of sorghum, corn, millet, peanuts, cotton or niebe have been carried out, but like the initial approach taken by IRAT during the start of the agronomic research in 1968-1970, the production potential has been stymied by the flukes of rainfall.

Aside from the scientific results of the agronomic research, the project concentrated on pre-extension of the results of research. The following results were recorded in the UNDP evaluation of the OMVS Agronomic Research project carried out in November, 1974:

1. Recession planting of sorghum: through use of a selected variety and new planting techniques, local populations were able to increase their yield from 350 kg/ha to 1,250 kg/ha.

2. Rice: Yields in the Upper Valley for submersion rice can be brought up from 900 kg to 2,500 kg/ha, however, this has been limited by the risky nature of the rains. For irrigated rice, two crops could be produced at 4 to 5 tons/ha (paddy).

3. Marshland cultivation: excellent yields have been reported in two areas (Kamankole and Sapou) in the Kayes region of the Upper Valley.

4. Animal traction: Animal traction was introduced from 1970-1972 but was not used further because of problems involving: a) food for the animals, b) equipping the animals, c) very close crop calendar, d) economics of irrigation system. Animal traction was, however, found to be applicable in the muddy soils of the Middle Valley and in the areas of heavy soil in the Upper Valley.

5. Psychological results: The local populations which have been exposed to the three experimental stations have shown a real interest in the irrigated perimeter and motorpumps and have often come to ask for aid, realizing through their own observations that the mastery of the water situation remains essential. The drought which has recently affected the region has further reinforced this need.

General Conclusion of the First Phase of the Agronomic Research Project

The basic approach to increased agricultural products in the Middle Valley remains intensive irrigation through the mastery of the river's waters. This approach will be continued throughout the second phase.

Other donors such as the FED, FAC, AFDB and the IBRD have also recognized the validity of irrigated intensive agriculture and with the eventual elimination of traditional agriculture currently being practiced in the valley, greater control and use of water is possible.

2. Phase II and AID's Input

During the second phase of the OMVS Agronomic Research Project, the three experimental stations will basically continue to carry out field trials on seed varieties and further refine their studies on critical planting calendars. A greater emphasis will be made to demonstrate and extend the results to local farmers in the vicinity of the three experimental stations. Since AID's contribution to this second phase will be mainly the supply of farming equipment to carry out the field trials and demonstration, our technical discussion will center mainly on the equipment and how it relates to the pilot irrigation and extension work.

a. Irrigation in the Senegal River Basin - Middle Valley

Irrigation has not been used significantly in the Middle and Upper Valleys in the past, because during the dry

season, the water level is well below the floor of the flood plains, and the farmers have no economical means of lifting the water on to the higher lands. Pumping devices are not available at a cost which farmers could afford, and gravity ditches are very difficult and costly to construct, because they are destroyed yearly during the flood season.

Crops are planted and mature on lands where the flood waters have receded. This is commonly called recession cultivation. Experts agree that this technique could be much improved if irrigation water were available toward the end of the growing season when the soil is too dry. In addition, irrigation would make possible the planting of a second crop during the dry season. In some areas recession cultivation has been improved by dikes (forming polders) which prevent or reduce the annual flooding and allow the areas to be soaked and then dried earlier, thus advancing the planting cycle before soil moisture is too depleted. Timing in either operation is very critical, for if the seeds are planted too early, they are killed by fungus; if they are planted too late they may not germinate or mature due to lack of moisture. Recession planting is, moreover, suited to deep-rooting crops that can follow the moisture downward into the soil.

Irrigation can increase the yields of the current flood plain agricultural lands both my making extra water available for the present crop as well as for a second crop where applicable. Not all lands, however, can have a second crop because the water in the river is so low that it cannot be reached by the pumps. Until storage reservoirs are available, there will not be sufficient water for second cropping in all of the flood plains during the low water period.

For most of the rain-fed lands, irrigation can only use well water because they are too high above the river, too far from the river or too scattered. Eventually a ground water study should be made of the area. For many of the rain-fed crop lands observed, the only improvement may lie in water concentration methods employed in southern Jordan and Israel in biblical times and most recently used in parts of Mexico, Arizona and California. Although an eventual concern of the OMVS Agronomic Research Project (mostly in the Upper Valley), the current program is properly concentrated on the more easily developed and viable bottom lands of the Middle Valley.

b. Project Activities at the Experimental Stations

Each experiment center will engage in applied seed research, multi-local experimentation, pre-extension in the surrounding areas, training, seed and plant multiplication, and development of pilot polders. Their equipment needs are

assessed below.

c. Status of Equipment at the Experimental Stations

In October, 1974 W. Romig, an AID consultant, visited the three research centers to review the maintenance procedures and condition of the equipment used in Phase I. According to his report, the three experimental stations have been equipped with a minimum of mechanical equipment. If a piece of equipment breaks down at a critical time, activity stops until it is repaired. As the program extends irrigation to the farmers, demand on that limited equipment becomes greater. The result is a slow-down in the program.

Maintenance of some equipment has posed problems. Pumps now in use are French "Bernard" pumps. This company has been purchased by Renault, which is eliminating a number of models from their line. Spare parts to these models will soon become a serious problem. These pumps must soon be phased out and replaced. Their life, however, could be appreciably extended if funds were available to buy a reserve supply of parts while they are still available in Dakar and elsewhere. UNDP plans to procure these parts. Once this supply of parts is exhausted, the next step is cannibalization and progressive replacement.

Maintenance of the Massey-Ferguson (M-F) tractors has also been a problem because some were built in England and some in France. Although they look alike and have the same model numbers, spare parts are not interchangeable due to the differences between metric and English measurements. Repairs are delayed because one part will not fit or is out of stock. A number of walking tractors from Japan have been obtained which meet the needs of the small fields very well. However, nearly all are out of service due to a lack of spare parts. In general, the spare parts problem adds somewhat to the need for additional equipment for it seriously increases the "down-time" element of the work schedule of such units.

OMVS clearly needs more equipment, both to permit the desired expansion of the program and to offset the problems of replacement parts. Aside from the lack of spare parts, maintenance and management of the equipment is good. No signs of neglect were found.

d. Equipment Requested

A revised list of equipment was prepared by UNDP (FAO) personnel and presented officially by UNDP personnel on December 30, 1974 (see Annex C). The number of units reflects the growing program and the demand to extend irrigation to more villages.

Motorpumps: Twenty-four (24) motorpumps have been requested. These are pumps and motors on a single base, with direct coupling. They are to be mounted on floats in the river. At present the Agricultural Research Project has a total of 26 pumps that have been in service for about three years. Parts are hard to obtain (as discussed above) and they must be gradually cannibalized and phased out. Villages have requested pumps from OMVS for the development of irrigation. The 24 pumps requested from AID are meant to meet the increased demand and replace those already cannibalized. Such pumps and the discharge pipes (flexible and rigid) are the only imported items of the irrigation system.

Farm Tractors: Four (4) 85 hp farm tractors have been requested. These are to be used for the normal activities of the experiment stations and to assist the villages and farmers in the critical preparation of their irrigation system and fields. Most of the work in the village area is done by hand, but at times some machine work is desirable at the start. The request for four tractors provides each experiment station with one tractor plus an extra for the secondary detached tracts near Kayes located roughly 70 km. from the main station at Same. Four tractors will permit the OMVS to keep up with its growing activities and will greatly reduce the damaging effects of a breakdown of the one and only tractor now at each station. They will provide better ability to operate despite breakdown. The equipment list includes attachments needed for both old and new tractors. They will also tend to reduce the problem when the one unit now available breaks down. Massey-Ferguson tractors are preferred as this is what is now used. Other equivalent equipment is acceptable, but it should accommodate the M-F attachment equipment as well as the new items.

The need for miscellaneous agricultural equipment units is basically the same as those for tractors. However, the thrashing and shucking equipment should be of a type that can be opened easily for cleaning to prevent the mixing of experimental grains.

Motor-cultivators: Several sizes and models of Japanese "walking tractors" have been used and have proven very useful, but are out of service due to a lack of spare parts. Experience has shown that the units below about 14 horsepower are not well adapted to work in the valley. Some "shopping" may be required to find U.S. units suitable to the area.

Boats: Owing to the annual flooding of the valley, boats are an essential part of the transportation system during a significant part of the year. In addition expanding activities put more need on the transport facility. The few boats observed around the experimental facilities were beginning to show signs of age, and some UNDP personnel stated their concern about using them. Such

boats should be sturdy (fiberglass seems best) and should carry at least five persons. The rear seat should be removable for cargo.

D-4 Caterpillar Tractor: One D-4 caterpillar tractor is requested. It will be used for the following purposes at the three research centers: 1) constructing larger irrigation canals, 2) smoothing major land surface irregularities in fields to be irrigated, 3) constructing dikes to prevent encroachment of the river on to tillable land, 4) breaking the hardpan layer existing at 50 to 100 cm depth in some arable soils and 5) building and maintaining roads and trailers within the perimeters of the research centers, between the centers and extending to outlying points where project equipment serves cooperating farmer groups.

Trucks: One 7 to 8 ton (net) truck is included for each of the stations at Kayes and Guede (it will also haul for Kaedi). They are needed for highway transport to and from Dakar. For the Kaedi station, a four-wheel drive truck having three ton capacity has been requested. Truck specifications should be clearly indicated as not requiring anti-smog equipment. They should also include a spare parts kit (no tires) amounting to about 25% of the original factory cost. The trucks are to be procured from the U.S. A low-boy semi-trailer with a cab truck tractor to transport the D-4 tractor is also requested.

