PDBAI863

650-0044

SUDAN

Experimental Swamp Transport

Jonglei

PROJECT PAPER

FY80

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

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7. PROJECT TITLE (Maximum 40 characters): EXPERIMENTAL SWAMP TRANSPORT-JONGLEI

8. ESTIMATED FY OF PROJECT COMPLETION: FY 83

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 80; B. QUARTER 3 (Enter 1, 2, 3, or 4); C. FINAL FY 80

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. TOTAL	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL	472		472	472		472
GRANT	(472)	( )	(472)	(472)	( )	(472)
LOAN	( )	( )	( )	( )	( )	( )
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		91	91		91	91
OTHER DONORS						
TOTALS	472	91	563	472	91	563

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY 80 F. GRANT	E. 1ST FY 80 G. LOAN	H. 2ND FY ___ I. GRANT	H. 2ND FY ___ J. LOAN	K. 3RD FY ___ L. GRANT	K. 3RD FY ___ M. LOAN
FN	751B	820		472					
2.									
3.									
4.									
			TOTALS	472					

A. APPROPRIATION	N. 4TH FY ___ O. GRANT	N. 4TH FY ___ P. LOAN	Q. 5TH FY ___ R. GRANT	Q. 5TH FY ___ S. LOAN	LIFE OF PROJECT T. GRANT	LIFE OF PROJECT U. LOAN
FN					472	
2.						
3.						
4.						
TOTALS					472	

12. IN-DEPTH EVALUATION SCHEDULED: MM YY

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

1 (1 = NO, 2 = YES)

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: Jean K. Dellinger

TITLE:

DATE SIGNED: MM 07 DD 12 YY 80

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (3-78)

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I. Summary and Recommendations

A. Face Sheet - see previous page

B. Recommendations - This Project Paper recommends that:

- AID assist the Government of the Sudan in undertaking this experimental activity in swamp transport by providing $472,000 in grant funding from FN funds to cover life of project costs.

- AID approve waivers and conditions included in the Project Paper which are considered essential to successful project implementation.

C. Project Description:

This project will assist the Executive Organ of the Jonglei Development Commission (selected agent on behalf of the GOS) to test the feasibility of using selected swamp transport vehicles in providing access in the project area in Jonglei Province. Provision of such access is considered a critical ingredient in defining development opportunities in the area as well as implement such opportunities once defined. It is believed that once access in the area is assured on a year around basis that the resident population can begin to take advantage of economic and social benefits presently available to other regions in the Sudan.

D. Summary Findings:

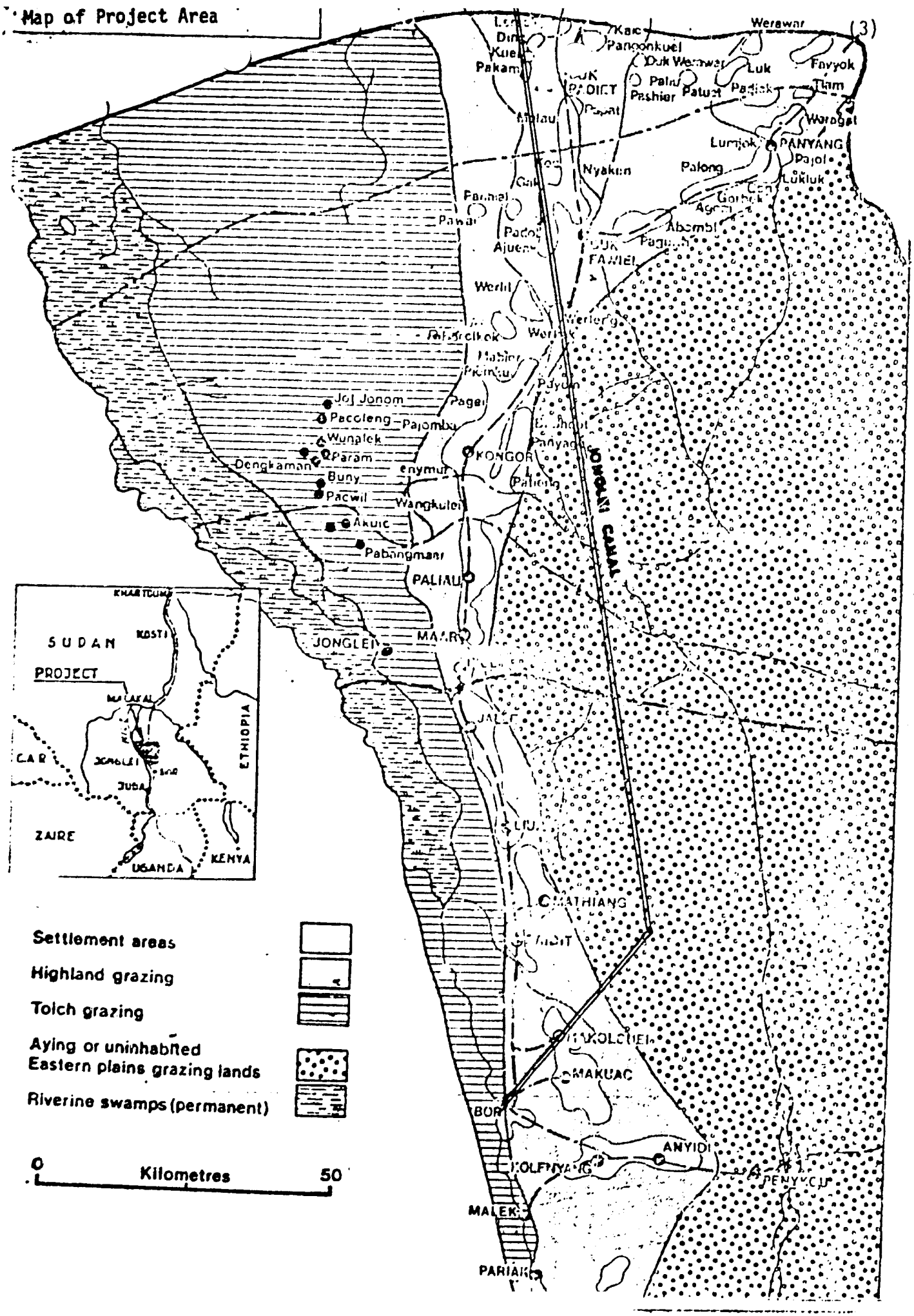
The project is experimental in nature and is intended to test the hypothesis that access is critical to development. To the extent possible, the project has been designed with this objective in mind. In implementation it is expected that access as it relates to development will be tested in several types of development activities being funded by a variety of donors in cooperation with the Executive Organ.

The project meets all applicable statutory criteria and is ready for the immediate commencement of implementation activities upon authorization.

E. Project Issues

No project issues remain to be resolved. Procurement of the swamp transport vehicles will be in accordance with AID regulations. USAID is exploring the possibility of obtaining a proprietary procurement waiver for vehicles observed by the Executive Organ, but should this not be feasible, procurement by standard procedures is expected to produce an appropriate mix of acceptable vehicles.

Map of Project Area



II. PROJECT DESCRIPTION

Summary:

Some of the world's most inaccessable places and some of the world's poorest people are to be found in the swamps of the Southern Sudan. The non-availability of year-round access and the lack of development are closely linked, and while there is no guarantee that access will lead to development, it is certain that the lack of access will perpetuate the poverty and underdevelopment of the region. For this area where other forms of transportation have failed to provide year-round access, amphibious swamp vehicles may provide a solution to the transportation problem. In order to test the feasibility of this technology, the relative merits of different vehicles for different tasks and the strength of the link between accessibility and development this project proposes to introduce into the area several different types of amphibious vehicles. The project also provides for on-site vehicles set up, limited technical assistance, limited training in the operations and maintenance of the vehicles, two-way radios, supplies and fuel for evaluation over a two rainy season period. During this experimental period the vehicles will be used to support the expansion of a variety of development activities to areas that cannot at present be served. By permitting year-round transport of persons and supplies, the vehicles will permit the fielding of limited numbers of teachers, health workers and veterinary workers. The vehicles will also permit socio-economic research during the rainy season, thus improving the ability of the government and development agencies to better meet the needs of the local people. Even though they are slow, the vehicles will permit response to either human medical emergencies or livestock disease problems in an area where at present, for most of each year, no response whatever is possible.

Project Area and the Problem of Transportation

The project area consists of approximately 17 percent of the total land area of the Jonglei Region which in turn consists of 98,500 square kilometers of Nile flood plain in the Upper Nile and Jonglei Provinces. The Jonglei Region is bordered by the Bahr El Jabal and the White Nile on the west, by latitude 30°E on the east, by Malakal on the north and by the southern border of Bor district on the south. The Jonglei Canal, a 380 kilometer canal designed to bypass a portion of the Sudd and provide additional water downstream to Northern Sudan and Egypt, will bisect the Jonglei Region and has provided impetus to the development activities of the region. The project area consists of that portion of Jonglei Province under the administration of the Bor and Kongor People's Council, has a total land area of approximately 17,000 square kilometers and is inhabited by approximately 80,000 nilotic Dinka.

In terms of relief, the project area is a grass plain between 400 and 450 meters above sea level. The land is very flat and slopes, where they exist, rarely exceed 10 cm/km. This characteristic, coupled with the dominance of impermeable clay soil and heavy rainfall, renders almost all the land in the area liable to flooding during the rainy season.

