

February 5, 1985

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FROM: AFR/PD/EAP, Deborah Zubow Prindle

MEETING: Juba Development Analytical Studies Project
(649-0134): Environmental and Sociological
Assessment

	<u>ISSUES</u>	<u>ECPR</u>
DATE:	February 20, 1985	February 22, 1985
TIME:	2:00 pm	2:00 pm
PLACE:	Room 3524 NS	Room 6941 NS

AGENDA

Review and Approval of PP Amendment.

Attachment

Distribution:

AA/AFR, M. L. Edelman 6936	AFR/PD, N. Cohen
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rw

FILE
Amendment Number 1

DOCUMENT CODE 3

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT DATA SHEET

1. TRANSACTION CODE
 A = Add
 C = Change
 D = Delete

COUNTRY/ENTITY Somalia
3. PROJECT NUMBER 649-0134
4. BUREAU/OFFICE AFR 06 5. PROJECT TITLE (maximum 40 characters) Juba Development Analytical Studies

6. PROJECT ASSISTANCE COMPLETION DATE (PACD) 09/29/88 7. ESTIMATED DATE OF OBLIGATION (Under "B" below, enter 1, 2, 3, or 4)
A. Initial FY 83 B. Quarter 4 C. Final FY 88

8. COSTS (\$000 OR EQUIVALENT \$1 = 35.64)

A. FUNDING SOURCE	FIRST FY <u>83</u>			LIFE OF PROJECT		
	B. FX	C. I/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	50		50	8,554		8,554
(Grant)	(50)	()	(50)	(8,554)	()	(8,554)
(Loan)	()	()	()	()	()	()
Other U.S. 1. _____ 2. _____						
Host Country					3,728	3,728
Other Donor(s)						
TOTALS	50		50	8,554	3,728	12,282

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ARDN	292	210		5,250		3,304		8,554	
(2)									
(3)									
(4)									
TOTALS				5,250		3,304		8,554	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 200
11. SECONDARY PURPOSE CODE _____
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)
A. Code ENV RGEN BS
B. Amount _____

13. PROJECT PURPOSE (maximum 480 characters).
Provide necessary baseline information on soils, land use, environment and social effects of proposed development schemes in the Juba River Valley and provide institutional support to the Ministry of Juba Valley Development.

14. SCHEDULED EVALUATIONS
Interim 02/86 MM YY Final 08/88 MM YY
15. SOURCE/ORIGIN OF GOODS AND SERVICES
 000 941 Local Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

Add funds and realign the inputs based on experience to date.
I concur in the methods of implementation and the financial arrangements under this project.

Charles Brooks
Charles Brooks, Controller

17. APPROVED BY
Signature Louis A. Cohen
Title Director, USAID/Somalia
Date Signed 01/17/85 MM DD YY
18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY

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SOMALIA JUBA DEVELOPMENT ANALYTICAL STUDIES

PROJECT PAPER AMENDMENT

(649-0134)

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JUBA VALLEY ANALYTICAL STUDIES SUPPLEMENT

I. INTRODUCTION

A. Rationale

The Juba Valley has been considered as a potential "bread basket" for Somalia since the 1920's when the Italian colonial administration initiated investigations in that area. The GSDR's interest in the Juba River Valley is a result of its intense concern about Somalia's projected population increases and a preoccupation with the need to improve its output in the agricultural sector. Somalia's population is expected to increase at a rate of 2.8 percent per annum until the year 2000. Given this scenario, agricultural production must increase at least 15 percent above projected consumption rates to offset processing and distribution losses. Such significant increases in agricultural production could materialize in future years only in areas of the country where there are dependable sources of water. Particularly, in the areas adjacent to Somalia's two rivers. Unfortunately, much of the Shabelli River area is already under cultivation and the available water from this source is fully committed. Therefore, the GSDR believes the country must turn to the Juba River Valley to feed itself and to expand agricultural exports.

During President Siad Barre's (President of GSDR) visit to Washington in the Spring of 1982 and his subsequent discussions with AID Administrator McPherson, President Barre stressed the important role the implementation of the Juba Valley development scheme could play in enhancing Somalia's future. He requested AID to reconsider its position of non-involvement in the Juba project. The AID Administrator indicated to President Barre that AID would look at the Juba Valley development program very carefully and determine what assistance, if any, the U.S. might provide to it. Subsequently, at the direction of the Administrator, USAID commissioned a multi-disciplinary river basin study (the Stephenson Report). The Stephenson Report indicated essentially

that the development of the Juba River Basin should be considered by AID primarily because a major source of water in a country where water is very scarce was allowed presently to flow unutilized into the Indian Ocean. In early 1983, USAID prepared various options for consideration and forwarded them to AID/W for review. Based on the USAID and AID/W final proposal, the Administrator wrote President Barre and informed him that AID was prepared to finance a series of studies including environmental impact, sociological implications and soils analysis. The Administrator indicated further that AID would assist the GSDR with the development of a master plan for Juba Valley's development. In addition, the FY-85 Somalia CDSS indicated that in the agriculture sector, the highest priority is placed on the development of the Juba River Valley.

The JUDAS PID-type document was prepared by USAID and cabled to AID/W o/a September 8, 1983. AID/W approved the JUDAS PID on September 17, 1983 (83 STATE 265708) with appropriate instructions/directions for USAID preparation of the PP and authorization of project. The JUDAS PP was hastily prepared, and subsequently authorized (September 28, 1983) approximately 11 days after the PID approval. The ProAg was signed on September 29, 1983. The initial project authorization was for LOP funding of U.S.\$5,250,000. However, because of the unavailability of the full amount of the authorized funds and it was so close to the end of the fiscal year, the JUDAS ProAg Grant signed on September 29, 1983 only included U.S. \$50,000 in available funds. Nevertheless, the additional U.S.\$5,200,000 was added to the JUDAS ProAg when the First Amendment to the ProAg was signed on November 9, 1983. This action brought the total amount of the ProAg LOP funding to U.S.\$5,250,000 as initially authorized. The present JUDAS ProAg Project Assistance completion Date (PACD) is December 31, 1987. With the approval of this supplement, USAID expects to extend the PACD to September 29, 1988.

The development of a "Master Plan" to optimize the resources of the Juba River Valley is a high priority on the Government's agenda. The Master Plan which will be developed with technical assistance from the

Federal Republic of Germany (FRG), will require significant inputs describing the land, environmental, agricultural and social resources of the Valley. The JUDAS project will provide appropriate soils/land use, social and environmental assessment data/information which would be used in the development of the Master Plan. The final Master Plan would describe the resource base of the Juba River Valley in considerable detail, identify and conduct comparative evaluations of various development alternatives with the general objective of identifying the optimal programs which would represent the most efficient use of scarce resources.

The Government of Somalia feels strongly that the development of the Juba River Valley can make a considerable contribution to increasing agricultural production, as well as safeguarding and improving existing agricultural production schemes in that region. In fact, the Juba River is one of the major water resources of Somalia, and the Juba River Valley/lower Shebelli Valley represent one of the most important areas of future development in Somalia. Of major concern to the Government and the participating international donor community is the efficient, timely development of this region. However, the present situation is deficient in satisfactory, detailed assessment of the region's resources data base. In addition, there is a priority need to establish a more sophisticated technical and financial evaluation of possible development alternatives for the region. Such a scenario should encompass an appropriate mix of phased short-term and long-term development schemes which have significant, orderly succession of economic payoffs. The Government has acknowledged the fact that an improved data base is an indispensable prerequisite for any further comprehensive planning, updating previous feasibility studies, and the development of a master plan for the Juba River Valley/lower Shebelli River Valley region. All parties which have committed themselves to the Juba Valley regional development scheme have acknowledged the fact that an extensive assessment of the region's resource base is the next logical step in a rational planning process.

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At the conclusion of the last Consultative Group Meeting for Somalia in October 1983 at Paris, the Group agreed to establish a "Steering Committee on Juba Valley Development". The steering Committee members are: Somalia (Chairman), Federal Republic of Germany, France, Italy, the United States, the Arab Fund for Economic and Social Development, the European Economic Community and the World Bank. Other potential international donors are free to join the Committee at anytime. The Steering Committee on Juba Valley Development meets in Somalia on a periodic basis. A "Technical Secretariat" provides technical administrative support to the Steering Committee.

The Master Plan for the Juba River Valley Development will be prepared between January 1985 and December 1987. The FRG technical assistance to the Ministry of Juba Valley Development (MJVD) for development of the Master Plan has been contracted to Agrar-und Hydrotechnik, GMBH(AHT). This firm has prepared a draft outline of the purpose and content of the Master Plan. AHT has also prepared a draft work plan/schedules for implementation of the Master Plan development.

At the most recent meeting of the Steering Committee on Juba Valley Development in September 1983, the Chairman (Minister, MJVD) noted that the soils/land classification studies and the environmental/social effects assessments were essential elements/inputs for timely, comprehensive development of the Master Plan. In addition, he stressed the apparent interdependence of the various survey/study components which have been financed by the International donor community, and the need to closely monitor their timely implementation and coordination with the Master Plan development activities. USAID has agreed to finance the soils/land classification studies and the environmental/social effects assessments. The soils/land classification studies are underway, and the environment/social effects assessments are in the Contractor procurement stage. The purpose of this supplement to the Juba Analytical Studies (JUDAS) project is:

- 1) To provide additional incremental funding to finance the services of an environmental/social effects assessment (E/SEA) contractor during the life of the project. The E/SEA contractor shall complete its services before June 30, 1988.
- 2) To re-organize the type and extent of institutional support/development to the Ministry of Juba Valley Development (MJVD), e.i. increase in long/short-term training, and deletion of the AID-financed position of long-term advisor to the MJVD. This position has been filled by the German Agency for Technical Cooperation (GTZ) technical assistance contractor, Agrar-und Hydrotechnik, GMBH (AHT).
- 3) To provide additional funding to the USAID/Somalia Field Support Unit (FSU) which will provide logistics for the U.S. Bureau of Reclamation (BUREC), and Environment/Social Effects Assessment Contractors' resident teams.
- 4) To provide funding for the technical assistance which will be provided by the National Academy of Science (NAS). The cooperative agreement with NAS is presently being negotiated. NAS shall provide the JUDAS project with an independent source of objective, authoritative advice on the scope, conduct, direction, and outcome of the E/SA study.
- 5) To provide funding for the interim and final project evaluations. The interim evaluation is scheduled for February 1988, and the final evaluation is scheduled for August 1988.

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B. Status

In cooperation with its participating international donors, the MJVD has made considerable progress in identifying and securing financing for key studies/assessments which are necessary ingredients for designing a viable plan of action for the development of the Juba River Valley and lower Shebelli River Valley regions. Some of these assessments, i.e. the Baardheere Dam feasibility studies, have been under consideration for several years. However, others, i.e. soils/land classification study, the environmental/social effects assessments, etc., have been initiated since the last meeting in Paris of the World Bank Consultative Group for Somalia in October 1983.