Spare Parts should be obtained, as a part of each order, at a level of about 25% of the original cost of the item. All stations are at a considerable distance from Dakar and it may take some time to obtain replacements for items taken from this stock, especially during the wet season. Likewise, back orders fo the factory will take a very long time. Thus a 25% stock of parts is considered to be the minimum that is prudent. Items removed from stock should be reordered as soon as practical.

Agriculture in this area is subject to unusually critical scheduling For example, rice must be planted in the seed beds near Kayes by November 12, because later, the desert nights get so cold that the crop will be seriously damaged by the chill at a critical time. Due to such critical scheduling, the farmers are actually overworked as they try to harvest one crop, prepare the fields and plant the next crop, if they must do it by hand. With the help of equipment such as the walking tractor and its auxiliary equipment, this problem would be less critical. Field preparation would be done much more quickly.

Some items, such as the thrashers, may need special provision in the specifications. Due to the research needs, it should be possible to

open the machine for cleaning. Unless this is done, grain varieties may become mixed and confuse the results of tests.

e. Equipment Procurement

Since delivery of the equipment is imperative by June, 1975, procurement of the equipment should be based on immediate availability of items either in the U.S. or in Dakar, Senegal. With the exception of certain large items such as the 7-8 ton trucks, the Caterpillar D-4 tractor and other items not available locally (items 29-42 Annex C), all items should be purchased where there is lesser lead times.

Locally available shelf items will normally be assured of a local supply of spare parts and be in conformity with the equipment already existing in the project. Because of this, purchasing additional U.S. equipment is not suggested. A 935 Procurement Waiver will be necessary to finance any local procurement under the Sahel Emergency Drought Funds.

After a 935 Waiver has been approved, ADO/Dakar will be responsible for drawing up the final PIO/C and specifications for those items procured locally. Normal AID/W procurement and contractual procedures will be used to obtain items procured in the U.S.

Special care must be taken to assure against further repetition of the current spare parts problem. In preparing the procurement documents, all orders should include adequate spare parts amounting to about 25% of the cost of the equipment. This level should be maintained by ordering replacements through normal commercial channels and should be the responsibility of the UNDP/OMVS. The suppliers should also be required to maintain a parts warehouse in Dakar or some other convenient location.

B. Economic Analysis

The development of improved technology and inputs is a necessary, although not sufficient, condition to significantly increase agricultural production in the Senegal River Basin. The UNDP supported agronomic research project is the only effort in the basin aimed at developing and extending production techniques that are socially, climatically and economically appropriate for small scale farmers. Economic benefits resulting from this project will have significant impact on this immediate "target group" and on their respective economies. Full benefits from such a project, however, can only be realized if several constraints are removed in order to assure that these farmers will have access to this newly developed technology. These constraints, such as more appropriate credit institutions and a more integrated marketing structure, will only be removed within the framework of an integrated

approach to development, as planned by the OMVS.

The results of the first six years of research have been successfully demonstrated to the local farmers by using demonstration plots within the perimeters of the demonstration centers. A micro-economic analysis of these farming systems, based on OMVS Agronomic Research to date, was made in 1973 by an AID contractor, E. Kulp. Three types of farming systems were analyzed: 1) a rice farm, 2) a (non-rice) cereals farm, and 3) an export vegetable farm. Estimated labor requirements (man-days per hectare) per crop per month are shown in Table 1. Prices used in establishing farm returns are official producer prices. Net farm income per hectare for the three farms is shown in Tables 2-4. The results of his study provided more baseline data against which future results could be compared.

More recently, the OMVS has subsidized the establishment of approximately twenty villages as pilot projects which are further implementing the production techniques developed thus far. Irrigation infrastructure has been installed in these villages at the expense of OMVS on a non-refundable basis. Each village consists of approximately fifty farm units, each of which is about .7 hectare. This is smaller than the 2-3 hectare farms which were used in the demonstration plots and which are generally regarded as economically feasible for the application of modern, irrigated agricultural techniques. However, the OMVS chose this size farm vis-a-vis its limited resources and the limited availability of credit to farmers in this area. In addition, the farmers are reluctant to accept the higher costs and risks which new methods entail. In the past, particularly in Senegal, increasingly severe droughts have made it difficult for small farms to repay charges incurred for improved equipment and supplies, the use of which was encouraged by cooperative-type production units. The application of new technology resulted in increasing debts, thus contributing to the impoverishment and resentment of those affected.

The irrigation infrastructure in these villages will support double-cropping of both subsistence and cash crops. Approximately .2 hectare will be used to cultivate such cash crops as vegetables, peanuts, etc. which will be sold to OMVS at local prices. The remainder of the farm, .5 hectare will be used to cultivate subsistence grain crops such as wheat, rice or sorghum-millet

Of necessity, the strategy of the OMVS-UNDP projects has been to gradually introduce the subsistence farmers to the newly developed cropping via the demonstration centers and, where possible, by marginally encouraging the adoption of some improved inputs in their present systems. Before the results of thss research can be wholly accepted and proven beneficial to the long run development of the Basin and the respective economies, the new techniques must be satisfactorily proven to the farmers to: 1) be technically feasible to particular farm situations, 2) conform

Table 1. OMVS Agronomic Research Project: Labor Requirements by Crop and Month

	Man days per hectare											
	January	February	March	April	May	June	July	August	September	October	November	December
Crop												
Rice I						SI 12	SI 18	WI 18	GI 14	H 25	T 2	
Rice II	WI 18	I 2	IG 8	GH 17	HT 12						SI 12	WI 18
Sorghum (grain)					P 12	PS 18	SWI 10	WI 10	G 5	H 20	T 2	
Sorghum (forage)	P 10	PSI 10	WI 10	WI 10	H 25	H 25						P 10
Corn (grain)					P 12	PSI 18	SWI 10	WI 10	G 5	H 16	T 2	
Corn (forage) I				P 5	P 15	PSI 10	SWI 10	WI 10	H 25	H 25		
Corn (forage) II	PST 10	WI 10	WI 10	H 25	H 25						PSI 16	P 10
Wheat	WI 10	GH 10	HT 20							P 12	PSI 16	WI 10
Cowpeas (grain)	WI 9	H 9	H 9							P 2	PSI 8	WI 9
Cowpeas (forage)	WI 20	H 34								P 2	PSI 8	WI 9
Cowpeas (forage)		P 2	PSI 8	PI 9	WHI 30	H 29						
Winter Vegetables	54	73	83	68					6	23	39	59

Key: P = Preparation of land; S = Sowing; W = Weeding; I = Irrigation; G = Gourdian time; H = Harvesting; T = Threshing.

Table 2. Farm Specializing in Rice Production
(2.5 has, 6 family members, 2½ active man labor units)

	Has.	Yield/ha.	Price	Production	On-farm consumption	Marketed		Cost of supplies	Net Revenue
						Kgs.	CFAF		
Rice	4.3	6,000	18	25,800	1,100	24,700	464,400	87,720	376,680
Sorghum-forage	0.5	10,000	6.43	5,000			32,150	8,360	23,790
Sorghum-grain	0.1	5,000	21	500	500		10,500	1,030	9,470
Niebe	0.1	1,500	30	150	90	60	4,500	470	4,030
Milk		525	30	525	525		15,750	7,500	8,250
Total							527,300	105,080	472,220
Less expenses									75,200*
Net farm income									347,020
Net income per ha.									138,808

Expenses

	Quantity	Price	Total
Animal traction	1	33,400	33,400
Tractor	12 ha	1,400	16,800
Pumping	2.5 ha.	10,000	25,000
Total			75,200

Table 3. OMVS Agronomic Research Project: Cereals Production Farm
2.3 ha., 6 persons, 2.5 man labor units equivalents

	Ha.	Yield/ha.	Price & Unit	Production	Consumed on farm	Marketed		Cost of supplies	Net income
						Kgs or FU	CFAF		
Sorghum-grain	.80	5,000	21/kg	4,000	1,600	2,400	84,000	8,240	75,760
Sorghum-forage	.20	10,000	6.4/FU	2,000	1,000	1,000	12,860	3,340	9,520
Corn-grain	1.50	5,000	22/kg	7,500		7,500	165,000	17,850	147,150
Corn-forage	0.25	20,000	6.4/FU	5,000		5,000	32,150	3,970	28,180
Wheat	1.45	5,000	24/kg	7,250		7,250	174,000	19,140	154,860
Cowpeas	0.05	1,500	30/kg	75	75		2,250	230	2,020
Forage Cowpeas	0.35	7,200	5/FU	2,500	500	2,000	12,500	4,660	7,840
Milk	(9)	525	30/ltr.	525	525		15,750	7,500	8,250
Total							498,510	64,900	433,610
Less expenses									65,900*
Net farm income									367,710
Net income per ha.									159,874

Expenses

	Quantity	Price	Total
Animal traction	1	38,500	38,500
Tyrebr.	2.7 ha.	16.0	4,400
Pumping	2.3 ha.	10,000	23,000
Total			65,900

Table 4. Gross Revenues Per Hectare from Vegetable Crops

Vegetable Crop	Price/Kg.		Yield 10^2 (Ares)		Number of 10 m^2 plot (Ares)	Production	Gross Income
	Actual	Expected	Actual	Expected			
	CFA		Kgs.			Kgs.	CFA
Peppers	95	67	15	12	25	3,000	201,000
Tomatoes	30	21	40	30	25	2,500	157,500
Eggplant	75	53	20	15	15	2,250	119,250
Lettuce	45	32	15	12	20	2,400	76,800
Squash	75	53	20	15	10	1,500	79,500
Melons	95	67	20	15	7	1,050	70,350
Green Beans	90	63	15	4	3	120	7,550
					100	18,900	712,000
						Supplies	70,000*
						Gross Margin	642,000

* Fertilizer 25,000
Plant Protection 40,000
Seed 5,000

to quantity and quality of available resources and 3) be of a tolerable risk level. The pilot projects represent a significant step in the direction of winning wide acceptance of research results.