During this time the rivers and the numerous water courses in the area tend to spill over not only the adjacent area but areas many miles from the river banks. Such flooding is worsened by rainfall which accumulates on the plain due to the impermeability of the clay soil and moves across the land in the form of sheet flow. In a normal year, flood waters up to a meter deep result in isolation of the area from the outside world. The land becomes a vast weed-choked swamp and mobility within the area between widely scattered homesteads and villages is severely restricted and often impossible. The only link at present to the outside world is the unpaved, undrained road that runs from Malakal to Bor and it is impassable for seven to eight months each year. Even during the short dry season the roads are so bad few vehicles attempt to pass.

The Jonglei Canal will eventually provide year-round access between the project area and the outside world but will have little effect on transportation within the region.

Shortage of transportation to and within the area and the resulting complete annual isolation have severely limited development of the area. The inhabitants of this area are often described as still working in the dawn of agriculture, pursuing a largely subsistence economy based on animal husbandry and primitive hoe cultivation.

Sorghum is the main cultivated crop but its sensitivity to variability in rainfall, floods and pests often result in shortages. Livestock raising serves as the most important source of food and cash. Efforts on the part of the Government of Sudan (GOS) to assess local needs and to provide governmental services are severely constrained by the lack of year-round contact with the area. Planning for these rural development activities has been based on information gathered during the past several dry seasons and certain types of activities can go forward on that basis. However, for effective planning (and later implementation) of additional activities it is essential that studies and surveys be undertaken during the rainy season. It is this problem of the non-availability of year-round access to the area and its negative impact on the development that will be addressed by the testing of experimental swamp vehicles.

Project Purpose And End Of Project Status

The project purpose is to test the feasibility of different swamp transport technology for supporting rural development activities

in the Jonglei region of the Southern Sudan. This purpose is linked to the project goal of increasing the living standard of residents in the Jonglei region through its potential for improving the ability of relevant government agencies to carry out development projects in the area.

The project purpose will have been achieved (the end-of-project-status) when sufficient information has been collected and reviewed so as to permit an informed policy maker to make a determination on the feasibility of the different vehicles and on their impact on development in the area.

The information to be collected will be used to evaluate:

1. the technical performance of different vehicles in the different physical environment in which they are used.

2. the cost of operating different types of vehicles, with particular attention to the unit cost of delivering services.

3. the problems of maintenance and their implementation for the future use of such vehicles.

4 the suitability of different vehicles for performing different tasks.

In addition, a second set of information will be used to test whether year-round access makes a significant difference in the delivery of government services and the implementation of development projects. Careful attention is to be given those specific activities that the presence of these vehicles made possible.

Project Beneficiaries:

If the swamp vehicles to be tested within the project prove to be efficient as a year-round means of transportation for the Jonglei area, the ultimate beneficiaries will be the more than 400,000 Dinka, Nuer and Shilluk who inhabit the Jonglei Region of the Sudan. Potential direct beneficiaries of the project are the 80,000 inhabitants of the Bor and Kongor area. It is anticipated that use of these vehicles by the UNDP will permit the fielding of limited numbers of teachers, health workers and veterinary workers in the project area where such services do not exist. The vehicles will also permit socio-economic as well as rudimentary agronomic research in the area during the rainy season, thus ultimately improving the ability of the government to design project interventions which will better meet the needs of the local people. These vehicles would also permit emergency response to either human medical problems or for livestock disease control.

While per capita income data for the people of the project area is unavailable, all indicators suggest that the inhabitants are among the very poorest of the Sudan, a country ranked among the least developed countries in the world with an estimated annual per capita income of less than $290. The project area population is 98.5 percent illiterate. There are only thirteen complete primary schools (and only one in a permanent building) in the entire area and only one intermidiate school, serving only boys. There is no intermediate school for girls and no secondary schools for either sex. The doctor/patient ratio for the entire Jonglei Region is 1/120,000. In the project area there is no hospital, only one dispensary and only thirteen dressing stations or primary health care offices. At present while there are 62 wells in the area, there are none with operating pumps. Largely as a result of the complete and pervasive annual isolation of the population of the project areas, the local population life chances are probably among the poorest of anyone in the world.

III Project Feasibility

A. Technical Feasibility

The same problems of isolation that necessitates the introduction of these vehicles poses the largest threat to the successful completion of the project. Even though the project is designed to test the technical feasibility of different vehicles under extremely harsh conditions, careful attention has been given to the choice of vehicles to be tested and for adequate back-up support to keep the vehicles in operation.

The decision to experiment with several different vehicles as opposed to only one type of vehicle was reached after the potential benefits to be gained from collecting data on different vehicles was compared to additional costs and difficulty of attempting to maintain several different vehicles. The introduction of different vehicles is viewed as consistent with the project purpose where introduction of a single type of vehicle might not be, since it increases the chance that at least one vehicle can be found that will help solve the problem of inaccessability in the area.

The two larger vehicles to be introduced by the project originally came to the attention of the Director of the Executive Organ during a trip to the United States. Having seen the vehicles operate under conditions that approximate those in the Jonglei area, the Director was convinced that these vehicles could solve many of the transportation problems of the area. A four-wheel drive amphibious vehicle is viewed as having a relative advantage in areas of heavier vegetative growth and in more swamp-like areas. A pontoon-track vehicle is seen as having a relative advantage in marsh areas.

In February a representative of the manufacturer of this type of equipment visited the area around Bor and Kongor and after viewing a variety of the different physical conditions in which the vehicle will operate concluded that these two different types of vehicles could provide the transportation needed for year-round access. The equipment manufacturer also visited the Dutch maintenance facility in Bor and concluded that this facility contained all of the basic repair equipment that the vehicles would require.

Additional support for the choice of these types of vehicles to provide transportation in the area has come from the decision of the Chevron Oil Company to purchase up to 14 pieces of this equipment. While their operations are on the other side of the Sudd from the project area, the availability of a large inventory of parts and of

trained mechanics will serve as an emergency resource for the project.

While there is every reason to believe that the two large vehicles proposed for the project will be able to provide year-round access, their size, initial expense and projected operating expense make the identification of a smaller, less expensive vehicle desirable. Reports by the representative of the manufacturer of the larger equipment suggests that most smaller amphibious equipment has been developed largely for recreational use in the United States and may not be suitable for more heavy duty work in remote places such as the Southern Sudan. The small vehicle identified in the PID was described as particularly prone to drive train problems. Despite a letter of inquiry, the manufacturer of this vehicle has not responded. In April 1980, one of the representatives of the manufacturer who had visited the Sudan, brought to attention of USAID/Sudan a different small vehicle that is presently being used in mosquito control projects in Southern Louisiana. The cost advantage of this type of vehicle makes it imperative that it be tried, even though it may not be as durable and as capable of performing in all of the different physical conditions as the larger vehicles.

The Government of the Sudan is only at this time beginning to work directly in the project area, and desperetly needs year-round access to the inhabitants of the region. The GOS does not have an existing well developed system that can provide mechanical back-up for the vehicles. They are, however, attempting to develop these capabilities. The Executive Organ has established an administrative field headquarter at Bor and has plans to develop a workshop to be staffed by a graduate engineer for equipment and other staff.

There are several donor-assisted projects at different stages of development in the area. The Dutch have a well equiped workshop at Bor and the Executive Organ will enter into an agreement with the Dutch for access to this workshop. The FAO project at Kongor will also have a very well equiped workshop and access will also be arranged. While the project is being designed so that the Executive Organ will have day-to-day operational administration for the project, it would be possible to transfer of day-to-day administration of the project to the F.A.O. project or to another project in the area if such an arrangement was appropriate.

It is anticipated that if the vehicles prove technically feasible there will be considerable spread effect, limited only by the availability of resources.

The project was designed to be as self contained as possible. All fuel and other supplies to be needed by the vehicles during the first year are to be purchased by the project and to be on site by the time of the arrival of the vehicles. It is the responsibility of the Executive Organ to provide storage facilities for the fuel and all fuel during the second year of the project.

Skilled manpower is a major constraint for any project in the area, and once again an effort is being made to make the project as self-contained as possible while the Executive Organ is given time to develop its own resource base. The project will supply a mechanic who will be expected to work closely with other mechanics and engineers who will be available in the area. (See Annex D).

Existing projects in the area have not had problems recruiting drivers for vehicles and it is anticipated that individual to be trained as driver-mechanic technician can be recruited from among existing staff of the Executive Organ or from among the local population.

B. Social Soundness Analysis

"Development in human society is a many-sided process. At the level of the individual, it implies increased skill and capacity, greater freedom, creativity, self-discipline, responsibility and material well-being .... However, what is indisputable is that the achievement of any of those aspects of personal development is very much tied in with the state of the society as a whole." (W. Rodney, 1972:9).

Efforts presently underway in the Jonglei area to construct a canal to reduce water losses in the Sudd and thus make more water available for agricultural development in the north and several rural development projects in the area are attempts to impact on the society as a whole. Development at the level of the individual as a result of these activities and particular efforts to improve the efficiency of the rural development projects through improved year-round access is the issue to be addressed by the Social Soundness Analysis.

1. Sociological Feasibility

The Jonglei project area is inhabited by the Dinka, Nuer and Shilluk with total population of the project area being approximately two million. These three groups evidence similarities of culture, means of livelihood, physical type and languages, although their languages are not mutually intelligible. Both the Dinka and the Nuer are divided into a number of sections, while the Shilluk are a more compact group and have a relatively more organized political system.

Since Dinka predominates in the Bor and Kongor areas, this analysis will be limited to that group.

The Dinka practice a subsistence economy which is based on two major assets, animals and lands. Animals are individually

owned and the household economic position depends upon the production of the animals owned by its members. The land is not individually owned but each ethnic group has the boundaries where its members claim the right for utilization. Cultivation is around the homestead. The intermediate land and the toich land that lie approximately due west towards the river are used for grazing.