The following is a list of studies and assessments which are planned or underway as the basic analytical structure for the Juba Valley Development program:

1) The Baardheere Dam Project Stage I

MJVD has executed a contract with Electroconsult (ELC), Italy for all pre-implementation activities leading up to the award of contracts for the construction of the Baardheere Dam. The contract has been financed by the EEC for 26 months beginning September 1983. Included in this contract is the establishment of meteorological and river gauging stations which would verify and update information on climatological and hydrological parameters. ELC has submitted reports to the MJVD on the characteristics of the power market, power plant equipment, dam type, dam layout selection, and hydrology and optimization. ELC

will subcontract for the hydraulic model tests. The damsite/reservoir rock and soil investigations have been sub-contracted and scheduled for completion in July 1985.

- 1) At the request of MJVD, the Kuwait Fund for Arab Economic Development will finance the appointment of a consultant who will review the final work of ELC and its subcontractors for the Baardheere Dam Project Stage I.
- 2) Revision/Completion/Up-date of Data on Surface Water Hydrology

The initial stage of this activity has been completed/finalized and will be available in the near future. However, the remaining steps for the establishment of a water management system will be implemented in 1985. These activities have been financed by the German Agency for International Cooperation (GTZ).

- 3) Agricultural and Livestock Services Assessment

An assessment of agricultural and livestock services in the region has been completed by Agrar-und Hydrotechnik (AHT) under funding from GTZ. The assessment is a preliminary analysis of the structure and performance of the agricultural services sector in the Juba Valley. This is a significant contribution to the planning of the Juba Valley development program. In addition there is a description of the extent farmers can make use of the services of marketing, machinery hire, agricultural extension, supply of farm inputs and credit, promotion of farmers' organizations, veterinary services and range development. Also, recommendations for possible modifications to the present agricultural services sector system are included.

4) Deshek and Irrigated Agriculture Study

With funding from GTZ, MJVD contracted with AHT for a study of Deshek (natural depressions in the flood plain of the Juba River which are seasonally flooded by natural events) and small/medium scale irrigation schemes in the Juba River Valley. The study presents a detailed description of the present agricultural production situation in these types of schemes within the perimeters of the Baardheere, Saakow, Bu'aale, Jilib, Jamaame and Kismayo Districts of the region. In addition, the study contains particulars concerning the sizes of farm holdings and their distribution, cropping patterns, cropping intensities, crop rotations and a detailed description of the existing agricultural practices, some information on animal husbandry, calculations of the areas presently under cultivation and the total agricultural production in the Districts. Further, there are descriptions of labor intensity profiles for the main crops cultivated in the region, as well as, agro-economic calculations for selected farm holdings. The study recommended implementation of a small-holder pilot project in the area in the near future.

5) Assessment of Future Cropping Patterns and Irrigation Water Requirements

The MJVD has developed plans to establish in the near future a monitoring system for existing large-scale agricultural schemes at the Lower Juba Sugar, Fanoole and Mogambo plantations.

6) Survey of Settlement and Infrastructure Constraints

In mid-1984, the MJVD completed a survey of major constraints to development/settlement of the Middle Juba and Gedo regions. It identified as a high priority the construction of an all-weather

road linking Jilib and Baardheere marketing centers. It was their assessment that the absence of such a road was a major constraint to the development of the region. The EEC has agreed to finance the engineering design study for the construction of the Jilib - Baardheere road.

7) Feasibility Study for Baardheere Irrigation District

The MJVD has indicated that the Kuwait Fund for Arab Economic Development has established the completion of this feasibility study with positive recommendations as a condition precedent to committing their financial assistance to the MJVD for the Baardheere Dam project. MJVD has asked Kuwait to finance this study. The Kuwait Fund apparently has taken the position that no financing for the Baardheere Irrigation District feasibility study will be considered until the results of the Interim Water Storage pre-feasibility study are available for their review.

8) Pre-Feasibility Study on Interim Water Storage

This pre-feasibility study was recommended by a World Bank Review Mission for Somalia in 1983. A contract to conduct this study has awarded to Lahmeyer International, Federal Republic of Germany (FRG). The study contract completion date is August 31, 1985.

9) Feasibility Study for Small-Scale Irrigation Schemes in Baardheere and Saakow Districts

The MJVD is interested in obtaining financing for a feasibility study of small-holder irrigation project in the Middle Juba and Gedo regions. The MJVD feels that there should be sufficient information in the previously mentioned AHT, FRG study of Deshek,

Small/Medium-scale irrigated agriculture in the Juba River Valley to warrant to a full feasibility study of the viability of small-scale irrigation schemes in the Baardheere and Saakow Districts. MJVD is soliciting international donor interest in financing such a study.

10) Livestock, Rain-fed Agriculture and Agricultural Credit

The MJVD anticipates these areas of study will receive detailed analysis within the framework of the Juba Valley Development Master Plan process.

11) The Saakow Pilot Farm Project

This project is financed by the EEC. The project site was moved to the Baardheere District because of inaccessibility to the initial project site. EEC has financed a study of the project's land preparation/building construction requirements.

12) The Soils and Land Classification Survey

This survey is financed by AID. The contractor is the U.S. Department of Interior, Bureau of Reclamation (BUREC). The purpose of this survey is:

- (a) To establish the extent and degree of suitability of lands for sustained profitable crop production.
- (b) To determine the suitability of the anticipated water supply for irrigation.
- (c) To determine subsurface drainage requirements for the planned cropping and method of irrigation and design and estimated costs for the required surface and subsurface drainage systems.

(d) To determine present land use in the proposed system and within impacted areas of Juba and Lower Shebelli River Valleys.

BUREC has conducted a pre-reconnaissance survey of the region. Their report has been completed and distributed to USAID and MJVD. BUREC's resident team has arrived in country and the intensive work described above has begun. Their work is scheduled to be completed by December 1986. USAID has purchased and made available to MJVD air photos and mosaics of the Juba and Lower Shebelli region.

13) Environmental and Social Effects Assessment

The Environmental and Social Effects Assessment (E/SEA) will be financed by AID. A contractor has not been selected, yet. The AID procurement process has been plagued by several delays. However, we are optimistic that a contract will be executed by April 1985 and the contractor will be mobilized and in country by June 1985. Nevertheless, if the E/SEA contractor selection process continues to falter, USAID has prepared a contingency plan which would expedite some of the E/SEA field work. The MJVD and USAID are anxious to get the full E/SEA underway in an expeditious manner. The results of the environment and social effects assessment will provide essential inputs for the timely development of the MJVD Master Plan.

The E/SEA will consist of three phases: (a) preliminary data collection, (b) field data collection, including preliminary assessment of the environmental and sociological effects of irrigation and dam development, and (c) final analysis and assessment of the environmental and sociological effects of irrigation and dam development, including a final report consisting of an environmental and social effects statement with procedures for mitigating adverse impacts. The objectives of the E/SEA assessment are to:

- (a) Provide the MJVD with timely information which would be used in formulating a socially and environmentally sound Master Plan for the region.
- (b) Provide the MJVD with guidelines which would be used in formulating future projects on a socially and environmentally sound basis.
- (c) Identify and evaluate the interrelated sociological and environmental effects which will be caused by development activities in the region.
- (d) Further describe procedures and development activities which will mitigate adverse impacts and enhance beneficial impacts.
- (e) Provide the MJVD with a realistic plan for the monitoring of environmental, social, land use, and agricultural parameters of the valley region so that national development decisions can be made in a timely manner based on sound, current data.

Land tenure and settlement issues will be important topics of study in the E/SEA. These topics will be covered in considerable detail at the time the E/SEA contractor prepares and submits its workplan for USAID/MJVD review and discussion. It is essential that the E/SEA work should be well underway at the time of the arrival in country of the Coordinator for the Juba Valley Master Plan. The coordinator, who is a member of the Agrar-und Hydrotechnik resident advisory team to the MJVD, is scheduled to arrive in country in January 1986 at the latest. He will be responsible for coordinating and directing the development of the Master Plan. The JUDAS project manager will be the USAID environmental officer (USDH), who is expected on-board by the end of February 1985. The specific coordination, monitoring, work, and logistic arrangements will be discussed further in "Administrative Analysis" Section of this JUDAS Project Paper amendment.

14) The National Academy of Science, USA

AID expects to execute shortly a cooperative agreement with the National Academy of Science (NAS) on behalf of USAID to provide USAID, the MJVD, the E/SEA Contractor and other interested parties with an independent source of objective, authoritative advice on the scope, conduct, direction and outcome of the E/SEA study.

15) The Master Plan for Juba Valley Development

The MJVD has acknowledged that a master plan is an essential part of a rational process of analysis and planning for the development of the Juba Valley region. The Master Plan is scheduled for completion by December 1987. However, the major inputs from the various surveys/studies must be completed a considerable time ahead of that date in order to allow adequate time for discussion, analyses, evaluation of alternatives, and actual preparation of the Master Plan. Agrar-und Hydrotechnik, FRG has been awarded the contract for development of the Master Plan. The German long-term consultancy team (AHT) has prepared a preliminary outline of the purpose, content, workplan and schedule for this activity. This preliminary report should be finalized when the AHT Master Plan Coordinator arrives in January 1986.

The expressed purpose of preparing a Master Plan for the Juba Valley region development is to provide:

- (a) A consistent set of planning objectives.
- (b) An inventory of land and water resources.

- (c) Identification and formulation of specific projects.
- (d) A comparative evaluation of identified projects and their interactions and the preparation of a progressive implementation program of priority projects.
- (c) An assessment of the financial, material and human resources which would be required to sustain the proposed development program and consequently identify the constraints and problems which are likely to be encountered in the implementation of such a program.

II. DESCRIPTION OF THE PROJECT

The JUDAS project area consists of the entire area of the Juba Valley and lower Shebelli Valley which would be affected by water impoundment/control programs or future plans. This area encompasses the full expanse of Juba River flood plain and environs stretching from Luuq Ganane (which is within 150 km of the Ethiopian border) to the Indian Ocean coast where it expands northeast to encompass a portion of the lower Shebelli Valley.

Irrigated agriculture in Somalia is based on the Juba and Shebelli Rivers. Groundwater makes a very minor contribution to irrigation and is mainly used for human and livestock needs.

Timely development of the resources of the Juba River Valley region continues to be a high priority of the Government of the Somali Democratic Republic (GSDR). The GSDR feels strongly that this region may possess considerable potential for substantial increases in agricultural production output, as well as, improvement in the quality of life and general welfare of its people. Available data and information does indicate there is apparently a reasonable medium-to-long term prospect of

this actually materializing. Nevertheless, the potential for irrigated agriculture in the Juba Valley is not well defined. Therefore, more basic information and analyses are required before a sound development plan can be prepared.

The goal of the JUDAS project will remain unchanged with the addition of this supplement. The goal is a collaborative effort of participating donors, i.e. USAID, IBRD, FRG, et. al., to assist the Ministry of Juba Valley Development (MJVD) in developing a master plan for the Juba Valley region which will optimize resource uses in that area. There is general agreement that the development of a Master Plan is a logical, essential part of the overall planning sequence for rational decision-making process regarding the Juba Valley development program. The Master Plan will be a clearly definitive document in its physical, financial and economic formats. There will be considerable details of the optimization studies as well as justification of the project/program. The initial phase of the Master Plan will present in considerable detail cash flow projections, and estimates of electrical energy outputs and crop production over a period of approximately 25 years. The long-term projections including benefit/cost analysis, would probably be presented in lesser detail for a period of at least 50 years. The preceding Section I.B. presents a reasonably comprehensive description of the types of studies and other activities which will provide essential information in the development of the Master Plan.