C. Social Analysis

The impact of the OMVS Agronomic Research project on socio-cultural traditions and values will evolve primarily from pre-extension programs planned for villages surrounding each experimental station and future epplication to other villages. Each station will try to extend to a limited number of farmers in the surrounding areas (approximately four villages per station) new irrigation techniques and one seed variety already tested. The socio-cultural impact of this program could be twofold: 1) it can prove completely or partially inadaptable to the farmers' situation or 2) it can prove positive in that the farmer can adapt to new techniques and increase his yield. In either case, some sort of social change will be inevitable within the limited purview of the project.

The general area where the experimental stations are located is better known as the Middle Valley. The population on both sides of the river is divided into two general categories as is the case in most of Sahelian Africa: the sedentary ethnics - the Sarakoles, Toucouleurs, and Ouloffs - who are adaptable to agriculture, and the nomadic peoples - the Maures and Peuhls - who are principally engaged in livestock production.

Generally, this area experiences a very dry and a rainy season. The regional economy is depressed during the dry season. At this time there is marked migration of certain segments of the population toward urban centers or major water points. As noted in a UNDP reported titled Analyse Economique pour un Programme de Developpement Hydro -Agricole, within the Senegalese and Mauritanian borders, about 60,000 Toucouleurs emigrated outside the valley during the dry season. This trend was usually limited to men between 20 and 40 years of age. Further studies have revealed that approximately 53% of the absences are over six months and about 36% are over one year. The obvious reason for this migration is to seek some form of productive employment to sustain their families until the rainy season returns.

Irrigated agriculture envisioned by the OMVS Agronomic Research Project is geared toward extending the agricultural productive period in the Valley. If the extension program remains operable and results are implemented in the Middle Valley, a reduction in the traditional migratory trends of the sedentary ethnics could be expected in the long run. These groups will be able to cultivate all year around, hopefully with a greater local market outlet to permit an inflow of cash into the area.

A major problem affecting the socio-cultural policies of the three OMVS countries in the Middle Valley is the classic tension which exists between the nomadic and sedentary peoples. In the past, nomadic-sedentary tension was founded primarily on the vast differences in social structures of the two groups. The predominant nomadic tribes such as the Maures (Moors) and Peuhls were organized in a highly stratified social structure with the Black African peoples (the sedentaries) comprising the bottom stratum or slave groups of the nomads. Recently however, this tension has been characterized by the growing economic disparity between the two groups caused by protracted drought conditions. Ironically, it is the "lower caste" sedentaries, grouped along the river basin and thus more adaptable to agriculture, who have benefitted most from the French colonial and other foreign efforts to develop the agricultural potential of the area. The proud nomadic peoples have been disseminated by the drought and other ecological changes that have considerably challenged the traditional rationale for their "superiority" to the sedentaries.

These deeply embedded cultural tensions are not necessarily resolvable within our times, but the OMVS Agronomic Research Project is attempting to address this fundamental socio-cultural problem from a techno-economic standpoint. As was stated in the purpose of this project, a balance is being sought between livestock production carried on by the nomadic peoples and sedentary agricultural minorities through intensive irrigated forage cropping. Through crop rotation more forage may be available in the valley and as a consequence could alter the wide transhumance patterns of the nomadic tribes who normally follow the natural pasturage according to the rains. It is conceivable, however, that this attempt to achieve a production balance between the two groups within the same region might increase tensions depending on the extent to which the nomadic peoples adapt to cultivating forage crops themselves. If not, a situation may arise whereby livestock herders could become even more dependent on the sedentaries for forage which is at the base of their livelihood. This latter situation may create more political problems between the two groups and greater tension.

It is conceivable that through agronomic pre-extension activities carried out in this project, a trade balance might be achieved whereby forage is exchanged for meat, or meat for grains if the nomads cultivate their own forage. In either case, change will probably be greatest for the nomadic peoples: primarily through the alteration of their transhumance patterns and secondarily through the gradual sedentarization of their livestock production.

In sum, the Agronomic Research Project could have long-term social effects by changing the transhumance and production patterns of the nomads as well as changing the seasonal migration of the sedentary tribes. Research with the above considerations in mind should give some indication of how the goal of balancing agricultural and livestock production in the Valley will affect traditional rivalries.

D. Environmental Impact

A necessary consideration related to the OMVS Agronomic Research Project is its effect or relationship to various diseases prevalent in the river's waters. Since most of the problem diseases are associated with water, wide scale irrigation or water works envisioned in the overall plan of the OMVS integrated development scheme will eventually require special environmental management to avoid expanding the disease problem. The agronomic research project, however, derives its water supply from the natural flow of the river, but must still reckon with the particular disease problem on a smaller scale.

The question then arises regarding the canals and irrigated land where "waste" water collects. Such areas attract an appreciable number of mosquitos and other water insects especially during the dry season. Because there are separate systems for each village (when the pumps are available, presently there are two or three villages on one pump) water is pumped only intermittently, and canals are filled only as long as is needed to deliver water to the fields. Soils have excellent moisture retention characteristics so that frequent irrigation is not necessary and standing water is not yet a real problem.

In the first few years, there is a likelihood that poor land leveling might result in areas that will not be fully drained between irrigation, and it is expected that the farmer will fill them in as they realize that crops do not produce well in such wet areas.

Waste water flowing into the natural water courses could tend to extend the life of swamps and pools in nature. However, since the villages and farmers must pay for the costs of pumping water, they may try to reduce water wastes. Emphasis should be made to encourage single village systems, irrigation canals, etc. to use their pumps only when necessary to avoid attracting too many insects to standing water.

AID will finance a thorough analysis of the environmental impact of the proposed OMVS development scheme, including the Agronomic Research project, during FY 75-77. Data collected in the Agronomic Research project will provide som of the baseline data for this environmental impact study.

E. Financial Analysis

The Secretary General of the OMVS has the chief responsibility for managing financial resources. Powers of the Secretary General, as delegated by the Council of Ministers, include

1) serving as the OMVS representative to governments, international, multilateral, or bilateral finance and aid institutions,

2) negotiating with banks and financial institutions in accordance with Council of Ministers directives, all banking and financial arrangements including terms of guarantee, interest repayment, and loan management, and their amendments thereof.

In July, 1974, an Interstate Commission of the Council of Ministers was created to examine the financial status and organization of the OMVS. The financial situation was reviewed and found to be "significantly improved". The financial report of the Secretary General and the 1974-75 budget were approved. The CFA 222,019,340 (approximately $1.0 million) budget primarily consists of member contributions.

A more recent evaluation of the financial status of OMVS was carried out by UNDP/NY in November, 1974. This evaluation concluded that OMVS financial resources were very well managed.

The OMVS is presently a financially viable regional organization, legally endowed to be responsible for the grant proposed in this project paper.

The financing of this project will be as follows:

AID Grant		$ 960,000
Foreign Exchange		
-U.S. equipment	95,012	
-Technical assistance	60,000	
Local Cost		
-Equipment	504,988	
-Operating costs	300,000	
OMVS Contribution*		600,000
UNDP Contribution**		2,000,000
TOTAL PROJECT COST:		$3,560,000

Disbursement and Procurement Procedures

Technical Assistance - Project Manager

The Project Manager will be hired either on a personal services contract or as an AID direct hire from available AID personnel.

* See Annex E for items financed.
**See Annex B for items financed.

Disbursement procedures will be spelled out in detail in the personal services contract.

Commodities

Local Procurement

Following the signing of a grant between the USG and OMVS, a PIO/C will be drawn up in the field in close collaboration with SER/ENGR. AID/W SER/ENGR TDY assistance to the field should be considered. All local procurement will follow the normal purchasing procedures set up under the Controller, ADO/Dakar. A proforma Purchase Order will be presented to ADO/Dakar Controller for all items purchased locally. Upon approval by ADO/Dakar, items to be purchased will be delivered to OMVS. After receipt of equipment, based on an official receiving report signed by OMVS, ADO/Dakar will approve a voucher for payment. CFA's will be disbursed accordingly from the Regional Finance Center in Paris.

U.S. Procurement

AID/W with SER/ENGR and AFR/DS will draw up a final PIO/C for those items available in the U.S. within the time frame outlined in this PP (June 30, 1975). It is expected that normal procurement procedures will be used through SER/COM. For a list of U.S. procured equipment see Annex C, items 29 through 42. Spare parts should amount to 25% of equipment costs.

Local Costs

Local costs will be paid on a reimbursement basis and will only be applied against items listed in Annex D.Vouchers with adequate justification will be submitted to ADO/Dakar Controller for payment, and upon their approval, will be disbursed in CFAs from the Paris Regional Finance Center.