2. Organization

The smallest unit which produces and consumes jointly is the household consisting of the man, his wife or wives, his children and their dependants. The village consists of a number of households whose members claim the same ancestor. The head of the household is the nominal owner of the family cattle but his actual herds is that which is left to him after he has given shares to his wives and sons.

3. Allocation of Time

Most of the Dinka's time is given to their cattle and all the family takes part in the activities related to livestock. Within these activities special tasks are undertaken by certain individuals on the basis of sex and age. Women play the major part in agricultural activity. Other activities, like fishing and hunting of wild animals, make demands on time available to the individual. The household is constantly faced with the decisions on the allocation of the time to the cattle herd. If the herd is too big, it may require the time of dependants or relatives than is available. For small herds, surplus time can be directed towards other activities such as fishing, hunting or migration in search of wage employment. Wage labour in the area is very recent and only in the market centers. The money gained from local activities is used for buying consumer goods and saves the household from selling its animals for this purpose, while money from wage employment outside the area is usually invested in animals. Next in the priority for the allocation of time are the agricultural activities. During the rainy season fields are cultivated around the household. Dura is the main crop and most important item of diet. Other crops include other cereals and tobacco, which is gradually becoming a cash crop in the area.

4. Motivation

The population in the project area share characteristics that make them receptive to the technological innovations and the economic changes the project will introduce. Because of the very nature of the project area land coupled with the heavy rainfall, almost all the land in the area is liable to flooding during the rainy season. In a normal year flood waters up to a meter deep result in the isolation of the area from the outside world. The only link at present is the unimproved road that runs from Malakal to Bor and

it is impassable for up to seven months each year.

Shortage of transportation to and within the area have severely limited development of the area. Solving the transportation problem by introducing amphibious vehicles has the potential of affecting many aspects of the lives of the inhabitants by permitting existing development projects to provide services that otherwise could not be provided. Emergency goods can be easily transported at any time of the year. Other services like medicine and books for the schools can be made available as needed. Officials and local administrators will be able to move smoothly to solve the problems in the field.

The construction of the canal and the implementation of development projects in the area will without doubt have a major impact on the socio-cultural situation in the project area. The development projects in the area have been designed to facilate economic development without changing the basic relationship of the people to cattle and land. The introduction of swamp transportation should not significantly alter this. To the extent that the vehicles promote education and modern health services they will contribute to a challenge of traditional beliefs. Increased government penetration of the area will likely, but not necessarily, lead to the weakening of the traditional political system.

Conclusions:

Socio-cultural change will impact the material culture and the sociological behavior as development results in greater contact between the Dinka and the outside world.

The social structure will change as well as a result of migration for economic reasons to the area towns and even to the northern provinces. This migration is questionable and there is a dispute among the sociologist on its benefits both for the migrants and the people of the urban areas.

C. Economic Analysis

Since this project is one of these whose output cannot be readily translated into monetary equivalents the issue is "cost-effectiveness". This type of analysis is most appropriate for institution-building or service delivery systems where it is possible to quantify beneficiaries. In this case, as noted elsewhere, it is not possible to quantify beneficiaries, nor is the project of an institution-building nature. The only method remaining to approximate economic benefits is to cost out alternative means of achieving the same output levels. Such a presentation of alternatives was made in

the PID (p.7-8) with the recommendation that experimental Swamp transport be undertaken as the least costly alternative for penetrating the isolation of the project area. Alternatives of road construction and use of helicopters are both prohibitively expensive not only in terms of funding but in terms of technical feasibility to accomplish the task assigned. A test of the feasibility of swamp transport provides for a rigorous economic analysis of this mode in providing access in the project area.

D. Environmental Concerns:

The IEE which was approved along with the PID recommended that a negative determination be made. As there has been no substantive change from the PID to the PP in regard to environmental concerns, that IEE is still valid and no further analysis is recommended.

E. Financial Analysis:

The inputs in this project are detailed in the table shown below. Both foreign exchange and local cost elements are also defined in the table. Since the purpose of the project is to test the feasibility of vehicle use, consideration of recurrent cost does not apply in the strict sense of the word. However, evaluation in the project will provide a very detailed analysis of recurrent costs. As a by-product of the test of vehicle feasibility, GOS should be able to determine whether it wishes to continue to use such vehicles.

Project Inputs

	$	LS.
I. Technical assistance		
1. Initial installation	15,000	
2. On-site mechanic	45,000	
II. Participant training	1,000	
III. Commodities		
1. Vehicles		
A. Personnel Carrier	83,000	
B. Cargo Carrier	85,000	
C. Industrial Trackster	16,000	
D. Sled Carrier	7,000	
2. Spare parts	57,300	
3. Transportation		
A. U.S. to port	26,000	
B. Port to Site	40,500	

		LS.
4. POL (2nd year by GOS)	30,000	30,000
5. Radio communications	4,000	
IV. Other Costs		
1. evaluation	20,000	
2. Other cost, supplies etc.	4,000	
3. Local salaries		28,000
4. Vehicle maintenance facilities		6,000
5. POL storage facilities		2,000
6. Housing for TA + Evaluation agent		9,000
7. Local travel for TA + Evaluation agent		4,000
8. Contingency 15% on local cost		
10% on FX	39,000	12,000
	472,000	91,000

All funding will be expended by the end of the second rainy season test session, i.e., by December 1982, with the majority of disbursements coming in FY 1981 with the delivery of the project vehicles.

Cost per beneficiary in this project is effectively impossible to determine as the number of beneficiaries, as well as the nature and extent of benefits to these beneficiaries can only be determined as the vehicles are utilized.

F. Administration Analysis and Implementation Plan

This section provides information as to who has reponsibility for implementation action and a chronological schedule of events. (See Annex G).

1. Implementation Agents:

a. GOS - The agent for implementation of project activities in the Executive Organ who will provide:

(1) day by day administration of use of vehicles.
(2) maintenance and repair of vehicles.
(3) preparation of information for reporting requirements.

The Executive Organ will coordinate the access requirements of the various donor activities in the area as well as any requirements it may have in-house. The Executive Organ has an existing administrative unit in Malakal and will be strengthening another near Bor which will be the focus of activities in this project. (See Executive Organ letter in Annex E for further details).

b. USAID - Procurement of the vehicles will be accomplished in accordance with AID regulations commencing immediately upon signature of a grant agreement. Vehicle procurement will include the requirement for a factory representative to assist in initial installation/break-in of the vehicles. Recruitment of the mechanic will be done by USAID securing possible available Americans on a first priority and then looking toward possible candidates from Code 941 countries such as Phillippines and Taiwan. Contractual arrangement will be made between the GOS and the candidate selected. One task of the mechanic will be tc provide on the job training to the Sudanese mechanics and drivers assigned to the project. Evaluation of the impact of access on development will be carried out on a direct contractual basis with USAID on either a PSC or on a purchase order basis.

IV. Evaluation and Negotiating Conditions

A. Evaluation

The purpose of the project is to test the feasibility of swamp transport technology for supporting rural development activities and thus a major component of the project is the evaluation of the technical feasibility of the equipment and its impact on development. For the project to be successful it is not necessary that the proposed vehicles prove effective in contributing to development, but only that at the end of the project, sufficient information be collected and analyzed so as to permit a determination on the technical feasibility of the technology and its impact on development.

USAID/Sudan will conduct its initial formal evaluation of the project, resulting in the completion of a Project Evaluation Summary (PES) approximately 10 months following the arrival at site of the equipment and will conduct its final evaluation approximately 9 or 10 months following the first evaluation.

USAID/Sudan will also finance seperately on independent evaluation of the technical feasibility of the equipment and its impact on development. An independent consultant knowledgeable about evaluating technological impact on development will undertake an on site visit following the delivery of the equipment to site, and will be responsible for identifying the specific information that will be needed for the technical evaluation. This individual will also be responsible for preparing an analysis of the major constraints to development imposed by inaccessability in the area. These analyses will serve as "baseline " documents for measuring the impact of the vehicles on development. The Executive Organ will be responsible for collecting and forwarding to the USAID office in either Juba or Khartoum whatever information this consultant shall identify as necessary on a monthly basis. Such information must at a minimum cover all items in the draft trip report and monthly reports contained in the annex. Approximately seven to eight months following the preparations of the initial report and following the end of the first wet season the consultant will be responsible for the preparation of a detailed report that examines the economics of the operation of the vehicles, the logistical and maintenance of the vehicles, their effectiveness is providing support for different development projects in the area and most importantly their impact on development in the region. A final report following a return visit shall be due during the last month of the project.

An alternative to several short visits by a consultant could be low level support of several months of field research by a graduate student or recent graduate combined with external supervision and follow up. The selection of which alternative to use will be based on consultations with the GOS.

B. Conditions and Covenants

The grant agreement for this project should include the following special conditions and covenants.

A. Condition - Prior to any disbursement related to vehicle procurement the grantee must provide a proposed detailed schedule for the use of each vehicle for the first year.

B. Covenants:

1. The grantee will provide maintenance facilitie and/or arrange for maintenance facilities with other donor activitie in the area.

2. The grantee will provide adequate fuel storage facilities.

3. The grantee will provide access for flat bed truck transport as necessary.

These conditions and covenants have been reviewed with the Executive Organ and it is believed that the project is ready for rapid implementation upon authorization.