The purpose of the JUDAS project, which is also unchanged, is to provide the MJVD with appropriate detailed information on soils and land classifications including irrigation suitability, and comprehensive environmental and social impact data which will be used in the development of the Juba Valley Master Plan. As indicated in earlier sections, other participating international donors are also financing some fairly comprehensive analytical data which will be complementary to USAID efforts. As the MJVD has stressed repeatedly, it is absolutely essential that the donors' efforts are well-coordinated and proceeding in a timely manner.

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The specific outputs of the JUDAS project are:

- 1) Classification of soils and land in the Juba River Valley and lower Shabelli Valley region which would identify the areas of highest agricultural potential.
- 2) Identification of likely environmental effects of various development alternatives, and recommendations for approaches to minimize adverse impacts.
- 3) Identification of potential sociological constraints and recommendations for effecting a smooth transition to irrigated agriculture with appropriate integration with rainfed farming and livestock grazing.
- 4) Development of the MJVD as an effective coordinating entity for developing a master plan for the Juba River valley.

The inputs required to produce the desired outputs are: contracted technical assistance and participant training in the U.S.A. and Somalia for specific Ministry of Juba Valley Development (MJVD) counterparts, and other institutional support technical assistance. The technical assistance consists of:

- (a) A PASA with the U.S. Department of Interior, Bureau of Reclamation to produce reconnaissance and feasibility grade surveys/studies of land use and soils classification which would identify areas of the region which should have the highest agricultural potential. This is the highest priority of the MJVD and other participating international donors. The BUREC team has completed the reconnaissance grade survey, and the resident team for the feasibility grade study has mobilized and has begun work in Somalia. We are seeking through this JUDAS supplement additional funding to finance updated life-of-contract costs of BUREC resident team support.

- (b) An AID direct contract with a U.S. private sector firm or joint venture thereof who will be responsible for producing a comprehensive environmental and sociological impact assessment of the entire Juba River Valley and lower Shebelli Valley region. The procurement process appears to be back on track, and there is a good possibility the contractor may be selected and mobilized in country by June 1985. This assessment is a key input for the development of the Master Plan for MJVD. The results of the environmental and social effects assessment (E/SEA) are anxiously awaited by MJVD and the donor community because the information would be of considerable importance in their development planning efforts.

The major portion of additional funding requested in this JUDAS supplement will be used to finance the life-of-contract costs of the selected E/SEA contractor beyond the initial year of funding indicated in the executed E/SEA contract PIO/T.

- (c) An AID cooperative agreement has been concluded with the National Research Council of the National Academy of Science (NAS), USA. This technical assistance contract will provide a significant contribution to the project by providing need institutional (MJVD) strengthening and support through workshops, research opportunities, research information dissemination, problem-solving/analytical techniques in such areas as logistics, methodology, training staffing coordination and other issues. Initiating and strengthening Somali contacts with the American scientific community and NAS. This will be accomplished through the use of NAS short-term consultancies and participant training opportunities.

- (d) The anticipated funding of long-term/short-term advisors to the MJVD have been eliminated with this supplement and the funds have been transferred to the E/SEA component. It was initially anticipated

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that these positions would be used to provide the JUDAS project with essential expertise in river basin ecology, thus ensuring adequate consideration of environmental issues and providing coordination between the various participants. Presently, USAID expects the USAID project manager will provide project monitoring and coordination for the contractors which will be financed by AID. Further, river basin ecology as a topic of specific concern should be adequately covered by, the E/SEA contractor which will have at its disposal the services of an environmental planner (team leader), an ecologist/natural resources expert (long-term), and approximately 30 P/M of short-term specialists. In addition, the E/SEA contractor's scope of work includes an adequate natural resources assessment requirement.

USAID and MJVD are essentially in agreement that the German resident consultancy team of Agrar-und Hydrotechnik (AHT) are in fact long-term advisors to the MJVD for development of Master Plan. They have been in country for quite sometime and there is every indication that AHT has a clear understanding and expertise to provide this type of assistance in a timely, satisfactory manner. Further assistance at this time is not anticipated and would be more appropriately identified by the National Academy of Science team.

- (e) Counterpart Participant Training. We anticipate a program of participant training which is an appropriate mix of long-term/short-term training in the USA, and a program of in-country classroom/field training modules (appropriately scheduled to maximize effectiveness) geared to address basic

training needs of participants in such areas as: land-use/land tenure/settlement issues and problems, river basin development planning, environmental issues, among others. We anticipate further guidance and assistance with most of these activities from the National Academy of Science (NAS), USA. We have already identified some long-term training opportunities for several MJVD officials.

In addition to the positions of civil engineer, water resources engineer, agronomist, soil scientist, livestock specialist and economist which were identified in the JUDAS Project Paper as counterparts which the MJVD would provide, the MJVD has also identified a sociologist counterpart. This individual occupies a senior level position and has served in responsible positions with the MJVD for several years.

The sociologist counterpart position is of considerable importance in strengthening the capacity of the MJVD to collect/process data, conduct social analyses, and monitor the development impact after the JUDAS project has been completed. Notwithstanding, USAID is optimistic the MJVD will provide the other counterparts as previously indicated in the optimal number/kinds, and in a timely manner. Presently, there is no indication the MJVD will not comply. Nevertheless, we are keenly aware of the limitations of quality and kinds of candidates which may be offered. Therefore, a certain amount of flexibility has been designed into the institutional support component to compensate and remedy a less than optimal situation.

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The GSDR Contribution

The GSDR has agreed to provide the counterpart specialists who will work collaboratively with the contractors' specialists in implementation of the JUDAS project:

- Sociologist
- Economist
- Agronomist
- Civil Engineer
- Water Resources Engineer
- Soil Scientist
- Livestock Specialist

In addition to the local currency costs funding which will be provided from PL-480 local currency receipts, it is expected that the GSDR will provide funding for most local support and logistic expenses of an in-kind nature.

III. FINANCIAL DATA

A. Existing Grant Foreign Exchange and Local Currency

The amount of U.S.\$50,000 was obligated when the JUDAS Project Agreement (ProAg) was signed on 29 September 1983. On 9 November 1983, Amendment No. One to the JUDAS ProAg was signed which obligated an additional U.S.\$5,200,000, thus bringing total life of project (LOP) funding to U.S.\$5,250,000.

On 20 February 1984, USAID/Somalia issued JUDAS Project Implementation Letter (PIL) No. 5 which clarified and amended the original Financial Plan described in Annex I to the JUDAS ProAg. The amended JUDAS Financial Plan is as follows:

TABLE I

	<u>AID Grant</u>	<u>GSDR(\$equiv)</u>	<u>Total</u>
A. <u>Land use & Soils Classification</u>			
1. Soils Reconnaissance (including equipment, vehicles, consultants)	\$2,172,140	\$ 715,000	\$2,887,140
2. Aerial photos/landsat and helicopter services	260,570		260,570
3. Logistical support (housing, appliances, soils laboratory)	475,000	600,000	1,075,000
Subtotal:	<u>\$2,907,710</u>	<u>\$1,315,000</u>	<u>\$4,222,710</u>
B. <u>Environmental/Social study, First year</u>			
1. Technical study (issues, identification and data collection, consultants, logistical support)	\$1,137,250	\$1,315,000	\$2,452,250
2. Housing, furnishings	350,000		350,000
3. Vehicles	230,000		230,000
4. NAS subcontract	450,000		450,000
Subtotal:	<u>\$2,167,250</u>	<u>\$1,315,000</u>	<u>\$3,482,250</u>
C. <u>MJVD Training</u>			
M.S., Ph.D. training, study tours	\$ 175,040		\$ 175,040
Subtotal:	<u>\$ 175,040</u>		<u>\$ 175,040</u>
Project Totals:	<u>\$5,250,000</u>	<u>\$2,630,000</u>	<u>\$7,880,000</u>

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TABLE II

Comparison of ProAg Budget to Implementation Status
Juba Development Analytical Studies
Project 649-0134
(US\$000)

PACD 12/31/86

<u>Component</u>	<u>ProAg Budget</u>	<u>Earmarkings As of 12/31/84</u>	<u>Accued Ex-penditures 12/31/84</u>	<u>Pipeline 12/31/84</u>
Land Use and Soils Classification	\$2,908	\$2,852	\$ 454	\$2,398
Environmental/Social Effects Study and NAS	2,167	1,772	260	1,512
MJVD Training (Institutional Development)	175	189	35	154
Unearmarked				437
Total:	\$5,250	\$4,813	\$ 749	\$4,501

B. Sources of Local Currency

The principal sources of the supply of local currency (L/C or Somali Shillings) is as follows:

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- (1) CIPL: Local currency generated by the USAID Commodity Import Program (CIP) and PL-480 programs are deposited in a special account in the GSDR, Ministry of Finance. These funds are subsequently allotted to USAID project and other activities by mutual agreement of USAID and the GSDR.
- (2) Trust Funds: A negotiated portion of the PL-480 Title I. L/C receipts are deposited in a special account which is used by USAID to cover contractors': house rental, guards, utilities and occasionally project vehicle operation expenses.
- (3) GSDR Operating Expenses Budget: The Ministry of Juba Valley Development (MJVD) receives a standard yearly operating expenses budget allocation from the GSDR, Ministry of Finance. This allocation is principally used for non-JUDAS project activities of the MJVD.

C. Rationale for JUDAS Supplemental Funding

The original JUDAS Project Paper (PP) was hastily prepared, and subsequently authorized by USAID within seven (7) days of the approval of the PID by AID/W. Therefore, there was neither sufficient time nor resources to further refine the initial budgetary estimates. The Mission was under considerable pressure from AID/W to obligate the project funds before the end of the fiscal year 1983. Unfortunately, only U.S. \$50,000 was available at this late date (9/29/83). However, the additional U.S. \$5,200,000 was obligated at the beginning of FY-84. In addition, at that time, the scope of work of the soils investigations/land classification survey was in a preliminary state. It was refined with the assistance of BUREC after the ProAg was executed. Further, the services of the U.S. National Academy of Science (NAS) were not anticipated at that time. The incorporation of NAS into the project required further refinement of the project budget estimates. Also, there were no obvious contingency nor inflation allowances included. Nevertheless, the inclusion of these allowances would not have provided sufficient funds to cover the estimated cost of the expanded level of effort required to fully implement the JUDAS project.