IV. Implementation Plan

PP Approved	March, 1975
Grant OMVS-USG Signed	March 31, 1975
Final equipment specifications drawn up	March 31, 1975
935 Waiver approved for local procurement	April 15, 1975
PIO/C for local equipment procurement approved, local procurement begins.	April 15, 1975
PIO/C for U.S. procurement approved.	April 15, 1975

PIO/T approved for Project Manager.	April 15, 1975
Personal services contract for Project Manager negotiated and approved.	May 15, 1975
Project Manager in Dakar.	June 15, 1975
All local procurement delivered.	June 30, 1975
Local cost disbursements handled on direct reimbursement basis.	

V. Evaluation Plan

A thorough evaluation of Phase I of the Agronomic Research project was completed by UNDP/NY in November 1974. This document describes the pre-project situation which prevailed and the post-Phase I progress towards conditions expected at the end of this project. Available baseline data for evaluation of Phase II of the project are contained in this report.

Subsequent project evaluations will be made according to the following schedule:*

The first AID evaluation will be made by the Project Manager approximately one year following the arrival of AID funded equipment on the project sites. The evaluation will utilize the Project Appraisal Report (PAR) format as outlined in AID Manual Order 1020-25.

The second AID evaluation will be made in concert with the final UNDP project evaluation, currently scheduled for December, 1976, and will require an evaluation team consisting of an agronomist and a heavy equipment specialist. This evaluation will make an assessment of the use of AID funded equipment and actual quantitative and qualitative progress towards output, purpose and goal. Focal points of this evaluation will include the following:

Maintenance Program

What is the average "down-time" element of AID funded equipment, i.e. time between the breaking down of a piece of equipment and its repair? A viable maintenance program should eliminate excessive down-time caused by unavailability of spare parts.

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*This schedule assumes a two year life of project.

Results and Applicability of Research

Specify quantitative and qualitative results of research during evaluation period. Are research results in conformity with major projected project outputs and are they readily applicable to the local situation within the purview of the integrated development of the Senegal River Basin Are there preconditions (i.e. credit, infrastructure costs, training, market development, etc.) that must be satisfied before research results can be applied? Are these requirements within "reach" of the farmers?

Effectiveness of Application

Assess the effectiveness of programs to extend research results to farmers and the degree to which these farmers have implemented newly developed production techniques. Are there any development projects which seek to further implement research results?

Social Impact of Pre-Extension Work

Are farmers who utilize new techniques having a significantly extended productive period? Are these farmers able and willing to cultivate land during the traditional dry season - land which has generally been uncultivable? During how many months per year is farming possible? Are nomadic herders willing to use forage made available by use of newly developed cropping calendars. Has this in any manner altered transhumance patterns?

ANNEX A

AGRONOMIC RESEARCH RESULTS OBTAINED

A. Intensive Rice Production (Direct Seeding)

1. Pilot Experimental Unit at Guede

The table below gives the sequence of yields obtained at Guede Station with Taichung Native No. 1.

Season	Date of sowing	Growing cycle	Yield Kgs/ha.
		---- Days ----	
Cool dry season 1970-1971	13-XI-70	170	7,300
Rainy season 1971	12-VI-71	118	5,905
Cool dry season 1971-1972	24-VI-71	175	5,400
Hot dry season 1971-1972	2-II-72 22-II-72	139 131	4,500 6,100
Rainy season 1972	June	116	2,800 (unsuccessful)
Cool dry season 1972-1973	6-XI-72	178	7,000

- Kaedi Experiment Station Results

Variety	Rainy season 1971 (quintals/ha.)	Rainy season 1972 (quintals/ha.)
Taichung Native 1. .	62	57 - 73
1 Kong Pao	62	61
I.R 20	75	65
I.R 8	84	60

3,- Results in Pre-extension villages.[a,b]

Village	Seasons	Year	Yields
- Vinding	Rainy season	1971	4 - 5 T/Ha.
- Guede	Rainy season	1971	4.520 Kgs./Ha.
	Rainy season	1972	4.750 Kgs./Ha.
-Rindjao	Rainy season	1971	4.300 Kgs./Ha.
	Rainy season	1972	4.200 Kgs./Ha.
	Cool dry seasons	1972-73	4.600 Kgs./Ha.

B. Rice Controlled Flooding

Doro: Average yield 2150 Kgs/Ha. as compared with 900 Kgs/Ha. traditionally with local variety Gambiaka.

C.- Experiment station results with Sorghum, Corn, and Wheat

Cereal	Yield (quintals/ha.)	Season
Sorghum (50-59)	53	Rainy season
Corn (Maka)	37	Rainy season
Wheat (Mexipack)	40	Cool dry season

a Average yields achieved on 5-25 hectare areas.
b Yields are of Taichung Native No. 1.

D Forage Crops: First experimental results

Forage Crop	Tons of green matter/ha.
Penisetum purpureum	150 T/year
Brachiaria Mutica	110 T/year
Brachiaria ruziziensis	270 T/24 months
Echinochloca pyramidalis	250 T/2 years
Eleusine coracana	42 T/2 months
Forage sorghum	50-70 T/3 months

Leguminous Crops	
Centrosema pubescens	210 T/2 years
Phoseolus atropepureum	110 T/20 months
Forage cowpeas	--
Cowpeas	17 qx/ha./year

DETERMINATION OF WATER PROQUIREMENTS FOR CROP CUBIC METERS PER HECTARE

1 - Cool Dry Season 1971-72

Rice	Kaedi	Direct sowing November 17 Transplanted December 13	16,900 m3/Ha. 16,300 m3/Ha.

175 day growing cycle - small parcels.

Rice	Guede	Sowing: November 24	18,900 m3/Ha.

175 day cycle; yield 5.4 T/Ha.

Wheat	Guede	Sowing: November 9	6,200 m3/Ha.

120 day cycle; yield 2.5 T/Ha.

Corn	Guede	Sowing: November 9	7,000 m3/Ha.

132 day cycle; yield 3.5 T/Ha.

Cowpeas	Guede	Sowing: November 10	12,000 m3/Ha.

194 day cycle; yield 1.5 T/Ha. (2 harvests)

Sorghum	Guede	Sowing: November 9	5,300 m3/Ha.

2 - Rainy Season 1972

Rice	Kaedi	Direct sowing July 17 Transplanted	13,300 m3/Ha. 12,200 m3/Ha.

120 day cycle - small parcels.

Rice	Guede	Sowing: June 7	13,000 m3/Ha.

116 day cycle; yield 2.8 T/Ha.

Corn	Guede	Sowing: June 8	9,000 m3/Ha.

94 day cycle; yield 2.0 T/Ha.

Cotton	Guede	Sowing: June 8	8,200 m3/Ha.

140 day cycle; yield 13 qx/Ha.

Sorghum	Guede	Sowing: June 8	7,300 m3/Ha.
102 day cycle			

3 - Cool dry season — In process

Rice	Kaedi		
Rice	Guede	Sowing: November 6	17,200 m3/Ha.
178 day cycle; yield		7 T/Ha.	
Sorghum	Guede	Sowing: November 6	5,000 m3/Ha.
131 day cycle			
Cowpeas	Guede	Sowing: November 6	7,500 m3/Ha.
140 day cycle; yield		1.7 T/Ha.	
Wheat	Guede	Sowing: November 7	7,500 m3/Ha.
112 day cycle; yield		3.5 T/Ha.	
Corn	Guede	Sowing November 7	7,000 m3/Ha.
122 day cycle; yield		3.8 T/Ha.	

THE UNDP CONTRIBUTION

Technical Assistance	Place	Length of Service	Man-months
1. Project Director, who is an agronomic engineer and a specialist in agronomic research	Dakar	July 1973 - December 1976	42 months
2. Agrometereologist who is also an agronomic engineer and an expert in agrometeorology and climatology	Guede	July 1973 - December 1976	42 months
3. Engineer in cereals cultivation and a specialist in irrigated cultivation of cereals and seed multiplication	St. Louis	September 1974 - December 1976	28 months
4. Pedologist who is an agronomic engineer specializing in agro-pedology and a specialist in the conservation of soils and irrigation techniques	St. Louis	January 1975- December 1976	24 months
5. Agronomic engineer who is the chief of the Guede experimental station and a specialist in the conservation of soils and irrigation techniques	Guede	July 1973 - December 1976	42 months
6. Agronomic engineer who is chief of the Kaedi experimental station and a specialist in irrigated crops experiments and diversification of crops (cereals, forage crops, truck gardening)	Kaedi	January 1975 - December 1976	24 months
7. Agronomic engineer who is chief of the Same experimental station and also a specialist in rainfed and irrigated cultivation	Same	July 1973 - December 1976	42 months
8. Agronomic engineer specializing in agronomic experiments regarding rice cultivation.	Kaedi	July 1973 - December 1976	42 months
9. Engineer of agricultural works - experienced in pre-extension	Matam Nianga	October 1973 December 1976	39 months
10. Chief mechanic who is an expert in agricultural machinery and the maintenance of all materials of the project operating in the region.	Kaedi	May 1974 - December 1976	32 months