AID 1020-20 (1-72)

Annex A

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1980 to FY 1980
Total U.S. Funding $ 472,000
Date Prepared: Jan. 10, 1980

Project Title & Number: Experimental Swamp Transport - Jonglei - 650-0044

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: To increase the living standard of residents in the Jonglei region of the Southern Sudan. Sub Goal: To improve the ability of relevant government agencies to carry out development projects that have the potential for impacting the residents of the Jonglei region	**Measures of Goal Achievement:** Reduction in cases of malnutrition Reduction in death rate, especially infant mortality. Reduction in illiteracy rate & increase in school enrollment. Reduction in disease Increase in spendable income Presence of additional projects & personnel in the area.	1. Official reports of government agencies 2. Observation 1. Agency records 2. Observation	**Assumptions for achieving goal targets:** Additional development projects will contribute to increased standard of living for inhabitants of Jonglei. Transport/access is critical element in designing/implementing development activities
Project Purpose: To test the feasibility of different swamp transport technology for supporting rural development activities in the Jonglei region of the Southern Sudan.	**Conditions that will indicate purpose has been achieved: End of project status.** 1. Sufficient data to be able to: A. answer questions on vehicles economics, maintenance, and appropriateness for assigned task. B. Test whether year-round access makes it critical in the delivery of government services & implementation of development projects.	1. Report on the utilization of the vehicles. 2. Report on the impact of vehicle operation on development projects in the region.	**Assumptions for achieving purpose:**
Outputs: 1. Trained operators/mechanics 2. Data collection system on vehicles 3. Data collection system to evaluate impacts on development.	**Magnitude of Outputs:** 1. 4 trainees trained 2. Data covering the operation of the vehicles over approximately 18 months including 2 wet seasons. 3. Data collected on 4 development activities regarding impact of access	PES GOS reports GOS and other donor reports	**Assumptions for achieving outputs:** 1. GOS will provide qualified trainees 2. Vehicles will arrive on timely basis
Inputs: Technical Assistance - AID Commodities - AID Local Support/Salaries - GOS Training - AID/GOS Other Costs - AID	**Implementation Target (Type and Quantity)** See Budget P.	Controllers records PES	**Assumptions for providing inputs:** 1. Sufficient GOS funding available on timely basis 2. Vehicle procurement effected on timely basis

(19)

Annex B

5C(1) - COUNTRY CHECKLIST

Listed below are, first, statutory criteria applicable generally to FAA funds, and then criteria applicable to individual fund sources: Development Asistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights?

2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the United States unlawfully?

3. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?

4. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

5. FAA Sec. 620(e)(1). If assistance is to a goverment, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

SECTION A

Previously completed for CIP approved FY 80. (Dec. 1979) See Sec. B(1)

A.

6. FAA Sec. 620(a), 620(f); FY 79 App. Act, Sec. 108, 114 and 606. Is recipient country a Communist country? Will assistance be provided to the Socialist Republic of Vietnam, Cambodia, Laos, Cuba, Uganda, Mozambique, or Angola?

7. FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?

8. FAA Sec. 620 (j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?

9. FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?

10. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters:

a. has any deduction required by the Fishermen's Protective Act been made?

b. has complete denial of assistance been conside by AID Administrator?

11. FAA Sec. 620; FY 79 App. Act, Sec. 603. (a) Is the government of the recipient country in default for more than 6 months on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds?

12. FAA Sec. 620(s). If contemplated assistance development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount of foreign exchange spent on military equipment and the

A.12. (21)

amount spent for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes, as reported in annual report on implementation of Sec. 620(s)." This report is prepared at time of approval by the Administrator of the Operational Year Budget and can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

14. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?

15. FAA Sec. 620A, FY 79 App. Act, Sec. 607. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism?

16. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?

17. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it detonated a nuclear device after August 3, 1977, although not a "nuclear-weapon State" under the nonproliferation treaty?

B. FUNDING CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy?

Yes - Project is designed to enhance involvement of poor in development process by provision of access in project area.

B.1.

b. FAA Sec. 104(d)(1). If appropriate, is this development (including Sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor?

N/A

2. Economic Support Fund Country Criteria

a. FAA Sec. 502B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights?

N/A to all elements B.2

b. FAA Sec. 533(b). Will assistance under the Southern Africa program be provided to Mozambique, Angola, Tanzania, or Zambia? If so, has President determined (and reported to the Congress) that such assistance will further U.S. foreign policy interests?

c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

d. FY 79 App. Act, Sec. 113. Will assistance be provided for the purpose of aiding directly the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

e. FAA Sec. 620B. Will security supporting assistance be furnished to Argentina after September 30, 1978?

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5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE?
HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PRODUCT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634A. (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that figure)?	Congressional notification process was completed in April 1980.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	Yes
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	N/A
4. FAA Sec. 611(b); FY 79 App. Act Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?	N/A
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	N/A
6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	No

A.

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	N/A
8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	U.S. procurement of specialty vehicles may permit market development.
9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.	GOS is contributing salaries of local employees as well as maintenance workshop facilities.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	AID procurement regulations will be applied.
12. FY 79 App. Act Sec. 608. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar, or competing commodity?	N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained	Project is designed to test impact of access as it relates to development activities for rural poor in project area.

B.1.a.

basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

N/A - see above

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

(2) [104] for population planning under sec. 104(b) or health under sec. 104(c); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

(3) [105] for education, public administration or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(ii) to help alleviate energy problems;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

(26)

B.1.b.(4).

(v) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. [107] Is appropriate effort placed on use of appropriate technology?

Project is a test to determine appropriate transport mode.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Waiver to be obtained under RLDC status for Sudan

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to the Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

N/A

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

Provision of access is important development consideration related to Jonglei Canal Scheme which is accorded very high priority by GOS.

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase or productive capacities and self-sustaining economic growth?

Provision of access considered to be key to economic development in project area.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

N/A

B.

3. Project Criteria Solely for Economic Support Fund

a. FAA Sec. 531(a). Will this assistance support promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102? N/A

b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities?

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5C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed?	Standard AID procedures regarding small business participation followed as applicable.
2. FAA Sec. 604(a). Will all commodity procurement financed be from the U.S. except as otherwise determined by the President or under delegation from him?	Yes
3. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the United States on commodities financed?	Yes
4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?	N/A
5. FAA Sec. 603(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items?	N/A
6. FAA Sec. 603. (a) Compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.	Yes
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis? If the	Yes

A.7.

facilities of other Federal agencies will be utilized, are they paritcularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available? — Yes

9. FY 79 App. Act Sec. 105. Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States? — Yes

B. Construction

1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest? — N/A

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? — N/A

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the United States not exceed $100 million? — N/A

C. Other Restrictions

1. FAA Sec. 122 (e). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? — N/A

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? — N/A

3. FAA Sec. 620(h). Do arrangements preclude promoting or assisting the foriegn aid projects or activities of Communist-bloc countries, contrary to the best interests of the United States? — Yes

4. FAA Sec. 636(i). Is financing not permitted to be used, without waiver, for purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or guaranty of such transaction? — Yes

(30)

C.

5. Will arrangements preclude use of financing:

Yes to all subsections

a. FAA Sec. 104(f). To pay for performance of abortions or to motivate or coerce persons to practice abortions, to pay for performance of involuntary sterilization, or to coerce or provide financial incentive to any person to undergo sterilization?

b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?

c. FAA Sec. 660. To finance police training or other law enforcement assistance, except for narcotics programs?

d. FAA Sec. 662. For CIA activities?

e. FY 79 App. Act Sec. 104. To pay pensions, etc., for military personnel?

f. FY 79 App. Act Sec. 106. To pay U.N. assessments?

g. FY 79 App. Act Sec. 107. To carry out provisions of FAA sections 209(d) and 251(h)? (Transfer of FAA funds to multilateral organizations for lending.)

h. FY 79 App. Act Sec. 112. To finance the export of nuclear equipment, fuel, or technology or to train foreign nations in nuclear fields?

i. FY 79 App. Act Sec. 601. To be used for publicity or propaganda purposes within United States not authorized by the Congress?

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TO RUSMKM/AMEMBASSY KHARTOUM 7307
INFO RUVOC/AMEMBASSY NAIROBI 3195
BT
UNCLAS STATE 043931

ACTION: AID
INFO: AMB
DCM/ECON
CHRON

AIDAC NAIROBI FOR RDSO

E.O. 12065: N/A

TAGS:

SUBJECT: ACCELERATED IMPACT PROGRAM, 650-0017.27 JONGLEI EXPERIMENTAL SWAMP TRANSPORT (SUDAN)

1. PID FOR SUBJECT PROJECT REVIEWED FEBRUARY 5, 1980. PROJECT APPROVED WITH DOLS 472,000 LOP COST IN AGRICULTURE, RURAL DEVELOPMENT AND NUTRITION CATEGORY. USAID AUTHORIZED TO PROCEED WITH PREPARATION OF PP. AFR DELEGATION OF AUTHORITY 141 AUTHORIZED MISSION DIRECTOR APPROVE PP. REGARDING FORMAT OF PROJECT AUTHORIZATION DOCUMENT, PLEASE NOTE THAT CIRCULAR AIRGRAM A-122 OF JULY 27, 1978 (SEE AID HANDBOOK 3, CHAPTER 8) ELIMINATED FORM PAF II AND SUBSTITUTED A SIMILAR PROJECT AUTHORIZATION DOCUMENT, WHICH IS SOMEWHAT SIMILAR IN FORM. SUGGEST USAID CAN EASILY REVISE THE AUTHORIZATION DOCUMENT IN ACCORDANCE WITH THE NEW FORMAT. UPON COMPLETION, FORWARD FOUR COPIES COMPLETE AUTHORIZATION PACKAGE TO AID/W, THREE (3) ATTENTION AFR/RA, ONE (1) ATTENTION AFR/DP.