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Approximately U.S.\$3,304,000 in additional foreign exchange funding is required in supplemental costs for the life of the JUDAS project, of which approximately U.S.\$2,450,000 is required to fully fund the Environmental/Social Effects Assessment (E/SEA) contract which is in the procurement process. An additional U.S.\$200,000 is required to enhance the training component through the addition of in-country training/seminars as well as short/long-term training in the U.S. It is anticipated that BUREC, the E/SEA and particularly NAS will assist USAID and MJVD in identifying appropriately effective training opportunities for the MJVD counterparts. The amount of U.S.\$100,000 is required with this supplement to fund the project's interim and final evaluations. In order to increase AID-financed projects' implementation efficiencies, USAID established a Field Support Unit (FSU) which provides services to practically all of USAID/Somalia ongoing projects. The FSU handles such activities as: leasing, renovation/maintenance of project resident staff housing expediting, procurement assistance, vehicle maintenance, etc. The JUDAS project is obliged to contribute foreign exchange funding and local currency (from the USAID Trust Funds) to the FSU by mutual agreement of the MJVD. Consequently, an additional U.S.\$200,000 is required with the supplement for project support to all AID-financed contractors under this project.

The scopes of work for the Land Use/Soils classification survey and the E/SEA contractor were considerably expanded and further refined after the approval of the initial JUDAS project paper. In addition, the idea of soliciting and the incorporating the technical assistance of the U.S. National Academy of Science (NAS) was not contemplated at the time of approval of the initial JUDAS project paper. These actions necessitated corresponding increases in levels of effort/total project costs.

TABLE III

Total Foreign Exchange (F/X) and Local Currency (L/C)
Source and Use

<u>Use/Source</u>	<u>AID</u> <u>(F/X)</u>	<u>GSDR</u> <u>(L/C) (\$Equiv.)</u>	<u>Total</u>
Technical Assistance	\$4,019,960	\$2,030,000	\$6,049,960
Institutional Development	175,040	-0-	175,040
Project Support	1,055,000	600,000	1,655,000
Total:	\$5,250,000	\$2,630,000	\$7,880,000

TABLE IV

Total Foreign Exchange (F/X) Source and Use

<u>Use/Source</u>	<u>Existing</u> <u>Grant</u>	<u>Supplemental</u> <u>Funding</u>	<u>Total</u>
Technical Assistance	\$4,019,960	\$2,744,000	\$6,763,960
Institutional Development	175,040	224,000	399,040
Project Support	1,055,000	224,000	1,279,000
Evaluation	-0-	112,000	112,000
Total:	\$5,250,000	\$3,304,000	\$8,554,000

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TABLE V

Total Local Currency (L/C) Source and Use
(\$ Equivalent)

<u>Use/Source</u>	<u>Existing Allocation</u>	<u>Supplemental Funding</u>	<u>Total</u>
Technical Assistance	\$2,030,000	\$ 1,098,000	\$3,128,000
Institutional Development	-0-	-0-	-0-
Project Support	600,000	-0-	600,000
Total:	\$2,630,000	\$1,098,000	\$3,728,000

TABLE VI

Summary Cost Estimate and Financial Plan
JUDAS Project

<u>Source</u>	<u>AID (F/X)</u>	<u>GSDR (L/C) (\$ Equiv.)</u>	<u>Total</u>
Technical Assistance	\$6,763,960	\$3,128,000	\$9,891,960
Institutional Development	399,040	-0-	399,040
Project Support	1,279,000	600,000	1,879,000
Evaluation	112,000	-0-	112,000
Total:	\$8,554,000	\$3,728,000	\$12,282,000

Further amplification of the use of the JUDAS project supplemental foreign exchange (F/X) funds provided by AID, and the local currency (L/C) funds provided by the GSDR are presented in the following tables as approximations for budgetary planning purposes:

TABLE VII

Total Foreign Exchange and Local Currency Inputs/Outputs

JUDAS Project Supplement (649-0134)

<u>Inputs/Outputs</u>	<u>AID (F/X)</u>	<u>GSDR (L/C) (\$ Equiv.)</u>	<u>Total</u>
- Land Use/Soils Classification Survey	-0-	-0-	-0-
- Environmental/Social Effects Assessment	2,450	980	3,430
- Institutional Development	200	-0-	200
- Evaluation	100	-0-	100
Project Support	200	-0-	200
Contingencies	148	49	197
Inflation (7%)	206	69	275
Total:	3,304	1,098	4,402

TABLE VIII

Summary Cost Estimate and Financial Plan

JUDAS Project Supplement (649-0134)

<u>Source</u>	<u>AID</u> <u>(F/X)</u>	<u>GSDR</u> <u>(L/C) (\$ Equiv.)</u>	<u>Total</u>
Technical Assistance	\$2,450,000	\$ 980,000	\$3,430,000
Institutional Development	200,000	-0-	200,000
Project Support	200,000	-0-	200,000
Evaluation	100,000	-0-	100,000
Contingencies	148,000	49,000	197,000
Inflation (7%)	206,000	69,000	275,000
Total:	\$3,304,000	\$1,098,000	\$4,402,000

TABLE IX

Projection of Expenditures by Fiscal Year

JUDAS Project Supplement (649-0134)

<u>AID</u>	<u>FY-84/85</u>	<u>FY-86</u>	<u>FY-87</u>	<u>FY-88</u>	<u>Total</u>
Technical Assistance	1,294	1,876	1,812	1,488	6,470
Institutional Development	187	78	70	40	375
Project Support	800	200	151	104	1,255
Evaluation	-0-	-0-	-0-	100	100
Contingencies	40	41	38	35	154
Inflation (7%)	51	53	49	47	200
Total:	2,372	2,248	2,120	1,814	8,554

GSDR

Technical Assistance	647	918	738	707	3,010
Project Support	120	186	162	132	600
Contingencies	7	16	15	13	51
Inflation (7%)	10	22	18	17	67
Total:	784	1,142	933	869	3,728

IV. ANALYSES

A. Technical Analysis

The JUDAS project was designed to fill a perceived critical deficiency in specific knowledge/baseline information about the people and environment of a region in which relatively massive infusions of development assistance are contemplated. The project components were specifically designed and will be orchestrated in a manner which will significantly contribute to an increased detailed technical knowledge base while correspondingly enhancing the technical and managerial capabilities of a significant number of MJVD personnel to plan, evaluate, direct and monitor to some reasonably acceptable degree the development interventions in the Juba and Lower Shebelli regions. This approach is consistent with the considerable body of knowledge and state of the art in conducting comprehensive environmental, sociological, and soils/land classification analyses within the river basin development context. The approach is dynamic and collaborative in soliciting and utilizing the broadest professional expertise of the American private sector and the scientific professional community that is optimal and feasible. The services/assistance of the U.S. National Academy of Science (NAS) have been acquired with this objective in mind. It is envisioned that NAS will provide significant oversight and an independent source of objective, authoritative advice on the scope, conduct, direction and outcome of the special studies/surveys. The interaction of such entities as the National Academy of Science, the Bureau of Reclamation, the E/SA contractor, and other international donor financed experts will lend a state of the art quality to proposed problem solutions and development interventions.

USAID will actively solicit the advice and involvement of NAS in directing and strengthening the technical training assistance provided in qualitative increments dependent upon the short-term/medium-term needs of

the MJVD, and specifically the JUDAS project. A comprehensive training/institution supporting assistance effort is not envisioned, nor within the scope of this project. Neither will the project attempt to coordinate nor direct the training/institutional support assistance of others. There is a keen awareness that the acute manpower quality and retention problems of the MJVD will probably not be solved in the short/medium-term without basic civil service reform in the GSDR. Nevertheless, there is the perception that some appreciable sustainable benefits to the MJVD, the JUDAS project and the Master Plan development process can be derived through the short-term training assistance which will be provided under this project. Considering the wealth of talent which will be assembled under the JUDAS project, there is considerable flexibility to accommodate innovative and proved approaches and arrangements in attacking this perplexing problem.

The aforementioned activities and interventions have been designed to support the development of a viable Master Plan for the Juba Valley region and to provide the MJVD with the technical and managerial expertise to become actively engaged in all aspects of the process to an appreciable degree. The Master Plan development process and its subsequent long-term monitoring and direction is a high priority of the GSDR. Barring unforeseen traumatic events, it is improbable that the GSDR would allow their persistent efforts to arouse and solicit international donor interest to flounder.

Reconnaissance surveys of the Juba Valley region present some indicative, useful information concerning agricultural production practices and problems in the principal districts of the region. The information is preliminary and illustrative in nature.

There are four distinguishable calendar seasons for cultivation in the Juba Valley region:

- 1) The "Jilaal" (December 21-March 20), "dry".
- 2) The "Gu" (March 21-June 20), "rainy".
- 3) The "Xagaa" (June 21-September 20), "dry".
- 4) The "Der" (September 21-December 20), "rainy"

Crop cultivation in the Desheks (flood recession irrigation area) occurs in the rainy seasons. Agricultural cultivation in the irrigation schemes occurs throughout all of the seasons. Notwithstanding, the potential for irrigated agriculture is not well defined. Rainfall in the Juba Valley is inadequate in both quantity and distribution for perennial crops and rice. Rainfall supports a range of seasonal crops but yields are low with marked variations from year to year. However, the main water resource for the valley is the Juba River whose average annual flow is almost 6,000 M/M3. Low flows within the year usually occur from January to mid-April. During the last 40 years which records have been kept, it has been noted that the Juba River has almost ceased to flow on at least three separate occasions.

The Bardheere District is Somalia's main onion producing area. The crop is sold through the country. Also, bananas, papayas, lemons, maize, sesame and tobacco are grown here. Bananas are sold only to the outside market. Whereas, the papayas and maize are grown for home consumption. However, in some instances farmers who cultivate larger areas of maize offer theirs for sale. Sesame is mainly grown as a cash crop. Small quantities of sesame are processed in locally-made camel-driven oil mills. The sesame oil is typically used for cooking purposes. Tobacco is planted here in a pure stand. Tobacco is grown in practically all districts of the Juba Valley where it is offered for sale throughout Somalia in the form of chewing tobacco.

In the Saakow District sorghum, onions, maize, sesame, and tobacco are also grown. The tobacco is usually interplanted with the maize. Sorghum typically is grown in the Desheks without irrigation, and is mainly used for home consumption. The onions are grown in irrigated Desheks and are marketed outside of the District.

The Jilib District is the principal center for the production of watermelons in the Valley. The watermelons which are produced in this area are sold outside of the District. The groundnuts which are also cultivated in this area are principally used for home consumption.

Bananas is the most important crop in the Jamaame-Kismayo Districts. It is principally cultivated for export. The bananas which are not suitable for export are usually sold in the local market or used to some extent as payment for farm labor. Mango trees are also cultivated commercially on the banana farms. The bananas and the mangos are sold to SOMALFRUIT which markets the fruits. Citrus is also cultivated in small areas. The citrus is sold to SOMALFRUIT and/or directly in the local market. There is evidence that coconut was at one time commercially produced in this area because there remain a substantial number of coconut trees.

In all districts of the Juba Valley it is common to find large stands of mango trees planted along the banks of the Juba River and around the villages. It is also common to find beans, peas, groundnuts, tomatoes, pumpkins, and watermelons interplanted amongst the maize and sesame. These crops are typically used for home consumption.

Beekeeping appears to play an important role in the daily activities of the farmers of the Juba Valley. Beekeeping is performed in the traditional manner of Somalia - in hollow log hives which are usually kept in trees near the river. The honey is sold in the market and a portion is also reserved for home consumption. Most of the farmers who own beehives are located in the southern part of the Saakow district and the Bu'aale, Jilib and Jamaame districts.