	Place	Length of Service	Man-months
11. Inter-projects administrator who is in charge of the general administration of UNDP projects in the area and gives logistical support to OMVS	St. Louis	July 1973 - December 1976	42 months
12. Short term consultants as needed. Phytopathologist and entomologist, sociologist, agricultural economist and a reports editor.			20 months
13. A specialist in agronomic pre-extension and extension of rice cultivation.	Kaedi	July 1973 - December 1974	18 months
14. An agronomist who specializes in the pre-extension and extension of irrigated crops	Kayes	July 1973 - December 1974	18 months
15. An agricultural mechanical engineer who is a specialist in farm mechanization and animal traction. Selection material, organization of the management of the pilot perimeters.	St. Louis	January 1975- December 1976	24 months
16. An irrigation engineer; an engineer who is specialized in irrigation economic feasibility and irrigation experiments.	St. Louis	January 1975 - December 1976	24 months
Administrative Personnel			
1. An assistant administrator in charge of the management of finances, the direction of the purchasing office and the general administration of the projects hardware.	Dakar	July 1973 - December 1976	42 months
2. Secretariat	Dakar	July 1973- December 1976	42 months
Associated Experts			
1. Expert in agro-meteorology and ecology	Kaedi	July 1974 - December 1976	30 months
2. Expert in irrigation	Guede	March 1975 - December 1976	22 months

	Place	Length of Service	Man-months
3. Expert in cereals cultivation and seed multiplication	Niamga	February 1975	23 months
4. Under UNDP contract: SATEC			
- Pre-extension agronomist	Kaedi	July 1973 - December 1974	18 months
- Pre-extension agronomist	Kayes	July 1973 - December 1974	18 months

Training

1. Scholarships in phytopathology, plant improvement, agrostology, irrigation, mechanics and irrigated crops.
2. Seminars and in-service training for personnel
3. On-site training workshops

Commodities

1. Agricultural supplies: fertilizers, pesticides, and seeds
2. Spare parts for maintenance of existing equipment
3. Small technical equipment and agricultural tools
4. Pedologic analyses, photography of technical documentation
5. Equipment for the protection of trials
6. Miscellaneous equipment

Other Costs

1. Airplane rentals to enable access to experimental stations.

OMVS AGRONOMIC RESEARCH EQUIPMENT LIST

Items 29-42 will be procured in the US. All remaining items will be procured in Dakar, Senegal.

		Units	Est. Cost CF Dakar
I.	Motor-Pump 40 HP diesel engine, simple frame mount,* low speed, 1500-1800 PAM, water or air cooled, electric start with battery but with auxillary hand crank, agriculture type air filter, hour counter. Low pressure pump yielding 360m^3/hour at 15M lift, intake, discharge openings 20cm diameter, intake with 90° elbow with coupling to 50cm long flexible drop tube. Strainer at lower end drop tube. (*) Units are to be mounted on floats at sites of use and therefore should not exceed 600 kgs.	24	$98,180
2.	Spare parts sets for above motor-pumps each a standard package selected by manufacturer as most likely required for West Africa conditions.	3 sets	22,730
3.	Flexible reinforced rubber pipe in rolls (3 of about 135M each) or in lengths of 5-6M, 20 cm diameter, with flanges, bolts, and gaskets for coupling to discharge hole of motor pump and to rigid pipes (Item 5). If pipe in lengths, require 1 coupling set for each length.	400 M	22,140
4.	Spare gaskets, flanges and bolts for flexible pipe.	30 units	
5.	Rigid pipe in aluminium allow, 20cm. diameter, in 5-6M lengths, with strong, fast coupling devices.	1,000M	61,820
6.	Spare gaskets (400) with other coupling replacement parts.		

Above items, including spare parts, to be packed in three equal groups and labeled as Group I, Group II, and Group III for onward shipment by OMVS to final destinations.

$204,870

The following items 7-27 of farm equipment must be compatible so that implements are usable on the tractors with regard to size, coupling, and hydraulic connections (where applicable) without further modification at point of use. For size of implement, the tractor whould be neigher under nor over loaded when pulling and operating a piece of equipment. Furthermore, the 3 point hitch system of the tractor must be compatible with most Massey-Ferguson implements as soon equipment already at points of use which will be used with the tractors is M-F make. This need not be proprietary procurement from M-F if above conditions met.

		Units	Est. Cost CF Dakar
7.	Farm tractor of 85 HP, diesel engine, 8 speeds, 3 point hitch, with automatic, coupling, 2 adapters for various sizes of hitch connecting points, hydraulic lifting system, stabilizers for steering gear, independent power take off, vertical exhaust, belt pully with shield, hand brake, wheel and front end weights, tachometer, head lights, fuel filter, dry type air cleaner, tires 750 X 36 14 X 30 - 6 ply, safety system for driver.	4	$51,820
8.	Spare parts for above tractor selected by manufacturer as most likely be required for tractor operated in West Africa. Pack units separately for inland movement to different destinations.	4 units	12,730
9.	Spare tires for above tractors.	8 front 8 rear	2,880
10.	Farm trailer of 4-5 MT. 2 wheel coupling by ball hitch (including ball) to draw bar above tractors.	2	5,680
11.	Rotatillers, 1.8 to 2 M width, 7-8 rotors with wide angle blades, to operate at 3 speed selections to maximum depth 25cm. Must be compatible with above tractors.	3	10,800
12.	Spare part units for above rotatillers of manufacturer's selection most needed for West Africa conditions. Packed as three units for inland shipment to different destinations.	3 units	
			$83,910

		Units	Est. Cost CF Dakar
13.	Rotary mower, mounted by 3 point hitch, heavy duty, compatible with above tractors.	2	$ 4,580
14.	Spare part units for above rotary mowers packed as two units for inland movement to different destinations.	2 units	
15.	Tandem disk harrow, mounted by 3 point hitch, 3.5 M. width, approx. 32 disk blades of approx. 60 cm. diameter with serrate cutting eduges. Must be compatible with above tractors.	3	5,230
16.	Spare parts units for above disks. manufacturer's recommended list. Packed as 3 units for inland shipment.	3 units	
17.	Row crop cultivator, mounted 3 point hitch, tool bar approx. 2.8 M long. Adaptation range of row width must include for 90cm row spacing. Include assortment of available teeth and sweep attachment sets including sets adaptable for sod destruction, and for ridging. Implement must be compatible with tractors above.	4	11,360
18.	Spare parts for implement above (Item 17) packed as 4 units	4 units	

$21,170

	Units	Est. Cost CF Dakar
19. Sickle bar mower, mounted 3 point hitch system, power take off operated.	3	$ 3,710
20. Spare parts for mower (item 21) including extra blades, guards, ledger plates, and rivets. Packed as 3 units for inland delivery.	3 units	
21. Mounted or partially mounted drill planter, with fertilizer attachment, 1.5-1.8 M total width with 16-18cm between rows. Variable seeding rate. Must be compatible with tractors.	3	5,750
22. Spare parts for drill planter packed as three units for inland shipment.	3 units	
23. Moldboard plow, 3 point hitch mounted 3 bottom reversible, must be compatible with tractors.	3	7,970
24. Spare parts for above plows. Packed as three units for inland shipment.	3 units	
25. Disk plow, 3 point hitch mounted, 3 bottom reversible, must be compatible with tractors ordered.	3	10,200
26. Spare parts for above plows. Packed as three units for inland distribution.	3	
27. Corn sheller, capacity 1000-1200 lbs/hr. Driven by diesel engine (1), (or power take off from tractor also acceptable), bagging system for shelled grain. On running gears or sledded.	3	9,750
28. Spare parts for corn sheller, packed as 3 units for inland distribution.	3 units	
		$37,380

		Units	Est. Cost CF Dakar
29.	Grain thresher, capacity IT/hour, sets of all available screens, diesel engine (1) operated, bagging system for grain, on running gears. Prefer proprietary procurement of Turner make.	3 units	$ 8,000
30.	Spare parts for above thresher, packed as 3 units for inland distribution.	3 units	2,250
31.	Grain cleaner (seed) capacity IT/hour. Diesel engine (1) operated. Screens for rice, corn, sorghum, millet, beans, grass seeds.	3	1,500
32.	Spare parts for seed clearner. Packed as 3 units for inland distribution.	3 units	300
33.	Motorized cultivator, diesel motor driven (1), equipped with variety of shanks, teeth and sweeps. Gravely possible MFG. Firm.	6	10,000
34.	Spare parts for above motorized cultivator, packed as 3 units for inland movement.	6 units	2,500
35.	Fiberglass boat, 6-man capacity with removable rear seat for cargo space. Convertional hull, floatation chambers.	3	6,900
36.	Fiberglass patching material. Packed as 3 units for inland distribution.	3 units	600
37.	Outboard motor, 40 HP, electric start, request proprietary purchase Johnson or Evinrude make as dealers at Dakar provide spare parts and service. Stearing consol and all linkage for front cockpit wheel steering. Separate gas tank with connecting hose. Length of motor shaft must be compatible with height of boat transom.	3	4,600

(1) Engines pages 4 and 5 should if possible be Briggs & Stratton and if all can be same type engine (same HP) then spare parts supply will be more useable.