2. FOLLOWING PROJECT COMMITTEE COMMENTS AND SUGGESTIONS SHOULD BE ADDRESSED IN PP:

A. PROJECT OBJECTIVES STATEMENT SHOULD INCLUDE A FULL DISCUSSION OF THE SUPPORT THAT EXPERIMENTAL PROJECT VEHICLES WILL PROVIDE TO RURAL DEVELOPMENT IN PROJECT AREA.
B. EXPERIMENT SHOULD INCLUDE ECONOMIC ANALYSIS WHICH MAKES DETERMINATION ON THE ECONOMIC FEASIBILITY OF USING PROPOSED VEHICLES TO MEET RURAL DEVELOPMENT PROJECT NEEDS.

C. MAINTENANCE OF VEHICLES TO BE TESTED COULD BE MAJOR PROJECT CONSTRAINT AS INDICATED PAGE 7 OF PID. FIRST PARAGRAPH STATES THAT PROJECT WILL RELY ON DUTCH FACILITY AT BOR FOR MAINTENANCE, WITH EXPECTATION THAT THIS "SHOULD ASSURE THAT VEHICLES REMAIN OPERATIONAL". SUGGEST PP AND PROAG COMMITTEE GO TO ENSURING THAT DUTCH FACILITY WILL BE AVAILABLE TO THE PROJECT ON AN AS-NEEDED BASIS.

Best Available Document

D. POL AVAILABILITY AND COST WILL [illegible] TO SUCCESS OF PROJECT. PROJECT [illegible] THE CONTINUED USE OF THESE VEHICL[illegible] [illegible] WILL REQUIRE INCREASING COMMITMENT AND [illegible] SIGNIFICANT CONTRIBUTION TO [illegible] LIFE OF THIS PROJECT FOR ASSUMING ALL OPERATIONAL [illegible] OF PROJECT. USAID MIGHT ALSO [illegible] OF FUEL COST BY DUTCH/UNDP SINCE VEHICLES WILL BE AVAILABLE FOR USE BY DUTCH/UNDP FOR [illegible] ORGAN.

E. VEHICLE SUPPLIER HAS INFORMED AID/W ENGINEER THAT FUEL CONSUMPTION RATES [illegible] PAGE 5 [illegible] UNDER-ESTIMATED AND THAT IT MAY BE [illegible] ESTIMATED CONSUMPTION. REQUEST BE CONFIRM FUEL CONSUMPTION RATE. FURTHER, SUGGEST USAID EXPLORE WITH [illegible] POSSIBILITY OF MODIFYING VEHICLES TO CARRY [illegible], ENABLING THEM TO OPERATE [illegible] LONGER DISTANCES. IN ADDITION, USAID MIGHT CONSIDER DIRECT STORAGE OF DIESEL FUEL IN ISOLATED AREAS WHERE VEHICLES WILL OPERATE.

F. INDICATE LIFE EXPECTANCY OF VEHICLES.

G. INCLUDE PROJECT EVALUATION PLAN. SUGGEST EVALUATION BY PARTICIPANTS. ATTENTION TO VEHICLE MAINTENANCE OVERLIFE OF PROJECT DUE TO OPERATIONAL COST OF VEHICLES.

H. SUGGEST BUDGET, PAGE 6, BE REORGANIZED, PLACING RADIO COMMUNICATIONS SYSTEM UNDER COMMODITIES HEADING, AND TRANSPORTATION, OFFICE SUPPLIES, MONITORING AND EVALUATION COSTS UNDER OTHER COSTS HEADING.

I. REQUEST USAID SUGGEST INTENDED DATE FOR OBLIGATION OF FUNDS.

4. AID/W WILL PREPARE CONGRESSIONAL NOTIFICATION (CN). WILL ADVISE EXPIRATION OF CN PERIOD. VANCE

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Annex D

Scope of Work - Mechanic

A. General

The mechanic will be responsible for the maintenance of the vehicles to be procured by the project. His or her chief counterpart will be the Executive Mechanic of the Executive Organ. The mechanic shall be responsible to the individuals designated by the Executive Organ as the Project Manager .

Depending upon advice supplied by the manufacturer, the mechanic may spend up to two months at the factory where the equipment is produced preceeding the delivery on site in the Southern Sudan.

He or she will then work with a representative of the equipment manufacturer to set up the equipment and will begin training of persons to be employed by the Executive Organ who will be driver-mechanic technicians for the vehicles.

B. Specific Duties:

1. Preventive maintenance - scheduling and supervision
2. Training of driver - mechanic technicians
3. Daily and monthly reports on operations - includes fuel, maintenance, and utilization
4. Other duties as may be assigned by the project manager including responsibility for vehicles that are not provided by the project.

C. The mechanic will produce a comprehensive annual report, as well as quarterly reports covering all activities, problems and proposed resolutions during the quarter.

D. Qualification

The technician should have had a minimum of 3 years of overseas experience working with heavy equipment. Formal training in diesel repair and heavy equipment maintenance very desirable. Peace Corps or other experience in third world countries working under extremely difficult conditions is a definite requirement.

E. Logistics

In addition to a salary, mechanic will be provided 300 pounds

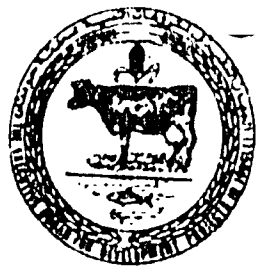
of airfreight, internation transportation and official local transportation. Housing facilities are to be provided by the GOS and because of the area will most likely be substandard. No storage and transportation of household effects shall be provided. Dependents will not be permitted to accompany mechanic. Fringe benefits include health and life insurance, paid vacations, according to GOS regulations, official Sudanese holidays, and workmen's compensation. For the time the technician, he or she, is authorized an additional $1,000 a month temporary living allowance. If an American citizen can not be recruited, the GOS will be authorized to recruit from AID Geographic Code 941 Countries or the cooperative countries.

F. Salary $15,000 to $20,000 annually depending on qualifications with up to a 10 percent Merit raise following the completion of 12 months of service. Employment tentatively scheduled to commence March or April 1981 and to terminate in December of 1982.

Annex E

(35)

The Democratic Republic of the Sudan
NATIONAL COUNCIL FOR THE DEVELOPMENT
OF JONGLEI CANAL AREA
EXECUTIVE ORGAN
P. O. Box 2054 Phone 73837
Teleg. Jongleidev
KHARTOUM



مهورية السودان الديمقراطية
المجلس القومى لتنمية
منطقة قناة جونقلى
الجهاز التنفيذى
ص.ب: ٢٠٥٤ تليفون: ٧٣٨٣٧
تلغرافيا: جونقليدف
الخرطوم

Our Ref: JCB/70/B/1
Date: 18/ 5/1980

Clear. 5/.

NAN
JB
5-21-80

Mr. Gordon Pierson,
Director, USAID Sudan
Khartoum.

Dear Mr. Pierson,

Experimental Swamp Transport, Jonglei
Project Identification Document

We in the Executive Organ have had several talks with Mr. James Beets of your office concerning the necessity for the proposed swamp transport project to be anchored in a strong administrative base. We would expect the administrative base to provide for the equipment proposed:

(a) day by day administration of use;

(b) maintenance and repair;

(c) routine preparation of reports that assess the value of the vehicles to the development effort.

It is sensible that I review in this letter the array of administrative possibilities which we have considered, both in general and specifically.

The Executive Organ for Development Projects in the Jonglei Area is the Central Government authority for development in the Jonglei Canal's zone of effect. It has executive responsibility for development work. This responsibility is one which it shares, overall, with the executive ministries of the Southern Regional Government. It should be appreciated however, that the Executive Organ, as an arm of the Central Government, has vastly more development funds available for work in the Canal Area than does the Regional Government.

2/..

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Roughly speaking the Executive Organ operates with three procedures:

(a) direct development work carried out by its own staff;

(b) development work done by consultants for the Executive;

(c) development work done cooperatively by United Nations staff, working with Executive Organ staff.

On point (a), the strongest force of Executive Organ direct development staff has been based at Malakal under an Assistant Director General and a Chief Engineer. There, a construction unit was organized in 1979 that, during the dry season of late 1979/early 1980, built a six-classroom school and offices, three houses, one health centre, one store, and one workshop at Ghai Agitho, a resettlement village created along the Sobat at mouth of Sobat mouth. This team has now moved to the field headquarters of the Executive Organ where it will continue to build during both the rainy season and the coming dry season. The Executive Organ has budgeted to expand the team, with i.a. two additional graduate engineers - one for civil works and one for equipment.

The Executive Organ field headquarters near or at Lankien is under an Assistant Director General. The station has a modest workshop and several mechanics although only one of a good standard. In June a UNDP Administrative Officer will move to Lankien to assist in running the station. The station is also the headquarters for the UNDP/Government of Sudan, Sudd Fisheries Project. The Project Manager and an Administrative Officer for this project are now resident there.

On point (b), the Executive Organ has two consultants companies working on its behalf. Both operate out of the Bor station. Their work will continue at least into 1981 and perhaps longer. One of the consultant teams is presently building a field station near Kongor. We expect this station, or at least its laboratory, to become a permanent installation.

On point (c), the Executive Organ has a major cooperative programme with UNDP, UNCDF, and FAO. Roughly speaking this programme has three major sub-components as follows:

(i) the Kongor Integrated Rural Development Project and two associated sub-projects;

3/...