Typical animals found around the Desheks and irrigated agriculture schemes are: cattle, sheep, goats, donkeys, camels, and poultry. The cattle are mainly meat producers. However, they also produce milk which is sold in the market. The sheep and goats are primarily used for home consumption. However, occasionally some are sold in the market. The poultry in the villages are the typical Somalia-type. The chickens and eggs also are offered for sale in the market. The camels are the single-hump *Camelus Dromedarius* type whose average weight is 500-600 Kg. The camels are used to operate the sesame oil mills. The donkeys located in the valley are principally used for transportation. Camels, cattle and donkeys (in that order) appear to bring the greatest market prices per head.

The animals of the Juba Valley typically graze off the bush and shrub vegetation near the villages. Systematic feeding of the animals is not usually practiced. However, the camels which are used in the operation of the oil mills are usually fed sesame cakes.

The prevailing animal diseases in the valley typically are: trypanosomiasis, Rinderpest, CBPP, Antrax, Blackquarter, and external parasites. Trypanosomiasis is caused by the Tsetse flies in the vicinity of the Juba River. This situation could be a possible explanation why the farmers in the Valley appear to have so few animals. Nevertheless, reportedly, medicines to combat some of these diseases can be obtained from the veterinary offices in the District Centers. The treatment of the animals' diseases is usually either performed by the farmers or the staff of the Veterinary Service.

The availability of skilled, semi-skilled and unskilled labor for the on-going/expansion, and establishment of development schemes could have serious implications for the timely, successful execution/completion of these projects. It appears that the Juba Valley development program may require substantial amounts of labor with varied degrees of skills. The

Juba Valley Development Master Plan is expected to produce a human resources study which will determine to the extent possible the causes of the presently reported labor shortages and examine possible means of overcoming such, i.e. better pay and other incentives. It is expected that it will take time and effort to develop appropriate work attitudes amongst the available work force that are applicable to the Juba Valley Development program. Therefore, an evaluation of the labor force and its adaptability to the proposed changing pattern of production is essential. The categories of the labor force which will be examined by the E/SEA contractor are, but not limited to: (a) settled cultivators, (b) itinerant workers, (c) nomadic pastoralists, and (d) refugees.

In the Juba Valley, typically the labor situation appears to be under some stress. In some districts such as Jamaame and Kismayo, apparently there are actual shortages. In these districts a permanent labor pool, augmented in peak season with casual labor, carries out the agricultural work. In the Desheks and small irrigated schemes on the perimeters of Baardheere, Saakow, Bu'aale and Jilib districts, hired labor is used for the strenuous work of soil preparation and weeding by hand. Hired labor is often used for work which must be completed within a short period time, e.g. transplanting. It is typical for hired labor to be obtained from the same village. However, in the case of the banana holdings hired labor may be obtained from other areas. Also, it is apparently common for farmers who cultivate a small holding on their own to offer themselves as hired laborers to farmers who cultivate larger holdings.

Irrigation along the Juba River was reportedly introduced by the Italian settlers and has been practiced in that area since circa 1920. The first irrigation schemes were constructed for the cultivation of bananas. Sometime later, individual farmers who required supplementary irrigation for their home consumption and cash crops installed small portable pumps and irrigation systems. Following the devastating droughts of the mid-1970s, the GSDR constructed irrigated settlement

schemes for the nomads who had lost their cattle. For various reasons these schemes apparently have been abandoned. Other projects were faced with regular crop failures during droughts. Irrigation development by individual farmers in the private sector apparently is increasing especially in the Baardheere District. Cultivation of cash crops appears to be quite successful there. The private sector "small-scale" schemes have concentrated on the production of maize, sesame, onions, and tobacco. Correspondingly, the private sector "medium-scale" schemes which are located in the Jammama-Kismayo districts apparently concentrate in the cultivation of bananas for export. The large scale irrigation schemes are: Faanoole, Juba Sugar Estate and the Mogambo Irrigation schemes. Presently, it does not appear that groundwater is utilized for irrigation purposes. Groundwater is limited and of dubious quality. However, reportedly the tertiary deposits of the lower Juba are thick and should provide good yields from deep wells. The main problem is nevertheless one of water quality. All water for irrigation is abstracted from the Juba River. There is no existing agreement with Ethiopia on the allocation of waters of the Juba nor Shebelli Rivers. However, creditable estimates of irrigation potential of the Juba basin in Ethiopia indicate limited possibilities and ultimate abstractions probably would not exceed 15 percent of the average annual discharge.

Very high flows of the Juba River have been known to occur in May, October or November. These floods are often of large volume with multiple peaks. The determinants of the flooding pattern are basically: (a) size of the floods, (b) the seasons, (c) location of the cultivated area, and (d) the presence or absence of flood protection systems and breaches. The commonly used flood protection practice is the construction of embankments on the riverside and the side of the marine plains. The majority of the banana holdings are located within well-protected areas. Most of the flood bunds are susceptible to erosion by rain and trampling by herds of cattle. In general, they are poorly constructed. The most serious damage caused by extreme flooding is the

destruction of crops in the path of the flood waters. It is common for farmers to lose their entire crop under such conditions. The typical result of extreme flooding is the deposit of large quantities of sand and sandy silt on the farms directly behind a breach in the bund where flood waters fan out. It is common to see layers and hills of such deposits covering fertile land.

It was initially envisioned that irrigation development in the lower Juba Valley would proceed in advance of the Baardheere Dam. However, shortages of water for perennial irrigation have developed which may lead to the serious risk of crop losses unless new water storage facilities can be constructed rather quickly. All on-going projects are consequently in jeopardy and will require some measure of flood protection. Therefore, the World Bank has suggested that all water impoundment/diversion schemes should be re-examined with the objective of properly synchronizing and/or phasing such plans as well as investigation of construction of an interim storage facility so that the benefits from the investment in downstream irrigation could be fully realized and the area under perennial irrigation could be gradually expanded.

B. Social Analysis

The JUDAS project has been designed to generate a data base which can assist the MJVD in the formulation of strategies and plans for development of the Juba and lower Shebelli River basins which relate to the circumstances of the region and which will be responsive to the needs of the regional population. Specifically, these sociological analyses will provide appropriate up-to-date information, describing the social institutions, patterns of agricultural production, and resource management which may currently exist in the region. Particular emphasis will be given to studying the impact of potential development schemes in the region as they relate to: (a) people which will be displaced, (b) valley dwellers along the river, (c) people based elsewhere who may enter the region periodically to graze or use water resources, (d) people who

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come to the region seeking wage labor on agricultural schemes and (e) the labor pool requirements for dam/reservoir construction or new irrigation schemes. In addition, such studies will provide to the extent feasible, household surveys which will include basic demographic, nutrition, economic, and social indicators which will be required to establish a baseline and to assess potential and eventual/actual impacts of proposed development interventions in the region. To the fullest extent possible, attempts will be made to seek feedback from the populations included in the region of these sociological studies and validate assumptions and conclusions. It is envisioned that the socio-cultural setting, feasibility and impact will be examined in a comprehensive manner.

It is expected that the recommendations derived as a result of the sociological studies will assist the MJVD in design and implement development schemes in the region in a manner which maximum participation by the potential beneficiaries would be assured. An accurate assessment of the numbers of potential beneficiaries of proposed development interventions in the region is not possible at this stage. However, there is creditable evidence that the probable number of such beneficiaries will exceed 100,000 persons. In addition, it is reasonable to assume that an additional approximately 500,000 consumers would be indirect beneficiaries of the development process in the region.

C. Economic and Financial Analyses

The purpose of this section is to provide the reader with an understanding of the significant role/impact the Juba Development Analytical Studies project will have in affecting the pre-feasibility/feasibility studies of the various development schemes which might be considered during the Juba Master Plan development process. This is an evolutionary process and the JUDAS project will be but one of several quality inputs. Economic/financial analyses of the JUDAS project, per se, have not been attempted, primarily because the project is a series of activities which will generate highly useful information/data which when integrated with other topical data within a broader analytical framework/perspective will become more valuable in analyzing possible development alternatives.

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A comparative evaluation of projects is planned as a part of the Master Plan development process. There will be a project identification phase in which a detailed inventory of all on-going projects and projects in the early/pre-implementation stages. Projects which could be implemented within the first 10 years of the Master Plan would be designated "priority projects". Priority projects would be developed to the pre-feasibility standard which is expected to ascertain the appropriateness and timeliness of their inclusion in the Master Plan. All studies and surveys for priority projects would be developed at the internationally accepted pre-feasibility standard, including topographic/and suitability mapping and preliminary engineering designs. Irrigation projects will have the additional requirements of presenting data on the following in sufficient detail to exhibit the basis for the cost estimates and a decision to proceed to the final feasibility study stage: cropping patterns, crop water requirements, crop yields, gross and net production values, capital and operating costs, including the calculated rates of return. It has been also mandated that any projects or modifications thereto presented by other agencies of the GSDR or international donors shall be formulated in sufficient detail to provide reliable estimates of output, costs and returns on investment. Projects will be evaluated both as discrete projects and as a part of programs. The intent is to identify the optimal program which will represent the most efficient use of scarce resources. The comparative evaluation of projects/programs will be executed in two stages. The first stage will encompass a general evaluation of projections of costs and returns over a time span of 50 years. The amount of detail would be appropriate for that span of time. The second stage of comparative evaluation will be a more detailed evaluation of projected costs and returns for projects/programs suitable for implementation over the first 25 years. Careful attention and examination would be accorded to the interactions between projects. Specifically the relative roles of existing and potential diversion dam projects would be scrutinized.

HJX

Future irrigation development of perennial crops in the Juba Valley depends on the availability of water during the dry seasons. Availability of water during these seasons would permit the earlier planting of seasonal crops leading to increased yields. Expansion of irrigated areas and even the maintenance of existing areas in the absence of a source of stored water would most likely reduce crop yields, though this reduction has not been quantified. An interim storage reservoir is needed in the short-term while more refined analysis and planning of the Baardheere Dam project proceeds. It is considered that Saakow could supply sufficient water of 50 percent of the suitable land for irrigation in the Juba Valley. Interim storage and/or construction of the Baardheere Dam could promote a shift from seasonal to perennial crops, thus considerably enhancing Somalia's export potential. Until a source of stored water for irrigation is provided there most likely will not be any significant improvement in crop profitability. There may well be a deterioration, if additional perennial irrigation is developed (as planned) without a source of water. Another critical assumption is that if an adequate supply of water is available, flooding is minimized by diversion or storage and other improvements in crop yields would occur through better care. Nevertheless, caution must be exercised when applying this scenario to the flood benefits stream because there could be duplication of an element of the increased yields and resulting irrigation benefit for which an allowance has already been made.

Any delay in the timing of the interim storage measures would apparently lower the return on the capital investment because it would delay progress in perennial irrigation. The timing of the Baardheere Dam does not necessarily appear critical and the delays which have been experienced most likely have enhanced the benefits of the project because both energy and water can now be put to use more rapidly and effectively.