$36,650

		Units	Est. Cost CF Dakar
38.	Spare parts for outboard motor to include shear pins, propeller, plugs, points, etc. Packed as 3 units for inland distribution.	3 units	$ 500
39.	Truck with diesel engines, 7-8 T. capacity box with sides approx. 1.25 M. high. Anti-smog devices not required.	2	22,000
40.	Spare parts for above trucks per manufacturer's recommended list. Packed as 2 units for inland distribution.	2 units	5,500
41.	Truck, 3 ton capacity, stake bed, 4 wheel drive, diesel engine, anti-smog devices not required.	1	9,000
42.	Spare parts for above truck per manufacturer's recommended list.	1 unit	2,250
43.	Track type tractor, D-4 size, diesel engine, complete with hydraulic and other systems for mounting and operating with the following 3 items of equipment. Request proprietary purchase tractor and equipment as Caterpillar make or equal if other makes can assure Dakar based service and parts.	1	(#43-48) 39,590
44.	Angling dozer blade compatible with above track tractor.	1	
45.	Front end loader compatible with above farm tractor (Item #7)	1	
46.	Subsoiler with shank capable of reaching and breaking hardpan at 100 cm depth in medium textured soil	1	

$78,840

		Units	Est. Cost CF Dakar
47.	Spare parts for above tractor and equipment	1 unit	
48.	Special tools recommended by manufacturer for use in maintenance adjustment and repair of track type tractor and accompanying equipment. Not to include ordinary tools of a standard shop.	1 set	

Paxton Equipment and Supply (Catalog 65)
7401 South Pulaski Road
Chicago, Illinois 60629

Used to identify tool requirements per items 53-90 and not to indicate proprietary procurement.

		Units	Est. Cost CF Dakar
49.	Automotive tool locker TL-84A with complete set of tools.	4	
50.	Small parts bin 5003	6	
51.	Storage cabinet PDS-6	6	
52.	Steel parts bin B608U	6	
53.	Steel parts bin B606U	6	(#49-85) 17,727
54.	Floor jack 2T U132	4	
55.	Axles stands 2T 892	3 pr.	
56.	Creeper JE	4	
57.	Battery post cleaner 55	3	
58.	Tire gauge 921	6	
59.	Oil can spout 5-S	6	
60.	Heavy duty gease gun 1013	6	

		Units	Est. Cost CF Dakar
61.	Assorted grease nipples 5569	6	
62.	Hydrometer 121	3	
63.	Chain hoist 2T	4	
64.	Oiler 27-28	6	
65.	Battery charger for 6 & 12V batteries 323AS but for 220V 50CY input.	3	
66.	Vacuum gauge V150	3	
67.	Pipe wrench. 18 inches	3	
68.	All purpose tool box 1120	8	
69.	All purpose tool kit 21 piece 6180	4	
70.	I-SP Brake and tubing set	4	
71.	Adjustable wrench set 4000-L	4	
72.	Combination wrench set 14pc. 6154	4	
73.	Universal socket set 3/8 in. DR. 7 pc. 2405A	4	
74.	Deep socket set of 7 pc. 2502-A 1/2 in. DR.	4	
75.	44pc. set of socket wrenches with assorted drive handles. 2601	4	
76.	Screw driver set 36-SP	4	
77.	Plier set 32-SP	4	
78.	Punch and chisel set 31-SP	4	
79.	Mill file 2nd cut 10 in. 11-562	4	
80.	Half round file 2nd cut, 10 in. 11-636	4	
81.	Round file 10 in. 2nd cut 11-651	4	

	Units	Est. Cost CF Dakar
82. Hand drill 120	4	
83. Blacksmith hammer 402	4	
84. "C" Clamps 573 6½ in.	8	
85. Automotive bench vise 5A	4	

Recapitulation:

Page 1	$204,870
2	83,910
3	21,170
4	37,380
5	36,650
6	78,840
7, 8, 9	17,727
TOTAL	$480 547

Contingency for covering adjustments when estimates are confirmed and for possible price rises prior to ordering commodities	$119,453
GRAND TOTAL	$600,000

Department of State TELEGRAM

ADVANCE COPY

UNCLASSIFIED

PAGE 01 DAKAR 00422 231622Z

53
ACTION AID-31

JAN 24 1975

INFO OCT-01 AF-06 EB-07 IGA-01 /046 W
010706

P 231600Z JAN 75
FM AMEMBASSY DAKAR
TO SECSTATE WASHDC PRIORITY 9604

UNCLAS DAKAR 0422

AIDAC

EO 11652: NA
SUBJ: OMVS AGRONOMIC RESEARCH PROJ-EQUIPMENT LIST

REF: A. STATE 006346 B. SCHOONOVER-MCADAMS MEMO DATED DEC 30 74 WITH SUBJ LIST ATTACHED.

1. LOCAL PROCUREMENT POSSIBLE ALL ITEMS OF SUBJECT LIST WITH POSSIBLE EXCEPTION ITEM 35. IF SOURCE THIS ITEM CANNOT BE FOUND IT MAY BE DROPPED FROM REQUEST BY OMVS. ITEM 49 NOT AVAIL AS ATTACHMENT FOR TRACK TYPE TRACTOR BUT AS A SEPARATE IMPLEMENT ON EITHER TRACKS OR RUBBER WHEELS. HOWEVER, SUBSTITUTE AVAIL AS ATTACHMENT FOR TRACTORS, ITEM 7.

BELIEVE THIS SUBSTITUTION ACCEPTATBLE TO UNDP/OMVS. D-4 CATERPILLAR SMALL ENOUGH IT DOES NOT REQUIRE LOWBOY TRUCK/ SEMI-TRAILER, ITEM 45, AS CAN BE TRANSPORTED ON 7-8T TRUCKS, ITEM 41.

2. LOCAL SUPPLIERS ESTIMATE LEAD TIME, TO ORDER ITEMS NOT ON HAD AT TIME ORDERS PLACED, AT 4 MO MAX WITH MANY ITEMS DELIVERABLE IN 3 MOS IF PRESENT DELIVERY SCHEDS FROM EUROPE CONTINUE UNCHANGED. EXCEPTION IS ITEM 39. OUTBOARD MOTORS THIS SIZE HANDLED BY DAKAR DEALERS ARE US ORIGIN AND NOT STOCKED IN QUANTITY MORE THAN ONE. DEALERS INQUIRING AS TO ACTUAL LEAD TIME BUT EXPECT MIGHT BE 6 MOS.

3. PROFORMAS VALID UNTIL JUN 75 REQUESTED OF LOCAL

UNCLASSIFIED

PAGE 02 DAKAR 00422 231622Z

SUPPLIERS FOR ALL LIST ITEMS EXCEPT 35 45 AND 49 AND 52 TO 90 INCLUSIVE. THESE EXPECTED WEEK OF JAN 24. UPON RECEIPT WILL SUMMARIZE IN SEPTEL COST CFA THESE PROFORMAS. UNDP HAD NOV 22 QUOTATION FROM QUINCAILLERIE AFRIC OF 3,900,000 CFA FOR TOOL LIST COMPARABLE TO ITEMS 52 TO 90. AGGREY

ORGANISATION
POUR LA MISE EN VALEUR
DU FLEUVE SÉNÉGAL
(O. M. V. S.)

SECRETARIAT GENERAL

DEC 1 3 1974

M 0 0 5 0 7

Dakar, le 12 DEC. 1974

Le Secrétaire Général

Action to : 2084 PRM
Action taken : Date DEC 12 1974
Tel. : TOAID A
NAN : : Other :
Chron. file : With W/O Attachments

Monsieur le Directeur de l'US AID.

Monsieur le Directeur,

Je vous avais transmis en juillet 1973 le document budgétaire du Projet de Recherche Agronomique. Le budget était évalué à 2 millions de dollars pour une période de 42 mois à compter de juillet 1973.

L'OMVS avait demandé l'aide conjointe du PNUD et de l'US AID. Et au cours des séances de travail consacrées à la participation de l'US AID, cet organisme nous avait fait savoir qu'il prendrait en charge l'équipement. Finalement, le PNUD a continué à assurer tout le financement du projet avec bien entendu la participation de l'OMVS. Une partie de l'équipement a été fournie par le PNUD. L'augmentation énorme du cout de la vie, ainsi que la nécessité de disposer de techniciens supplémentaires ont amené la seule contribution du PNUD a atteindre 2 500 000 dollars.

L'US AID, si je me réfère à votre dernière lettre met à la disposition de l'OMVS un crédit de 834 000 dollars pour financer l'équipement ainsi qu'un complément de fonctionnement.

A cette fin, je vous transmets un document budgétaire en trois parties

La 1ère partie fait le point de l'ensemble des besoins au niveau de la contre partie.

La 2 ème partie est consacrée à la contrepartie payée par l'OMVS. Elle équivaut à 800 000 dollars pour les 42 mois du projet.

La 3 ème partie est relative à la participation demandée à l'US AID pour assurer le complément de fonctionnement indispensable. Cette participation est évaluée à 300 000 dollars.

Je rappelle que l'équipement complémentaire demandée à l'US AID a été évalué au moment de la mission de William ROMIC.

J'espère que ces renseignements vous aideront à obtenir dans les meilleurs délais le financement du projet.