(ii) the Sudd Fisheries Project and one associated sub-project;

(iii) two specific support projects -

-SUDAN 77/003 - Assistance to the Executive Organ

-SUDAN 79/004 - Project Infrastructure Support Unit.

The Kongor Project is a broad scope rural development effort with its headquarters at Panyagoor some five miles to the east of Kongor. It is essentially an inland project covering the entire area of the Kongor People's Rural Council. In the next dry season this project will build a full-scale and fully-stocked workshop, and will maintain a high standard of machine maintenance, control and monitoring.

The Kongor Project will operate a mix of conventional vehicles plus one hovercraft. Unconventional swamp vehicles would be of use to the project during the rainy season, when the Kongor plain is impassable by normal vehicles, and also to a limited extent during the dry season for work in the toich cattle camps.

The Sudd Fisheries Project will be operating over a very large area of the river - i.e. from Bor to Malakal and will probably establishing several sub-stations in the fullness of time But it has commenced at Bor and initially will serve to build that station's capacity.

The Sudd Fisheries Project will operate a mix of boats and some normal four-wheel drive vehicles. Unconventional swamp transport would be of use to this project throughout the year. However, because of the large distances involved, efficient placement and hence use would certainly involve transport of these vehicles by both low-bed trailer in the dry season and carrier boat in both wet and dry season.

The slow speed of the swamp vehicles implies faster transport placement. It is most probable that the Kongor Project will have a low-bed trailer for earthmoving equipment, although this has not been ordered. As a temporary expedient, the Executive Organ could secure a low-bed trailer from the Regional Government, the Earth Moving Cooperation or the CCI. Further the swamp vehicles will require water transport. How to accomplish this has not been thought through. Obvious options are:

(a) the River Transport Corporation

(b) purchase within the proposed project of an adequate transport vessel which would also be used for intra-area Executive Organ transport.

The Support Projects are [illegible] development programme by:

(i) professional support to all [illegible];

(ii) professional support to planning [illegible] administration of the Executive Organ.

This [illegible] background; [illegible] perfect [illegible] equipment proposal. There is, however, we believe, a best [illegible] the Executive organ [illegible]. The Executive [illegible] formalize procedures and schedule [illegible] of sources likely to make sensible demands.

The Executive Organ will unquestionably have the professional engineering and administrative capacity to supervise and co-ordinate allocation of the vehicles. Further it is [illegible] with responsibility for the entire Rural Affected Area. Frankly, it is weak in workshop and maintenance skills and facilities but these could and should be up-graded. Further, adequate transport for rapid placement of the [illegible] vehicles [illegible].

We [illegible] your comments and believe [illegible] agreement on a final proposal could be quickly achieved.

Yours sincerely,

Daniel [illegible]
For/DIRECTOR [illegible]

Other Donor Activities in Jonglei Province

It is anticipated that, under the auspices of the Executive Organ, many of the other donor activities outlined below will interact with this experimental swamp transport project to provide actual field of testing of both the utility of the vehicles and the validity of the hypothesis that access serves as a spur to development. The material which follows was drawn from the 1979/80 Executive Organ Annual report.

1. UN/Sudan Government Projects:

(a) Provision of Assistance to the Executive Organ for The Development Projects in the Jonglei Area

Sudan 77/003

Estimated UNDP input	:	US $ 1.0 million
Estimated Sudan Government input	:	LS 0.13 million
Expected duration	:	2 years 6 months
Executing Agency	:	UNOPE (United Nations Office of Project Execution).

The project is in a phase of preparatory assistance with a signed UNDP input of US $333,903.

The purpose of the project is direct assistance to the Executive Organ through provision of a Landuse Planner, an Administrative Officer for Bor, a Consultancy Fund, a Fellowship Fund, an Equipment Fund, and an administrative arrangement for UNDP purchase of fuel.

The Landuse Planner arrived in January. An Administrative Officer for Bor has been submitted and technically cleared. The Consultancy and Fellowship Funds were not used. A vehicle, a boat, miscellaneous office equipment and one hundred and fifty drums of fuel were purchased for Bor.

(b) Kongor Integrated Rural Development Programme

A multi-project development programme has commenced in Kongor District. Estimated programme costs are US $8.9 million foreign contribution and LS.0.5 million Sudan Government contribution. UN system funds are being complemented by coordinated Netherlands and United States governments' contributions. The component projects of the Kongor Programme are as follows:

(i) Integrated Rural Development in Kongor District (Sudan 78/016)

Estimated UNDP input	:	US $4.9 million
Estimated Sudan Govenment input	:	LS0.5 million
Estimated Netherlands Government input	:	US $1.0 million
Expected duration	:	4 years
Executing Agency	:	FAO.

The project is in a phase of preparatory assistance with a signed UNDP commitment of US $0.9 million for calendar year 1980.

The Kongor project is a multidisciplinary, multisectoral, broad front development effort which emphasizes the improvement of the people's agriculture throughout Kongor District. The project provides management for the entire Kongor Development Programme. It has components for provision of staff, buildings, equipment, training, operation and maintenance.

In November 1979, agreement was reached at a meeting in Rome to commence the project from 1st January 1980 on agreed flexible lines. Since then, a tented camp, airstrip, and access road have been built at the project headquarters at Panyagoor. The first project staff have begun work and fullscale ordering of equipment and supplies has begun.

(ii) Medical and Public Health Services (Sudan 78/C007)

Estimated UNCDF input	:	US $ 955,000
Expected duration	:	3 years

Signed agreement on this project is expected in June 1980. In the anticipation of successful negotiation, UNDP has advanced expenditure of $ 0.36 million.

The project provides for housing, transport and a mobile clinic for a physician and one para-medic; digging of thirteen shallow wells; equiping of sixteen presently unequipped bore-holes; the drilling and equipping of ten new bore-holes.

Final costings have been done. Pumps and engines for sixteen bore-holes were ordered for delivery by air freight and began to arrive in the end of May.

(iii) Livestock Development in Dinka Region (Sudan 78/C36)

Estimated UNCDF input	:	US $ 1.97 million
Expected duration	:	5 years.

Signed agreement for this project occurred in April 1980; however, UNDP had been authorized to advance expenditure in anticipation of signing.

The project provides for US $810,000 of heavy earth-moving equipment with its running costs over four years, to undertake flood control and to build haffirs; plus a maintenance workshop, deep well, power unit, fuel depot and veterinary centre for Panyagoor.

The deep well and the power facility are in place. Orders have been placed for heavy earthmoving equipment.

(iv) Project Infrastructure Support Unit (Sudan 79/004)

Estimated UNDP input	:	US $ 1.3 million
Expected duration	:	3 years
Executing Agency	:	UNOPE

Signed agreement on this project is for a one year preparatory assistance phase of US $517,000. A major revision is expected which will involve transfer of the building component of Sudan 78/016 to this support unit.

The project provides for a physical infrastructure support service covering choice of materials, design, engineering, construction, supervision, logistic support and management for the numerous simple buildings to be constructed under very difficult logistic and geographic conditions for the Kongor and Sudd Fisheries Programme. The project also serves as an administrative umbrella for technical contracts in hydrology and topography.

The project only commenced activity in the second half of 1979/80 but has:

(a) supervised creation of the initial tented camp headquarters at Panyagoor;
(b) conducted a topographic survey sufficient to allow commencement of flood controls works around Kongor;
(c) begun a systematic study of the sheet/creeping flood in Kongor.

(c) Sudd Fisheries Programme

This programme, with headquarters at Bor, has commenced a phase 1 stage consisting of two projects costing in total US $ 1.47 million and LS. 0.83 million.

(i) Sudd Fisheries Development (Sudan 79/001)

Estimated UNDP input	:	US $834,930
Estimated Sudan Government input	:	LS.129,639
Expected duration	:	4 years
UN Executing Agency	:	FAO.

Signature by all parties was completed in November 1979 in Rome where the Commissioner signed for the Sudan Government.

The project provides for a limited amount of technical assistance plus funds for buildings, equipment, and boats to assist fish marketing cooperatives operating from Bor, Shambe, Adok and Malakal.

A Project Coordinator and Administrative Officer were cleared and on duty in May 1980.

(ii) Cooperative Fish Marketing (Sudan 79/C31)

Estimated UNCDF input	:	US $ 0.638 million
Expected duration	:	3 years.

Signature by Government and UNCDF in March 1980; however, advanced expenditure by UNDP was authorized and began earlier.

The project provides a capital grant for purchase of transport boats for carrying fish, plus buildings for three fish marketing cooperatives.

Two ferro-cement transport barges were built for the project at Juba Boatyard during the report year.

2. European Development Fund/Sudan Government Projects.

The EDF is financing a short-term programme of consultant firm investigations in support of Jonglei area planning. This programme (Development Studies in the Jonglei Canal Area) under Finance Agreement No. 2216/Sou, project number 4105.035.48.18 was signed in April 1978 for a grant of 2.1 million EUA and a Sudan Government counterpart obligation of LS.0.2 million. The study programme has made a very slow start as a result of severe logistic and administrative constraints on starting-up work in the Bor/Kongor/Ayod area. The Executive Organ is making a determined effort to overcome these problems by increasing its staff and organizational strength in Bor and Juba, and by involving the principal

consultant firm in their own support through the inclusion of management clauses in the relevant contract.

(a) Soil Survey and Land Suitability Classification

Estimated EDF input	:	0.5 million EUA
Estimated Sudan Government input	:	LS.0.120 million
Expected duration	:	2 years
Contract signed	:	15 June, 1978
Fieldwork commenced	:	
Consultant firm	:	Euroconsult.