Comparisons by the World Bank and others of the development of Saakow in the short-term, Baardheere Dam around the turn of the century and no

dam at all, indicate apparent contributions to the costs of the dams in the following sequence: (a) power (60%), (b) irrigation (75%) and (c) flood benefits (5%) a resulting surplus of 40 percent to the cost of the dams. Similarly, for Baardheere alone, the sequence is: (a) power (47%), (b) irrigation (39%) and (c) flood benefits (8%), resulting in a deficit of six (6) percent of the cost of the Baardheere dam. A final decision on the timing and formulation of both an interim and a long-term storage project can only be made at the conclusion of development of the MJVD Master Plan as previously described.

D. Environmental Analysis

The Africa Bureau Environmental Advisor has determined (1983/State 265708) that pursuant to 22 CFR, Part 216.2(c)(2)ii of AID environmental assessment regulations, the JUDAS project grant qualifies for a categorical exclusion from formal environmental review procedures.

E. Administrative Analysis

The Ministry of Juba Valley Development (MJVD) as its name indicates is a cabinet-level department of the GSDR which is responsible for the planning, monitoring and implementation of priority GSDR-sponsored development schemes in the Juba Valley region. An organizational chart of the MJVD is included in Annex G to this supplement. The MJVD consists of three major departments/directorates as follows, headed by directors reporting to the MJVD Director-General who reports to the Vice Minister: (1) the Department of Planning and Economic Development, (2) the Department of Financial Administration and Staffing, and (3) the Department of Agriculture and Environment. There are two special projects divisions whose general managers report directly to the Vice Minister. These divisions are: (1) the Baardheere Dam Project and (2) the Baardheere Cement Plant Project.

The Minister of the MJVD has decreed that the Director of the Department of Planning and Economic Development will be responsible for the MJVD's cooperation with USAID. The German Advisory Support Project (AHT/GTZ) is also in this directorate. The team leaders of the JUDAS project advisory team will report directly to the Director of the Department.

In 1983 the World Bank Consultative Group for Somalia established a Steering/Advisory Committee on Juba Valley Development. USAID is represented on both. The Committee which is chaired by the Minister of MJVD is responsible generally for giving review and advice to the GSDR and other donors on broad analytical aspects of interim and final reports of studies which have or may be proposed as development schemes for the Juba Valley. A technical secretariate has been provided by the MJVD to assist the Steering Committee. The Steering Committee meets periodically in Mogadishu to review and evaluate progress of various MJVD development schemes studies. The last meeting was held in September 1984 and the next meeting is scheduled for February 1985.

The MJVD is a prominent institution in the GSDR principally because of the high priority the GSDR has attached to the timely development of the Juba River Valley. The Minister appears quite concerned about the activities of the MJVD and makes a concerted effort to interact with his staff and external donors in a timely manner. The MJVD is experiencing many of the institutional constraint problems which are typical of GSDR institutions. Nevertheless, the staff of the MJVD are reasonably motivated considering the poor incentives and disincentives of the GSDR civil service system. The Minister provides positive follow-up of all MJVD development activities and delegates significant authority to his subordinates regarding routine matters concerning USAID. USAID has not experienced any extraordinary delays nor bureaucratic entanglements in its relationship/dealings with the MJVD. The Director of Planning and Economic Development, MJVD usually signs the AID project implementation orders and returns them in a reasonable period of time. While it is reasonable to assume he consults his superiors and colleagues, it does not appear to unduly delay MJVD project decisions.

The JUDAS project supplement will provide funding for a Somali National project management assistant who shall assist the JUDAS USAID project manager in his/her role as direct liaison with the MJVD, the German Advisory Team, AID-financed contractors, and other participating entities. The project management assistant shall assist the USAID project manager with the monitoring coordination and follow-up of the JUDAS project activities.

The BUREC will be responsible for completing the land use and soils classification survey and reporting/coordinating its results with the MJVD and the German Advisory Team (AHT) who will develop the MJVD Master Plan for Juba Valley. The E/SEA contractor who will be selected soon will be responsible for a comprehensive environmental and social impact assessment of potential development schemes in the Juba Valley region. Likewise, the contractor will be required to report, discuss and coordinate its findings with the MJVD and AHT. USAID will receive copies of all surveys/reports and participate in their review. The U.S. National Academy of Science (NAS) will assist all parties by providing a forum for presentation of interim/final results of AID-financed activities and discussion of appropriate, timely solutions to problems, utilizing NAS's broad expertise. NAS will also assist the MJVD in identifying appropriate training opportunities for MJVD counterparts including in-country seminars and "hands-on" experiences.

V. IMPLEMENTATION PLAN

As previously indicated in the "administrative analysis" section of this supplement, the Ministry of Juba Valley Development (MJVD) is responsible for the implementation of the JUDAS project. The responsible office within the MJVD is the Department of Planning and Economic Development. AID-provided technical and institutional development assistance and the German Advisory Team (AHT) will play a significant part in assisting the MJVD with the implementation of the JUDAS project. Nevertheless, final responsibility rests with the MJVD.

The JUDAS project will also work closely with the MJVD, Department of Agriculture and Environment. This department will have significant role in this project and will provide the project with several MJVD counterparts. The JUDAS project will also assist the Department of Planning and Economic Development and the Department of Agriculture and Environment in improving their institutional effectiveness and that of their staffs, consequently enhancing their contributions to the JUDAS project.

All contracting under the JUDAS project will continue to be the responsibility of AID with the advice and concurrence of the MJVD. Considering its other significant responsibilities for development in the Juba Valley region, the MJVD does not at this time have the requisite capacity to engage in host country contracting under this project. There exists presently one AID technical assistance contract for this project: the U.S. Bureau of Reclamation (PASA). An additional three such contracts is anticipated: (1) the U.S. National Academy of Science (Cooperating Agreement), (2) the Environmental/Social Effects Assessment contractor, and (3) a USAID Personal Services Contract to assist in the management/coordination of the project. As in the past, all training of MJVD counterparts will be handled by the USAID Training Officer in consultation/coordination with AID/Washington. It is anticipated that any in-country training will be arranged through the U.S. National Academy of Science which will be participating in the JUDAS project.

The procurement of all project goods and services will be from the U.S. or AID Geographic Code 941 sources, except for vehicles and major house furnishings which will be procured from the U.S. only. Unless AID otherwise authorizes in the technical assistance contractors' contract, all procurement will be performed directly by AID or through authorized procurement services agencies.

USAID expects to assign a project manager who shall have day-to-day supervision and monitoring responsible for the JUDAS project. The

project manager will be located in the USAID Engineering Office and will work closely with the Director of the Department of Planning and Economic Development, and the Director of the Department of Agriculture and Environment, MJVD. The project manager shall review all project-related documents and reports, and generally supervise the JUDAS project's progress, and keep USAID management appraised of project developments. In addition, the project manager shall monitor GSDR/MJVD timely progress toward meeting the JUDAS project's conditions precedent and covenants which have been included in the ProAg.

The USAID Project Development Office will provide general backstop services/guidance to the project manager, as well as overall monitoring responsibility for the JUDAS project. Also this office will be responsible for the arrangements relating to the evaluation of the project.

The following schedule for major project implementation activities shall be further detailed and defined in the workplans of each contractor

SCHEDULE FOR MAJOR PROJECT IMPLEMENTATION ACTIVITIES

<u>Activity</u>	<u>Period</u>	<u>Responsibility</u>
(1) JUDAS Supplement Submitted to AID/W	1/21/85	USAID
(2) BUREC Mobilized In-Country	1/85	BUREC
(3) JUDAS Supplement Approved by AID/W	2/21/85	AID/W
(4) Evaluation/Negotiation of E/SEA Contract Completed	3/21/85	AID/W, USAID, MJVD
(5) JUDAS ProAg Amended	3/24/85	USAID, MJVD
(6) E/SEA Contract Awarded/Executed	3/28/85	AID/W, E/SEA Contractor
(7) E/SEA Contractor Mobilized In-Country	6/85	E/SEA Contractor

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(8) E/SEA Contractor Submits workplan	7/85	E/SEA Contractor
(9) Participant Training/ Development Seminar	9/85	NAS, MJVD
(10) E/SEA Contractor Completes Phase I. Activity/Report	12/85	E/SEA Contractor
(11) NAS Convenes First Workshop for E/SEA Review/Monitoring	1/86	MJVD, NAS, E/SEA Contractor, USAID, BUREC, AHT/GTZ
(12) Participant Training/ Development Seminar	2/86	NAS, MJVD
(13) E/SEA Phase II. Activity <u>Interim Report No.1</u> Submitted	5/86	E/SEA Contractor
(14) Participant Training/ Development Seminar	8/86	NAS, MJVD
(15) E/SEA Phase II. Activity <u>Interim Report No. 2</u> Submitted	9/86	E/SEA Contractor
(16) NAS Convenes Second Workshop for E/SEA Review/Monitoring	9/86	MJVD, NAS, E/SEA Contractor, USAID, BUREC
(17) Soils and Lands Classification Survey Final Report Submitted	12/86	BUREC
(18) E/SEA Phase II. Activity <u>Interim Report No.3</u> Submitted	1/87	E/SEA Contractor
(19) Participant Training/ Development Seminar	2/87	NAS, MJVD
(20) E/SEA Phase II. Activity <u>Interim Report No. 4</u> Submitted	5/87	E/SEA Contractor
(21) Participant Training/ Development Seminar	8/87	NAS, MJVD
(22) E/SEA Phase II. Activity <u>Interim Report No. 5</u> Submitted	9/87	E/SEA Contractor
(23) E/SEA Phase II. Activity <u>Final Report</u>	1/88	E/SEA Contractor
(24) Interim Project Evaluation	2/88	USAID

(25) Participant Training/ Development Seminar	2/88	NAS, MJVD
(26) E/SEA Draft Final Report Submitted	4/88	E/SEA Contractor
(27) E/SEA Draft Final Report Review Comments Submitted	5/88	USAID, MJVD, NAS
(28) NAS Final Report Submitted	6/88	NAS
(29) E/SEA Final Report Submitted	7/88	E/SEA Contractor
(30) Final Project Evaluation	8/88	USAID
(31) JUDAS PACD	9/29/88	USAID, MJVD

SCHEDULE OF IMPLEMENTATION AND FINANCIAL ARRANGEMENTS

<u>Component</u>	<u>Method of Implementation</u>	<u>Financing Arrangement</u>	<u>Amount</u>
E/SA	Direct AID Contract	Cost Reimbursable Reimbursement	\$2,744
Inst. Devel.	Training-PIO/Ps and Contract participants	SER/IT or Cost Reimbursable	224
Proj. Support	Mission Contracts through Field Support Unit (FSU)	Direct Reimbursement	224
Evaluation	Direct AID Contract	Direct Reimbursement	112
		<u>*Total:</u>	<u>\$3,304</u>

* = All amounts include contingencies and inflation.

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VI. EVALUATION PLAN

The JUDAS ProAg contains, inter alia, a covenant on evaluation of the project during the implementation of the project, and at one or more points thereafter. The evaluation program shall be established by MJVD and USAID and shall include the following and constitutes the scope of the "final evaluation" of the project:

1. Evaluation of progress towards attainment of the objective of the project;
2. Identification and evaluation of problem areas or constraints which may inhibit such attainment;
3. Assessment of how such information may be used to help overcome such problems;
4. Evaluation, to the degree feasible, of the overall development impact of the project; and
5. Examination of the appropriateness and type of any follow on assistance to the MJVD.