Je vous prie d'agréer, Monsieur le Directeur, l'assurance de ma considération distinguée./.-

Organisation pour la Mise en Valeur du Fleuve Sénégal
Le Secrétaire Général

Mohamed Ould AMAR

PROJET DE RECHERCHE AGRONOMIQUE
ET DE DEVELOPPEMENT AGRICOLE POUR LA MISE EN
VALEUR DE LA VALLEE DU SENEGAL

BUDGET DE LA RECHERCHE AGRONOMIQUE
DEPENSES LOCALES

CONTREPARTIE DE L'OMVS
POUR LE FONCTIONNEMENT ET PARTICIPATION DEMANDEE
A L'USAID

CONTRIBUTION ACTUELLE DE L'OMVS
PERSONNEL DE CONTREPARTIE (1)

A - SENEGAL

1 - Direction - Administration DAKAR

1.1 Co-directeur (1)
1.2 Comptable (1)
1.3 Commis gestionnaire (1)
1.4 Secrétaires Sténodactylographes (2)
1.5 Aide climatologiste (1)
1.6 Chauffeurs (2)
1.7 Planton (1)

Estimation annuelle en Francs CFA ... 6.210.180

2 - Guédé et Points d'Appui

2.1 Moniteurs (3)
2.2 Climatologistes (2)
2.3 Dactylographe (1)
2.4 Chauffeurs (3)
2.5 Magasinier (1)
2.6 Motopompiste (1)
2.7 Mécanicien (1)
2.8 Manoeuvres spécialisés (9)
2.9 Manoeuvres temporaires (30)

Estimation annuelle en Francs CFA ... 14.008.440

(1) Cf. Document de Projet PNUD/FAO/OMVS

B - MAURITANIE

3 - Centre de KAEDI et points d'appui

3.1 Moniteurs (3)
3.2 Climatologistes (2)
3.3 Secrétaire dactylographe (1)
3.4 Chauffeurs (3)
3.5 Tolier - soudeur (1)
3.6 Mécaniciens (3)
3.7 Aide mécanicien (1)
3.8 Gardiens (3)
3.9 Bouvier (1)
3.10 Manoeuvres spécialisés (6)
3.11 Manoeuvres temporaires (13)

Estimation annuelle en Francs CFA ... 10.249..

C - MALI

4 - Centre de SAME et points d'appui

4.1 Pédologue (1)
4.2 Ingénieur des Travaux Agricoles (1)
4.3 Conducteur des Travaux Agricoles (1)
4.4 Moniteurs (2)
4.5 Météorologistes (2)
4.6 Secrétaire-dactylographe (1)
4.7 Chauffeurs (3)
4.8 Conducteur d'engins (1)
4.9 Mécanicien (1)

4.10 Bouvier (1)

4.11 Manoeuvres spécialisés (12)

4.12 Manoeuvres temporaires (6)

Estimation annuelle en Francs CFA .. 8.860.584

GRAND TOTAL (estimation en Francs CFA) 39.328.836

PREVISION DES MOYENS DE FONCTIONNEMENT 1975-1976

PERSONNEL DE CONTREPARTIE

A - SENEGAL

1 - Direction - Administration DAKAR

1.1 Co-Directeur (1)
1.2 Comptable (1)
1.3 Commis gestionnaire (1)
1.4 Secrétaires Sténodactylographes (2)
1.5 Aide climatologiste (1)
1.6 Chauffeurs (2)
1.7 Planton (1)

Estimation annuelle en Francs CFA ... 6.210.180

2 - GUEDE et secteurs annexes

2.1 Moniteurs (5)
2.2 Climatologistes (2)
2.3 Dactylographe (1)
2.4 Chauffeurs (5)
2.5 Magasinier (1)
2.6 Motopompiste (1)
2.7 Mécanicien (1)
2.8 Manoeuvres spécialisés (9)
2.9 Manoeuvres temporaires (50)

Estimation annuelle en Francs CFA ... 20.601.240

3 - Point d'appui de MATAM

3.1 Moniteur (1)
3.2 Motopompiste irrigateur (1)
3.3 Gardien (1)
3.4 Manoeuvres (6)

Estimation annuelle en Francs CFA ... 2.559.992

4 - Point d'appui de DJOURBIVOL

4.1 Moniteur (1)
4.2 Motopompiste irrigateur (1)
4.3 Manoeuvres (10)

Estimation annuelle en Francs CFA ... 3.270.360

5 - Point d'appui SAINT-LOUIS - DELTA

5.1 Climatologistes (2)
5.2 Chauffeur (1)
5.3 Manoeuvres (6)

Estimation annuelle en Francs CFA ... 2.888.732

B - MAURITANIE

6 - Centre de KAEDI et points d'appui annexes

6.1 Moniteurs (5)
6.2 Climatologistes (2)
6.3 Secrétaire dactylographe (1)
6.4 Chauffeurs (5)
6.5 Tolier - soudeur (1)
6.6 Mécaniciens (3)
6.7 Aide mécanicien (1)

C - MALI

6 - CENTRE DE SAME

6.1	Moniteurs (2)	43.050	1.033.200	1.033.200
6.2	Magasinier (1)	34.203	410.436	410.436
6.3	Mécaniciens (2)	33.500	804.000	804.000
6.4	Chauffeurs (2)	31.650	759.600	759.600
6.5	Manoeuvres (20)	20.000	4.800.000	4.800.000
	Total partiel :		7.807.236	7.807.236

7 - CENTRE DE KAYES

7.1	Moniteurs (2)	43.050	1.033.200	1.033.200
7.2	Mécanicien (1)	33.500	402.000	402.000
7.3	Chauffeurs (2)	31.650	759.600	759.600
7.4	Motopompiste (1)	29.480	353.760	353.760
7.5	Manoeuvres (12)	20.000	2.800.000	2.800.000
	Total partiel		5.348.560	5.348.560

GRAND TOTAL : 35.824.676 FRS CFA

35.824.676 F[illegible]

(151.158 US $/an)

8 - Centre de KAYES

8.1 Moniteurs (2)

8.2 Mécanicien (1)

8.3 Chauffeurs (2)

8.4 Motopompiste (1)

8.5 Manoeuvres (12)

Estimation annuelle en Francs CFA ... 5.348.560

GRAND TOTAL (estimation annuelle en Francs CFA)

75.153.512

PROJET DE RECHERCHE AGRONOMIQUE

MOYENS COMPLEMENTAIRES EN MAIN D'OEUVRE NECESSAIRES AU PROJET POUR DEVELOPPER NORMALEMENT LES ETUDES DEFINIES AU DOCUMENT DE PROJET

A - SENEGAL

1 - CENTRE DE GUEDE ET POINTS D'APPUI

	Salaire mensuel	Francs CFA 1975	Francs CFA 1976
1.1 Moniteurs (2)	43.050	1.033.200	1.033.200
1.2 Chauffeurs (2)	31.650	759.600	759.600
1.3 Manoeuvres (20)	20.000	4.800.000	4.800.000
Total partiel :		6.592.800	6.592.800

2 - POINT D'APPUI DE MATAM

2.1 Moniteur (1)	43.050	516.600	516.600
2.2 Motopompiste irrigateur (1)	29.480	353.760	353.760
2.3 Gardien (1)	24.136	289.632	289.632
2.4 Manoeuvres (6)	20.000	1.400.000	1.400.000
Total partiel :		2.559.992	2.559.992

3 - POINT D'APPUI DE DJOURBIVOL

3.1	Moniteur (1)	43.050	516.600	516.600
3.2	Motopompiste irrigateur (1)	29.480	353.760	353.760
3.3	Manoeuvres (10)	20.000	2.400.000	2.400.000
	Total partiel :		3.270.360	3.270.360

4 - POINT D'APPUI SAINT-LOUIS - DELTA

4.1	Climatologistes (2)	43.050	1.033.200	1.033.200
4.2	Chauffeur (1)	31.650	379.800	379.800
4.3	Manoeuvres (6)	20.000	1.475.732	1.475.732
	Total partiel :		2.888.732	2.888.732

B - MAURITANIE

5 - CENTRE DE KAEDI ET POINTS D'APPUI ANNEXES

5.1	Moniteurs (2)	43.050	1.033.200	1.033.200
5.2	Chauffeurs (2)	31.050	759.600	759.600
5.3	Magasinier (1)	34.203	410.436	410.436
5.4	Motopompiste (1)	29.480	353.760	353.760
5.5	Manoeuvres (20)	20.000	4.800.000	4.800.000
	Total partiel :		7.356.996	7.356.996

6.8 Magasinier (1)
6.9 Gardiens (3)
6.10 Motopompiste (1)
6.11 Bouvier (1)
6.12 Manoeuvres spécialisés (6)
6.13 Manoeuvres temporaires (33)

Estimation annuelle en Francs CFA ... 17.606.628

C - MALI

7 - Centre de SAME

7.1 Pédologue (1)
7.2 Ingénieur des Travaux Agricoles (1)
7.3 Conducteur des Travaux Agricoles (1)
7.4 Moniteurs (4)
7.5 Météorologistes (2)
7.6 Secrétaire dactylographe (1)
7.7 Chauffeurs (5)
7.8 Conducteur d'engins (1)
7.9 Mécaniciens (3)
7.10 Bouvier (1)
7.11 Magasinier (1)
7.12 Manoeuvres spécialisés (12)
7.13 Manoeuvres temporaires (26)

Estimation annuelle en Francs CFA ... 16.667.820

JUSTIFICATION

- Générale - A l'heure actuelle le Projet fonctionne avec des moyens en main d'oeuvre strictement minima et, les experts ne peuvent développer à l'optimum leurs travaux et études. Ce sont surtout les manoeuvres qui font défaut.

Nouvelle phase - Dans la nouvelle phase d'activités qui est actuellement abordée l'équipe d'experts du PNUD doit être renforcée, et les secteurs d'activité élargis. Cela suppose un indispensable renforcement des moyens en main d'oeuvre.

a) les experts attendus sont :

- ingénieur pédologue
- ingénieur en irrigation
- céréaliculteur (récemment arrivé)
- ingénieur des travaux agricoles
- ingénieur chargé des cultures de diversification à Kaédi
- trois experts associés.

b) Elargissement et Renforcement de l'action

- action sur les périmètres pilotes de Nianga (et Boghé)
- normalisation de la situation à MATAM et DJOURBIVOL (pas de personnel salarié à l'heure actuelle)
- création d'un petit point d'appui dans le Delta (agrométéorologie)

- renforcement de l'action sur les points d'appui de KAEDI et KAYES (plus une opération avance plus elle rencontre de problèmes et de sujets d'études nouveaux au strict plan pratique).

c) <u>Nouvelle orientation</u>

- cultures irriguées au Mali - jusqu'ici hors programme - avec nécessité d'installer un double point de recherche (riziculture - céréales).