Fieldwork has been delayed due to absence of aerial photography. It is expected to begin dry season 1980/81. Transport and equipment for this work are on site at Bor.

The project will supply technical assistance, transport, aerial photography and supplies to carry out soil survey and analysis of a strip 30 km. on either side of the canal alignment. The Government laboratory at Wad Medani will be used for soil sample analysis.

(b) Range Ecology, Livestock Investigation & Water Supply Study

Estimated EDF input	:	1.1 million EUA
Estimated Sudan Government input	:	LS.0.05 million
Expected duration	:	2 years
Contract signed	:	February 1979
Fieldwork commenced	:	March 1979
Contract firm	:	Mefit-Babtie, srl.

This technical assistance project has a number of interrelated sub-studies covering:

(a) the range ecology of toich, intermediate and 'upland' grazing;
(b) disease and production of cattle and small stock;
(c) systematic aerial survey of livestock, larger wild game, and habitations;
(d) inventory of all water resources and supplies.

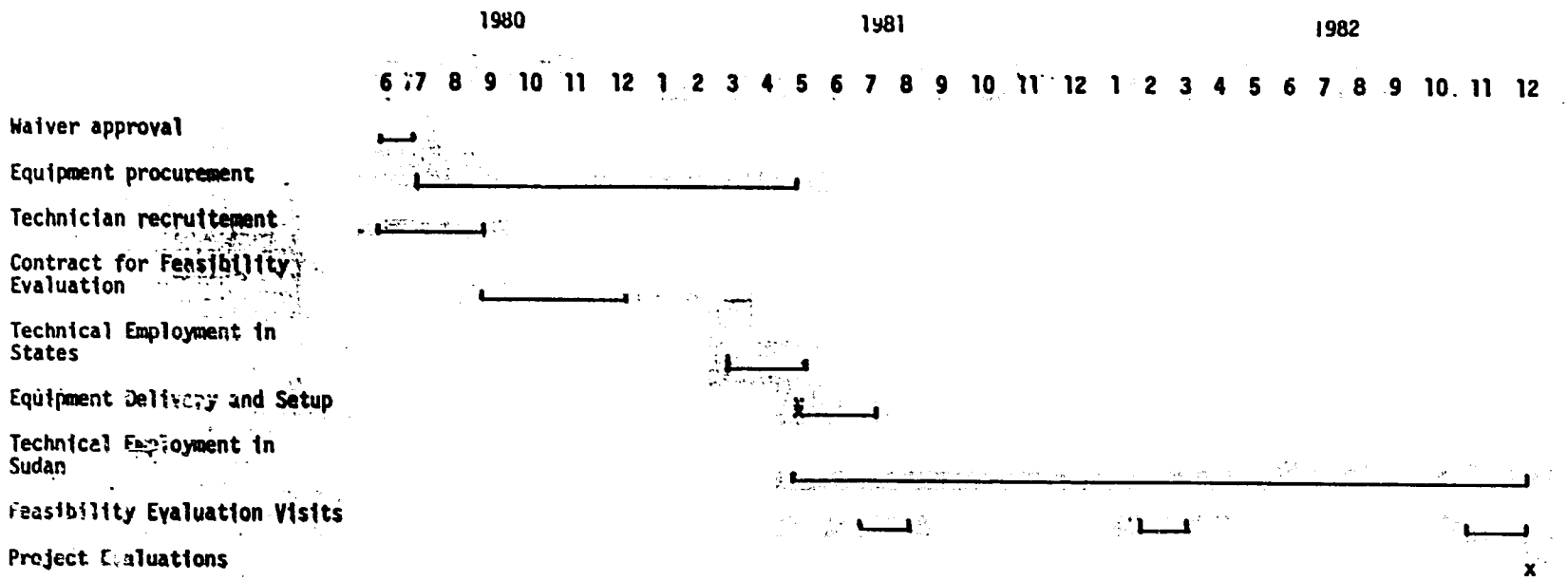
On point (c) the aerial survey, was done in November 1979 and repeated in March 1980. It is now complete and a final report of this component was due April 1980. Other studies have begun but no substantive interim reports are yet done.

(c) Swamp Ecology

Estimated EDF input	: 0.5 million EUA
Estimated Sudan Government input	: LS 0.03 million
Expected duration	: 2 years
Contract signed	: April 1980
Fieldwork begun	:
Consultant firm	: Mefit-Babtie, srl.

Fieldwork is planned to begin in September 1980. The consultant will provide technical staff who, in cooperation with staff and the research vessel Malakal of the University of Khartoum Hydrobiological Research Unit, will carry out a general study of the open water, permanent swamp, and toich ecosystems of the Sudd. The objectives are to illuminate the biology of the fishery and to estimate probable effects of canal induced change in the ecology of the Sudd in general and of the fishery in particular.

Project Time Table



MODEL: 104W-HD-59
100% AMPHIBIOUS 4 WHEEL DRIVE CARRIER (46)

BASIC VEHICLE WEIGHT----------18,000 POUNDS
LOAD (CARGO) CAPACITY---------- 4,000 POUNDS
GROSS WEIGHT----------22,000 POUNDS

SPEEDS: LAND-------TO 10 MPH ON HARD LEVEL TERRAIN
WATER------ 3 TO 6 MPH;

GRADEABILITY. 60%

ENGINE:

DEUTZ 913 DIESEL-AIR COOLED
160 H.P. @ 2800 RPM

TRANSMISSION: BORG-WARNER T-18 4 SPEEDS FORWARD AND 4 SPEEDS REVERSE

STEERING: "SKID" STEERING IS ACCOMPLISHED BY DISENGAGING ONE TWIN DISC CLUTCH AND BRAKING THE TWO WHEELS ON ONE SIDE WHILE ALLOWING THE OPPOSITE TWO WHEELS TO ROTATE IN THE REQUIRED DIRECTION.

WHEELS: ALL STEEL WELDED CONSTRUCTION
5' 0" WIDE X 9' 0" OVERALL DIAMETER TO OUTSIDE OF CLEATS
10 GA. ROLLING FACE, 12 GA. SIDES, 12 GA. CLEATS
PAINTED WITH ONE (1) COAT OF PRIMER AND TWO (2) COATS OF ENAMEL

CHASSIS: ALL STEEL I-BEAM, CHANNEL AND PLATE WELDED CONSTRUCTION
PAINTED WITH ONE (1) COAT OF PRIMER AND TWO (2) COATS OF ENAMEL

WINCH:

20,000 POUND CAPACITY

REMARKS: THE MODEL 104W-HD-59 CAN CARRY UP TO 4,000 POUNDS OF CARGO
RATED DRAWBAR PULL OF 10,000 POUNDS
WITH THE MOUNTING OF AN OPTIONAL "A" FRAME BOOM ON THE REAR
IT CAN BE USED FOR LIFTING WEIGHTS UP TO 10,000 POUNDS.

QUALITY MARSH EQUIPMENT

SUGGESTED SPARE PARTS LIST FOR AMPHIBIOUS
4-WHEEL DRIVE MARSH BUGGY MODEL 104W-HD-59
TWO YEARS OPERATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	4	0540007	Wheel Sprocket
2	50 ft.	3010-140	Roller Chain
3	20	3022-140	Connecting Links
4	8	3020-140	Offset Links
5	100	7065	1" Wheel Nuts & Locks
6	8	3131-3-ZBR-215	Bearings
7	8	3131-3-ZBR-308	Bearings
8	8	0740003	Steady Arms for Wheel Adjustment
9	32	0740004	Steady Arm Pins
10	4	3130-3-ZP200F	Bearing
11	4	3430-CL-311	Steering Clutch with Drive Sprocket
12	48	3431-A5579A	Complete Segments for Clutch
13	10	3530-004	Universal Joint Cross Kit
14	50 ft.	3010-120	Roller Chain
15	2	3322-T-18-L2	Transmission
16	20	3022-120	Connecting Links
17	10	3530-005	Universal Joint
18	4	3130-NP-20	Pillow Block Bearing
			TULSA 19 WINCH PARTS
19	4	20750	Gear L.H.
20	10	20181	Gasket
21	10	20117	Gasket
22	4	29503	Drum
23	8	SA-1733	Brake Shoe Assembly
24	4	23875	Cam
25	4	20114	Nut
26	4	20115	Lock Washer
27	4	20240	Worm L.H.
28	8	20302	Bearing
29	10	20232	Grease Retainer
30	1 set		Tools

MODEL-104T-70
100% AMPHIBIOUS PERS NEL/CARGO CARRIER (48

BASIC VEHICLE WEIGHT----------16,000 POUNDS
LOAD (CARGO) CAPACITY---------- 2,000 POUNDS
GROSS WEIGHT----------18,000 POUNDS

SPEED: LAND---------TO 5 MPH ON HARD LEVEL TERRAIN WITH A FORD 380 CU. IN. DIESEL
TO 9 MPH ON HARD LEVEL TERRAIN WITH A FORD 300 CU. IN. GASOLINE

GRADEABILITY: 60%

ENGINE:

DEUTZ 913 DIESEL AIR COOLED
160 H.P. @ 2800 RPM.

TRANSMISSION: BORG-WARNER T-18, 4 SPEEDS FORWARD AND 4 SPEEDS REVERSE

STEERING: "SKID" STEERING IS ACCOMPLISHED BY DISENGAGING ONE TWIN DISC CLUTCH AND BRAKING ONE TRACK WHILE ALLOWING THE OTHER TRACK TO ROTATE IN THE REQUIRED DIRECTION.