The JUDAS ProAg "Amplified Description of the Project" further elaborates upon the preceding points by indicating:

1. An interim evaluation of the JUDAS project will be conducted after Phase II of the E/SEA has been completed. It is anticipated this would be approximately February 1988.

2. Individual evaluations of each separate study will be conducted as they are completed.
3. The evaluation will emphasize:
 - (a) The extent to which specific studies and assessments activities have been performed,
 - (b) The appropriateness and effectiveness of the implementation methodology used for the project.
4. The evaluation will be a part of the project monitoring process and will be used to plan corrective action for incorporation into the project implementation plans.

The evaluation teams will consist of representatives of the appropriate technical disciplines consistent with the context of this project. The JUDAS project manager, as well as, appropriate AID/W and/or REDSO/ESA technicians will be included. The teams will be chaired by a representative of the USAID Projects Office.

VII. CONDITIONS PRECEDENT AND COVENANTS

A. Condition Precedent

The only "condition precedent" in the JUDAS ProAg pertains to the GSDR certification of responsible representatives for the purpose of implementation of this project. The condition precedent to the first disbursement under the JUDAS ProAg has been satisfied by the GSDR. No additional conditions precedent are contemplated.

B. Special Covenants

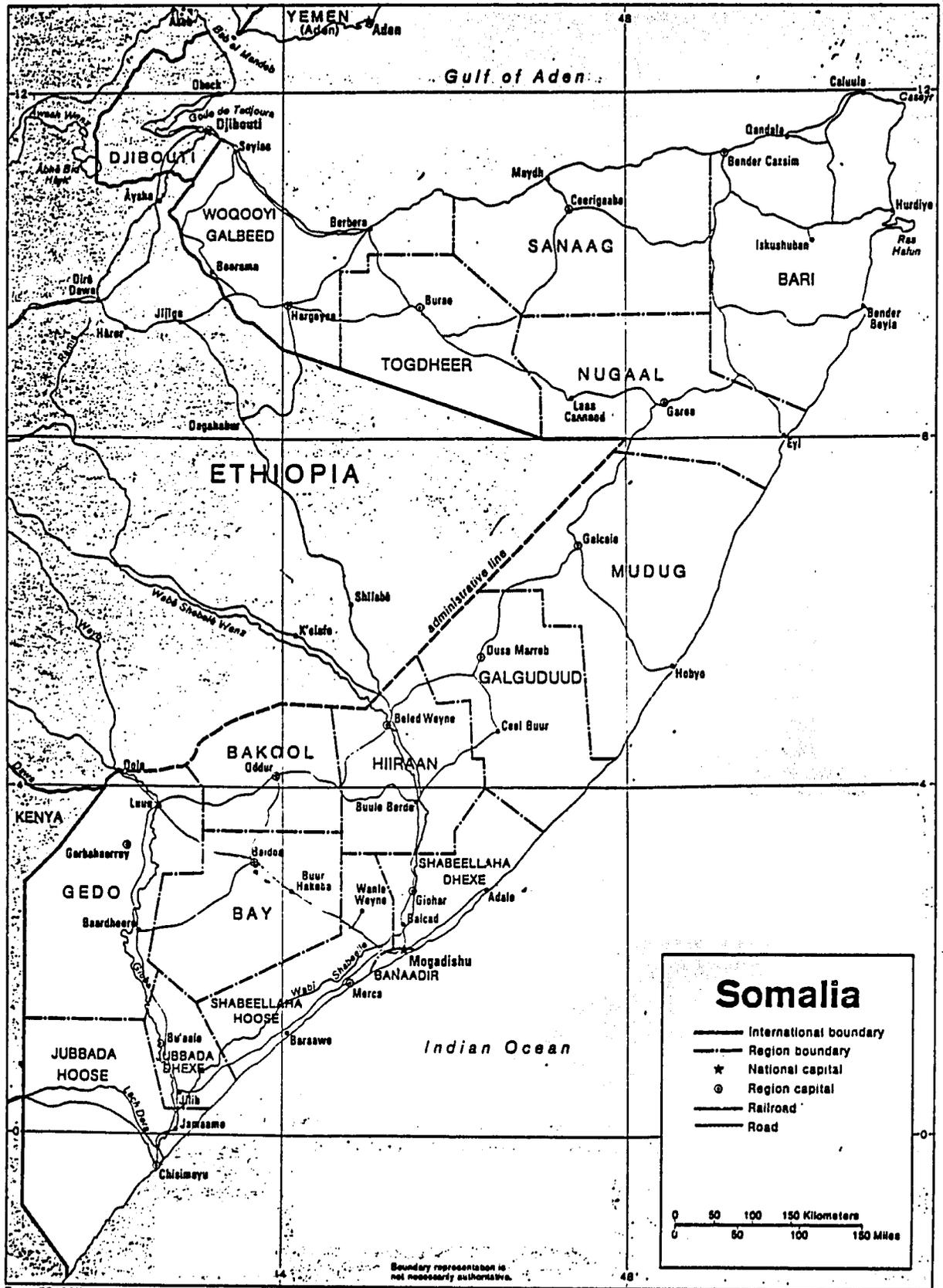
The following "special covenants" are described in significant detail in the JUDAS ProAg, and will remain unaltered:

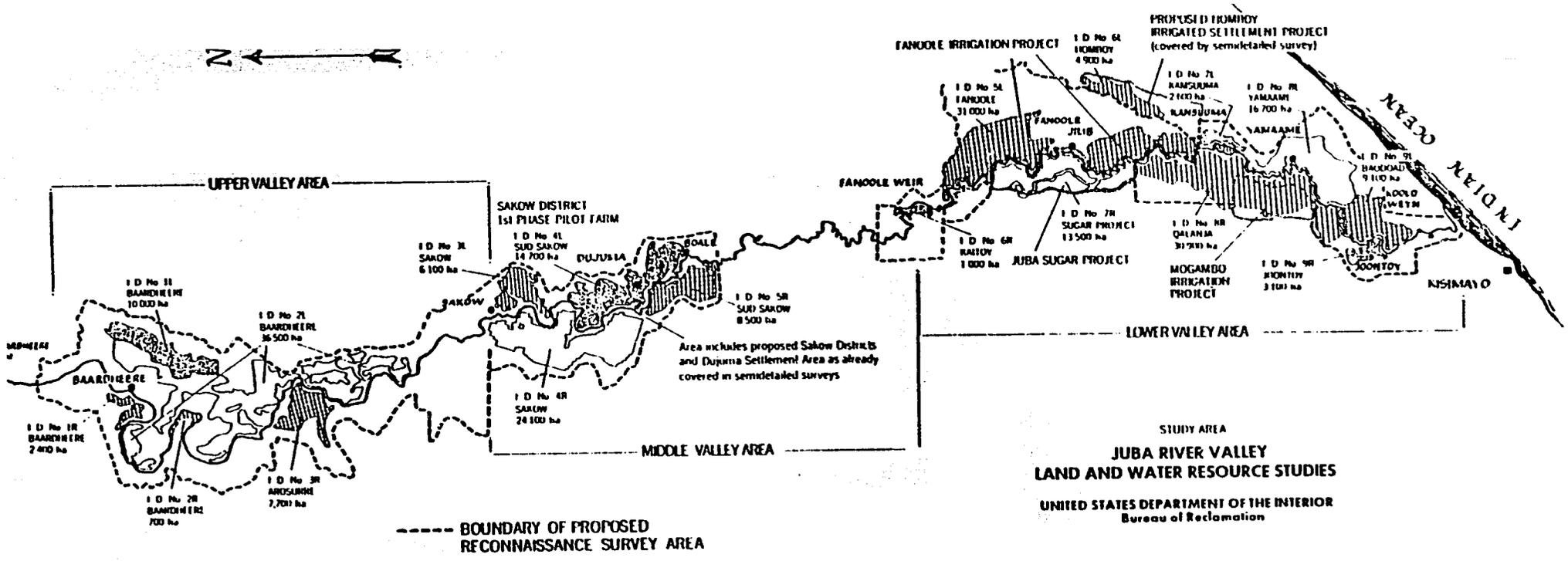
1. Counterpart (MJVD) Expertise.
2. Logistic Support (MJVD).
3. Completion and Incorporation of Project Studies into the Master Plan (MJVD).
4. Evaluation Program (MJVD and USAID)

There are no additional covenants contemplated.

ANNEXES

- A. Map of the Project Area
- B. Initial Project Authorization
- C. Logical Framework Matrix
- D. BUREC PASA/Contract Scope of Work (executed)
- E. National Academy of Science Scope of Work
- F. Environmental/Social Effects Assessment RFP
- G. Organizational chart of the Ministry of Juba Valley Development
- F. Scope of Work for PSC Management Assistant





PROJECT AUTHORIZATION

Name of Entity : Somali Democratic Republic (GSDR)
Name of Project : Juba Development Analytical Studies
Number of Project : 649-0134

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Juba Development Analytical Studies Project for Somalia involving planned obligations of not to exceed \$5,250,000 in grant funds over a four year period from date of authorization subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the Project is four years from the date of initial obligation.
2. The Project consists of assistance to the Grantee through the Grant Implementing Agency, the Ministry of Juba Valley Development (MJVD), to produce a master plan for development activities in the Juba Valley by acquiring needed data through soils, environmental and socioeconomic studies. The Project will provide technical assistance and related support for these studies plus consultant support to the MJVD.
3. The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with AID regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:
 - a. Source and Origin of Goods and Services

Goods and services, including ocean shipping financed by A.I.D. under the project shall have their source and origin in the United States, other Code 941 countries or in Somalia, except as A.I.D. may otherwise agree in writing.
 - b. Conditions Precedent to Disbursement

Prior to first disbursements under the Grant, or to the issuance by A.I.D. of documentation pursuant to which disbursements will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to

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A.I.D. in form and substance satisfactory to A.I.D. a statement of the names of the persons holding or acting in the offices of the Grantee specified as authorized representatives, and a specimen signature of each person specified in such statements.

c. Covenants

The Project Agreement shall contain covenants providing in substance as follows:

i. Evaluation:

The Parties agree to establish an evaluation program as part of the project. Except as the Parties may otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter:

- a) Evaluation of progress towards attainment of the objective of the project;
- b) Identification and evaluation of problem areas or constraints which may inhibit such attainment;
- c) Assessment of how such information may be used to help overcome such problems; and
- d) Evaluation, to the degree feasible, of the overall development impact of the Project.

ii. Counterpart Expertise:

The Grantee through the Ministry of Juba Valley Development agrees to provide the following experts to support Grand funded activities:

- Civil Engineer
- Water Resources Engineer
- Agronomist
- Soil Scientist
- Livestock Specialist
- Economist

iii. Logistic Support

The Grantee through the Ministry of Juba Valley Development agrees to provide at least one office

in the Ministry of Juba Valley Development headquarters building for project management activities under this Project.

iv. Completion and Incorporation of Project Studies into Master Plan

The Grantee agrees to complete all project studies in a timely manner and to incorporate results of project studies in the final Juba Valley Master Plan.