OMVS Contribution to the Project

Financial obligations:

The OMVS is responsible only for the counterpart contribution. The three states will directly take charge of the cost of the pre-extension operation conducted on their national territories.

1. The radio network

In order to insure the best possible coordination of the project's activities, a radio network, serving the three centers and the principal support points, will be installed during the second phase of the project. The concerned governments will accord the necessary authorizations and exemptions from all taxes for the utilization of this network.

2. List of Personnel

A. Central administration of the project

	Place of Assignment	Date	Length
1. Codirector	Dakar	July 1, 1973	42 mon
2. Accountant	Dakar	"	"
3. Stenographer (2)	Dakar	"	"
4. Administrative clerk	Dakar	"	"
5. Climatologist clerk	Dakar	"	"
6. Drivers (2)	Dakar	"	"
7. Office boy	Dakar	--	"

B. Personnel for the Guede center

1. Extension agents (3)	Guede	"	"
2. Meteorologists (2)	Guede	"	"
3. Secretary/Stenography	Guede	"	"
4. Accountant/warehouseman/foreman	Guede	"	"
5. Mechanic	Guede	"	"

	Place of Assignment	Date	Length
6. Drivers	Guede	July 1, 1973	42 months
7. Foreman in charge of pumps	Guede	"	"
8. Agricultural workmen and guards (9)	Guede	"	"
C. Personnel for the Kaedi Center			
1. Secretary	Kaedi	"	"
2. Climatologists (2)	Kaedi	"	"
3. Extension agents (3)	Kaedi	"	"
4. Drivers (3)	Kaedi	"	"
5. Mechanics (5)	Kaedi	"	"
6. Agricultural workmen and guards (6)	Kaedi	"	"
D. Personnel for the Same Center			
1. Agronomist	Same	"	"
2. Agricultural engineer	Same	"	"
3. Technical agricultural agent	Same	"	"
4. Extension agents (2)	Same	"	"
5. Climatologists (2)	Same	"	"
6. Secretary	Same	"	"
7. Drivers (4)	Same	"	"
8. Mechanic (1)	Same	"	"
9. Permanent laborers (12)	Same	"	"
E. Seasonal Personnel			
1. 45 Temporary Laborers	Guede	"	"
	Same	"	"
	Kaedi	"	"

3. Land being furnished by the member countries of the OMVS

a. experimental land for the experimental stations;

b. the experimental perimeter of Diorbivol (12 hectares) ;

c. land for the experimental perimeter of Matam (5 hectares);

d. extension of the experimental perimeter at Wandama up to 9 hectares;

e. possible experimental land on the edges of the FED experimental perimeter at Rindjao, Sylla, et Diobol as well as in Oualo of the Gorgol Valley;

f. organization of different experimental points in the Kayes region.

4. Buildings furnished by OMVS.

Buildings, offices, warehouses, hangars, and living quarters utilized by the project have been provided by OMVS. In addition, it is foreseen that OMVS will provide 1) a supplementary living quarters at Guede, 2) office space and a warehouse with a bedroom in Diorbivol, 3) living quarters and office/warehouse in Matam.

Mr. David McAdams, OMVS Coordinator
AFR/CWR, AID/Washington

December 30, 1974

Norman Schoonover, RDO
ADO/Dakar

OMVS Agronomic Research Project equipment
list and related technical services proposals.

Attached please find the subject equipment list which we have developed with UNDP and OMVS officials. A few minor changes could result from receipt of catalog and price information requested from potential suppliers and subsequent meetings with UNDP and OMVS. Essentially however, this is a final list.

In view of the facts that this is a rather large equipment request and that the spare parts alone represents an investment of $86,000, we believe some technical services relative to their use is warranted. We have discussed this tentatively with UNDP and OMVS officials and they are receptive to AID providing this service. One man, if properly qualified, could perform both tasks but if greater specialty is required or timing demands it, two persons could be contracted.

TASK I - to receive, unpack, identify, place in storage, and inventory all spare parts of this project. Existing stockroom catalog system may be used or modified for use at each center. The initial decision should be made if best to have one central OMVS storefor spare parts or one at each research center. Training will be given to storekeepers to assure they will be able to quickly find spare parts as needed for repair of equipment and that restocking of spare parts is accomplished at periodic intervals. Estimated time 2-3 months.

TASK II - to assist with initial start up of each item of equipment provided to demonstrate all applicable adjustments and to introduce to operators as well as repairmen the required maintenance of the equipment which will assure long life use. Part of this task will include training operators and repairmen in the use of tools provided for each center. Estimated time 5-6 months.

ANNEX G

Organisation pour la Mise en Valeur du Senegal

(OMVS) Agronomic Research Project

Scope of Technical Services for AID Project Manager

I. Requirements for Contractor

1. Proficient in French
2. Experienced in the procurement and maintenance of agriculuural equipment

II. Objective of Services

-To provide expert technical assistance to OMVS to assume the responsibility of Project Manager of the AID supported component of the OMVS/UNDP Agronomic Research project, assuring the proper procurement, distribution, use and maintenance of AID funded equipment.

III. Background

The OMVS is a regional development organization, comprised of Mali, Mauritania, and Senegal, whose mandate is to develop the Senegal River Basin. The long-run objective of its program is to develop the potential resources of the river, with specific regard to navigation, fishing, electric power generation, and industrial and irrigation water.

The OMVS Agronomic Research and Agricultural Development project was initiated in 1967 with an agreement between France, Mauritania and Senegal, in which the Institut de Recherche Agronomiques Tropicales (IRAT) was placed in charge of the research activity. In 1970, the OMVS/UNDP assumed responsibility for research. The project focuses on adaptive research to carry out irrigation feasibility studies and pre-extension, pilot projects designed to increase crop production by developing more appropriate farming

techniques.

Research is carried out at three regional research stations - Guede in Senegal, Same in Mali, and Kaedi in Mauritania. Extension of the results of the research is done at several demonstration centers surrounding the research stations.

Phase I of the project was completed in 1973, and the project is now in its second phase. UNDP played a major supportive role during Phase I by providing research assistance and a major portion of required equipment. Most of the heavy equipment was shared by the research stations and the demonstration centers. The OMVS has subsidized the establishment of several villages (outside the perimeters of the demonstration centers) as pilot projects, to implement the research results developed in Phase I. These villages also periodically utilize the equipment supplied by the UNDP. Because of this, the equipment required frequent maintenance. In several instances, inadequate spare parts delayed maintenance of key equipment pieces, thus slowing down the work of the project staff.

In order to assure a successful continuation of the program (Phase II), OMVS and UNDP requested AID assistance in funding replacement and additional equipment. AID has agreed to finance $600,000 in equipment and spare parts and $300,000 in local operating costs. In addition, AID will provide for a Project Manager to assure the proper procurement, delivery, distribution, use and maintenance of this equipment and spare parts.

IV. <u>Major Tasks of Project Manager</u>

A. Prior to arrival on project sites

1. Assist the AID Office of Engineering (ENGR/OPNS) in finalizing the list of equipment and spare parts to be purchased.

2. Assist ENGR/OPNS in preparing formal requests for equipment and parts, i.e. project implementation orders for commodities (PIO/Cs), and 935 waivers required for non-U.S. equipment procurements.

3. Work closely with the AID Contracting Office in negotiating procurement contracts.

B. On the project sites

1. Receive, unpack, identify, place in storage, and inventory all spare parts of this project. Existing stockroom catalog system may be used or modified for use at each center. The initial decision should be made if best to have one central OMVS store for spare parts or one at each research center. Training will be given to storekeepers to assure they will be able to quickly find spare parts as needed for repair of equipment and that restocking of spare parts is accomplished at periodic intervals. Estimated time 2-3 months.

2. Assist with initial start up of each item of equipment provided to demonstrate all applicable adjustments and to introduce to operators as well as repairmen the required maintenance of the equipment which will assure long life use. Part of this task will include training operators and repairmen in the use of tools provided for each center. Estimated time 5-6 months.

3. Work closely with UNDP, OMVS and the AID Area Development Office in Dakar (ADO/Dakar) to assure the proper use and maintenance of the AID funded equipment. This function will include periodic inspection of this equipment.

4. Submit reports to project backstops in ADO/Dakar and in Washington on the condition of equipment, management of maintenance program and

related activities of project manager. These reports will be submitted beginning six months after the project manager has arrived on project sites and, thereafter, follow at each six month interval. One final report will be submitted upon the expiration of the contract. Two copies should be submitted to each officer.

5. The project manager will be assigned to the ADO/Dakar, and will work closely with the OMVS Secretariat and technicians.

6. Required tools will be supplied for inspection purposes.

V. Contacts

A. In AID/Washington

1. Mr. David McAdams, OMVS Coordinator

2. Mr. Leopold Mastrofini, Project Engineering Officer

3. Mr. John Patterson, Area Desk Officer

B. On Project Sites

The principal field contact will be Mr. Victor Lateef, ADO/ Agricultural Officer, who will introduce project manager to appropriate UNDP and OMVS officials and technicians.