PONTOONS: C.C. RECESS TRACK
ALL STEEL WELDED CONSTRUCTION
18' 6" LONG X 4' 0" WIDE X 3' 6" HIGH
10 GA. BOTTOM, 14 GA. Sides, 12 GA. TOP

ALL EXPOSED METAL SANDBLASTED AND METALIZED
PAINTED WITH ONE (1) COAT OF PRIMER AND TWO (2) COATS OF ENAMEL

TRACK: TWO (2) STRANDS OF HEAVY DUTY TRACK CHAIN PER PONTOON
4" ALUMINUM CHANNEL CLEATS

EXTREME SERVICE CLEATS
HARD WOOD BLOCK PADS EVERY OTHER CLEAT
HEAVY DUTY TRACK SUPPORT SYSTEM

CHASSIS: ALL STEEL I-BEAM AND CHANNEL WELDED CONSTRUCTION WITH ANGLE FRAME AND EXPANDED METAL DECKING.

DECK: 7' 11" WIDE X 18' 0" LONG

QUALITY MARSH EQUIPMENT

SUGGESTED SPARE PARTS LIST FOR MODEL 104T-70

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	150	0200005	¼ x 4 x 46½ Aluminum Cleats
2	210 ft.	3008-12842	4" Pitch H.D. Track Chain
3	1200	7024 3/8" x 1" NF	Track Mounting Bolts, Nuts, Locks, and Flats
4	150	7024 ½" x 1" NC	Bolts, Nuts, Locks, & Flats
5	30	3022	4" Pitch H.D. Connecting Links
6	4	3021	4" Pitch H.D. Offset Links
7	50	3031-Y-3911	Pins & Cotters for 4" Pitch Track Chain
8	40 ft.	3010-120	Roller Chain
9	6	3022-120	Connecting Links
10	1	3320-12-T-18-L2	Transmission
11	8		Blow Out Studs
12	1	3430-CL-311	Steering Clutch & Drive Sprockets
13	24	3431-A5579A	Complete Segments for Steering Clutch
14	1	0510013	Front Idler Axle Assy. 2 15/16" Shaft
15	1	0510007	Rear Drive Axle Assy. 2 15/16" Shaft
16	8	3130-3-ZP215F	Bearins
17	1	1270003	Differential & Axle
18	2	1260002	Brake Bands for Steering Clutch
19	4	1040001	Brake Band Adjustment Bolt & Nuts
20	2	3510-005	Universal Joint
21	1	3130-NP-20	Pillow Block Bearing
22	2	3530-004	Universal Joint Cross Kit
23	1	3540-00-001	Drive Shaft Complete
24	1	3130-3-ZP200F.	Bearing
25	150	UHMW	4" Track Support Pads
26	1 set		Tools

ENGINE INFORMATION

Manufacturer: Briggs-Stratton: Quantity: Two (2); Size: 16 h.p. 656cc; Model: 401417; Ignition: Magnato; Starter: Electric plus emergency manual; Charging System: Alternator; Air Flow: Dual ducting combined with both foam and paper air filters; Cooling: Air; Fuel Requirements: Regular grade; Fual Capacity: 12 gallons (two 6 gallon non-corrosive tanks); Fuel Consumption: .8 to 1 gallon per hour; Travel Range: Approx. 65-75 miles.

DRIVE TRAIN INFORMATION

Transmission Mfg'r: Granite-State; Quantity: Two (2) Model No: 5108 featuring FWD-N-REVERSE drive; Clutches: Oil cooled [The transmission combines with industr torque converters]--Driven Conv'r Mfg'r: Comet duster; Quantity: Two (2) Driven Conv Mfg'r: Salsbury: Quantity: Two (2) [These converters combine for four (4) shifting ranges providing for an automatic type transmission effect. Equal speeds are obtained in either forward or reverse gear].

--The transmission drives a number 50 heavy duty "Diamond" or "Acme" full link chain (Tensile strength: 8000 ft. lbs.) which attaches to a twin sprocked jack shaft assembly. The forward and rear drive axles are driven by number 60 "Diamond" or "Acme" full link chain (Tensile strength: 10,500 ft. lbs.) NOTE: Each drive chain assembly and all axle assemblies are mounted in an oil bath trough to minimize wear and decrease maintenance.

STEERING INFORMATION

Steering is obtained through accellerating and de-accellerating the engines. For tight turns and stopping, a pair of 12" Ausco disk brakes, one for each side are used.

CONSTRUCTION MATERIAL INFORMATION

Frame Material: 11 gauge box steel; Frame design: Twin box with 4 cross members reinforcing each frame. Security Railing Material: 13 gauge -- 1" box tubing; Deck Material: One-half inch exterior plywood bolted onto steel cross members. Axles: 8; Size: 18" length X 1 1/4"; Material: 4140 case hardened steel; Flotation: 8 ft X 7 ft X 8 in. Body-Pac closed cell foam flotation with a bottom protective sheeting made of 24 gauge steel.

DIMENSIONS

Length Overall: 9'	Deck Length: 8'	Height Overall: 70"
Width Overall: 7'	Deck Width: 7'	Height to Deck: 26.75"
Ground Clearance: 28"		

CAPACITIES & WEIGHTS

Carrying Capacity: Dryland - 2000 lbs payload
Water - 800 lbs payload
Water (with optional siding) - 1600 lbs payload

Cargo Area: 32 sq. ft. without companion seat
26 sq. ft. with companion seat
Center free span cargo dimentions: 96" X 40"
Gross Vehicle Weight: 3000 lbs.

Seating Capacity: 7 -- With optional companion seat: 8

PERFORMANCE DATA

Turning Radius: 0 degrees

Speed: Dry land - 15 to 18 mph
Water - 1 to 2 mph (NOTE: Big Foot designed to cross small, still strear.... Auxillary outboard power, not to exceed 15 hp, advisable whenever currents or distance is encountered).

Climbing Ability: 45 to 55 degrees depending upon load and it's distribution.

TRACK AND TIRE INFORMATION

Material: Hy-Strength poly; Quantity: 4 tracks; Over all track length: 20 ft. each track; Width: 13.5 inches -- Each 20' track consists of 40 replaceable 6 inch pads. Each pad interlocks and is connected with high tempered steel drive pins, secured with "set screw" bushings. Ground contact per track - approx. 1377 sq. inches Total: Approx 5508 sq. inch

OPTIONAL ACCESSORIES FOR BIG FOOT

Cleats: For special purpose (40 on each trach assembly STEEL - 160 cleats made of 10 gauge steel installed on each 6" track section.
Cleat size: 8.5"l. x 2"w. x 1" height.

WINCHES, ELECTRIC:

Brush Deflectors: Steel pipe "U" front railing

Grass Guards: Helps prevent grass balling on axle. Set of 16 installed

Metal Wrap-A-Round sidings: Recommended for extensive water and marsh applications. Same height as front splash deflector. Fold down tailgate is eliminated with this installation. Silicon sealed. Large floor drain with plug. Rear motor panels removable for ease of servincing.

Outboard Motor Brackets:
Transom mount - for use when siding installed

Spare Tire Assembly:

Rim Size: 8" x7" - 5 lug Quantity: 16 each

Fabricated Steel Utility Pontoon Sleds each having two (2) pontoons 3' wide, 3' high and 12' long, with an assembled width of 8' and a rated load capacity of 6,000 lbs. to be used to carry water, tools, or any other loads while being towed by any of the ampnibious equimpment.

ANNEX I

SAMPLE REPORTING FORMATS FOR VEHICLE USE

A. Daily Vehicle Usage Report

1. Vehicle usage report is basic documentation for usage control.

2. On back of ticket is pre-voyage checklist with such things as oil, water and fuel levels, and the checking and verification of safety equipment and lights. Any discrepancies should be noted and if necessary, repaired before the trip.

3. Diagram below is mutation of OF-108, adapted to diesel/hours use.

4. Daily usage reports are discarded after 6 months.

DAILY VEHICLE USAGE REPORT (OF-108)

					Vehicle & Driver I.D.
Date	Meter Begin.	Meter End	Elapsed Time	Destination	Passenger/Cargo Remarks

B. Daily Vehicle Expense Data

Fuel and oil expense data, as well as parts replacement and labor costs, should be kept line by line chronologically on columnar paper, e.g., every time fuel is added, the amount and cost is entered on a date line. If oil is added, the same thing is recorded for that.

DAILY VEHICLE EXPENSE DATA (1 kept for each vehicle)

Date	Fuel			Oil			Repairs			Parts & Remarks
	Meter	Amt.	Cost	Meter	Amt.	Cost	Meter	Amt.	Cost	
								Man Hours		

C. Monthly Vehicle Expense Report

MONTHLY VEHICLE EXPENSE REPORT (OF-200)

Vehicle/Driver I.D.

Month	Total Fuel		Total Oil		Repairs			Fuel Consumption Data		
	Amt.	Cost	Amt.	Cost	Man Hrs.	Parts	Cost	Total Hours	Fuel Used	Ave.
Jan.										
Feb.										
Mar.										
Apr.										
May										
June										
July										
Aug.										
Sept.										
Oct.										
Nov.										
Dec.										

(1 for each vehicle)

1. Form above is mutation of OF-200.
2. Data is culled monthly from OF-108 and Fuel and Other Expense Sheet.
3. The monthly reports are the basic document for an annual report of all vehicular expenses.
4. Monthly reports can help pinpoint uneconomical usage, fuel theft, excessive oil and/or parts consumption and labor costs. These are important if AID is serious in attempting to compare 3 different vehicles.