Date:

9/28/83

Gary Nelson
Director, USAID/Somalia

Clearances:

PROG :A.Martinez [Signature]

PROG :F.Witthans [Signature]

CON :C.Combs [Signature]

RLA/REDSO:K.Hansen cabie

Drafter:MPLeifert:lpc:9/21/83

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK MATRIX

<u>NARRATIVE SUMMARY</u>	<u>OBJECTIVELY VERIFIABLE INDICATORS</u>	<u>MEANS OF VERIFICATION</u>	<u>IMPORTANT ASSUMPTIONS</u>
<p><u>Project Goal:</u> Create a Master Plan which will optimize resource uses in the Juba River Valley</p>	<p>Increased planning capability of MJVD leading to increased food production</p>	<p>Min. of Planning Statistical Abstracts, acceptable development project design output</p>	<p>GSDR maintains Juba Valley development priority</p>
<p><u>Project Purpose:</u> Provide necessary information on soils/land use, social and environmental effects for incorporation into Master Plan. Provide support to the MJVD.</p>	<p>Baseline data collected from Juba Valley Project planning in valley can commence with full knowledge of soil/environment. Increase in capacity of MJVD to effectively plan rational development projects.</p>	<p>Review of MJVD use of current data base. Environmental assessment used in planning design. Review of MJVD project design schemes.</p>	<p>No major disaster in Juba valley area. MJVD provides technical expertise agreed upon.</p>
<p><u>Outputs</u> Classification of soils & land use classification in timely fashion. Identification of environmental/sociologic constraints. Development of MJVD as effective planning body. Incorporation of environmental assessment in planning stages.</p>	<p>Contracts signed for all surveys needed. Long and Short term assistance as contracted for. MJVD supplied.</p>	<p>Project and field records. Project surveys needed. of final reports as contracted for.</p>	<p>MJVD provides counterparts in a accounts. Review Petrol and staff provided in a timely fashion.</p>
<p><u>Inputs</u> See Financial Plan. Training Technical Assistance. Planning strategies.</p>	<p>See Financial/Implementation plan. See annexes for Scopes of Work and RFTP.</p>	<p>Project Records. Contractors field reports (phase I, II and III). Project Managers quarterly assessment.</p>	<p>Project technicians and commodities arrive in a timely fashion.</p>

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Scope of Work

U.S. Bureau of Land Reclamation (BUREC)

Reconnaissance-grade water and land resource studies shall be made for the Juba Valley and the lower Shebelli River area. A report shall be prepared on the studies for the project and submitted to AID and MJVD. The report will cover basic data, premises, description of methods of investigation, discussion of computations and results, and pertinent conclusions and recommendations.

All studies performed shall be in sufficient scope, detail and accuracy to accomodate selection of land for permanent and profitable irrigation with the amount and kind of water available and support design of the project features.

To achieve economies in the work program, applicable data collected by other consultants or agencies on geology, water, soil, drainage, agronomy, economic data and soil-water-plant studies, including soil surveys, will be utilized in the land resource study. Thus, the BUREC staff shall familiarize itself with all available sources of data, published reports and other relevant items of information to avoid duplication and provide for a meaningful study.

The outcome of the studies should be an irrigation suitability land classification, which is relevant and adequate to needs - and not merely a soil survey or soil classification.

Work will involve performance of reconnaissance-grade water and land resource studies encompassing investigations in the fields of water quality, soils, drainage, land development requirements, water management requirements, and land-use in affirming suitability and selecting water and land for irrigation.

More specifically, the work items required include the following:

1. Irrigation suitability land classification and supporting investigations
 - a) Economic correlation
 - b) land drainability
 - c) soil characterization by field and laboratory methods
2. Water suitability for irrigation
3. Drainage requirements and design
4. Present land-use survey
5. Report of findings

Irrigation suitability land classification and supporting investigations

BUREC shall perform an economic land classification survey adapted to local conditions of the Juba Valley and the Lower Shebelli River to establish the extent and degree of suitability of lands for sustained profitable crop production. Such land classification shall be reconnaissance-grade. The land classification shall include suitability determinations sufficient to permit selection of the project lands. The compilation and presentation of results shall be accomplished by means of standard narrative land classification reports, which include general land classification maps and pertinent data from field sheets.

All work will conform to controlling policies of AID as agreed to by the Government of Somalia, and be structured and implemented accordingly. It shall be performed in accordance with the concepts and principles of the U.S. Bureau

of Reclamation system for economic land classification, but adapted to fit the specific environmental situation including economic, social, physical and legal factors existing in the area. The study shall serve to identify needs, establish opportunities and select land and water for development and maintenance.

The land classification shall reflect suitability of land for development to diversified cropping or wetland rice production for all situations and ranges in water application and drainage control. All the proven and acceptable land classification principles and components, particularly economics with respect to productivity, land development and drainage, will be highly relevant. Thus, it is essential that the survey be adequately supported by the requisite economic studies, drainage investigations, field testing, laboratory characterization and engineering planning.

The land classes shall be defined in terms of an economic parameter, preferably "net incremental irrigation benefits", and expressed in terms of economics the local ranking of land for modified use, e.g. best suited, moderately suited, marginally suited and unsuited. The most important decision will be the separation of lands suitable for development from those that are not.

For these projects, which will mainly involve land reclamation through irrigation development, drainage, improvement in on-farm water management and, if necessary, land leveling and planning and application of soil amendments, the principal task will be to identify and delineate as a minimum, irrigable and non-irrigable lands. In their differentiation, irrigable would be those lands under project conditions in which the incremental benefits generated at the appropriate discount rate would exceed the investment costs for project works and land reclamation, all farming costs, and OM&R costs of the project's proportionate share of the entire system, plus allowing for ample incentive to the farmer. However, should this differ significantly from financial analyses, the land classes should be verified and, if necessary, downgraded to take account of negative or unsatisfactory results to the farm operator.

1. Economic studies

Economic studies and consultations with AID, the Government and other authorities shall be conducted in developing the land classification specifications.

2. Land drainability

BUREC will establish the capacity of the soils, subsoils and substrata to transmit and retain water; amount, source, direction of movement and chemical characteristics of the water that must be transmitted; and available hydraulic gradients, both natural and those that can be improved by engineering works. BUREC will perform these services by examining and evaluating available data, and examining and appraising groundwater and land drainage characteristics and conditions. Special attention will be paid to locating and documenting possible barriers.

The studies shall include evaluation of hydrology, geology, meteorology, groundwater, topography, soils and present and anticipated water management practices and cropping patterns. Field studies should include measurements for infiltration, vertical hydraulic conductivity and horizontal hydraulic conductivity.

BEST AVAILABLE DOCUMENT

1 characterization by field and laboratory methods

A survey should be supported by adequate laboratory and field testing and evaluation that will assure a definitive diagnosis of soil salinity and soil sodicity (alkali) under present conditions; and prognosis of these soil properties associated with agronomic response and economic significance under future (with and without project) conditions. This will necessitate adapting and implementing meaningful procedures and studying the agriculture experience on similar lands in Somalia.

suitability for irrigation

will determine the suitability of the anticipated water supply for irrigation by integrating the land and water factors. In this process the land classification survey, particularly drainage, should be used to select lands that will respond favorably to a water supply of a given quality with a plan of development.

drainage requirements and design

will determine subsurface drainage requirements for the planned cropping method of irrigation and design and estimated costs for the required surface and subsurface drainage systems.

present land-use survey

will perform services required to determine present land use in the proposed system and within impacted areas associated with the project. For the impacted area, the required services include: interpretation of aerial photographs of same scales as used for reconnaissance to identify and measure present land use, field inspection of the area photoidentified, preparation of photo overlays showing present land use, tabulation of results and submittal of reports on land-use studies.

partial listing of suggested guidelines for soil characterization

1. Reconnaissance-grade irrigation suitability land classification

- a. The boring density for soil examinations will be one site per square kilometer and the scale of the soil map will be 1:100,000. All bores should be done by auger to a minimum depth of 3.0m. One open pit shall be dug every 10 kilometers to a depth of 3.0m.
- b. Additional borings on arid or otherwise might be required to delineate between irrigable and nonirrigable land.
- c. Soils will be described in the field, using internationally recognized systems (Food and Agriculture Organization (FAO) or U.S. Department of Agriculture (USDA) systems).
- d. Soil samples should be collected from each significant horizon at all borings and pits for laboratory analysis.

2. Specifications

Preliminary specifications have been developed for the land classifier to use as a guide in determining irrigation suitability of the lands. The specifications will be finalized at the start of the investigations.

APPENDIX A SCOPE OF WORK PAGE <u>1</u> OF <u>3</u>	PARTICIPATING AGENCY SERVICE AGREEMENT BETWEEN THE AGENCY FOR INTERNATIONAL DEVELOPMENT AND	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> AMEND NO. _____
		PASA NO. _____
		FISCAL YEAR _____

Background:

The Juba River is the largest river in Somalia, with an average annual discharge of approximately 6000 million cubic meters; however, the flow is unevenly distributed, and severe drought and flooding occur. The construction of a dam on the Juba to regulate the river flow could provide a dependable water supply for irrigation development. The generation of hydroelectric power is also a possibility. It is critical however, that the present rough estimates of irrigable land in the watershed be refined in order to better calculate the irrigation benefits to be derived from the construction of a dam.

Liaison:

Relationship of Contractor or Participating Agency to Cooperating Country and to AID

- A. Relationships and Responsibilities
The BUREC team will work under the direction of the AID Project Officer and the Ministry of Juba Valley Development.
- B. Cooperating Country Liaison Official
Ministry of Juba Valley Development
Aweya Haji Yuusuf, Director of Planning and Economic Development
- C. AID Liaison Officials

USAID/Mogadishu Project Officer

Logistic Support:

All BUREC employees assigned to Somalia are entitled to the same privileges and support as comparable direct-hire staff. AID/Mogadishu will pay all allowances, including post differential and Sunday premium which BUREC will provide to the permanent resident staff assigned to Somalia. All allowances for travel and shipment are provided by AID/Mogadishu: BUREC will arrange for all travel and shipments originating in the U.S. while AID/Mogadishu will arrange for all travel and shipments originating abroad.

SERVICES, MATERIALS, AND EQUIPMENT TO BE FURNISHED BY THE MJVD OR OTHER SOMALI GOVERNMENT AGENCY FROM LOCAL CURRENCY ACCOUNT

- A. One cook, two camp helpers, and three laborers will be provided to assist the BUREC team for the total period of the investigations.
- B. A building suitable for the soil and water laboratory and office space will be furnished. The building should have a minimum floorspace of 300 square meters and should be equipped with water, drains, electricity, and air conditioning. Three qualified laboratory technicians will be provided for the total period of the investigations.

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C. MJVD will furnish eleven drivers for the project vehicles for the duration of the investigations.

All participant training required in conjunction with this agreement will be implemented through Mission generated and funded PIO/P's in accordance with the policies, allowances, guidance and reporting requirements of AID Handbook 10.

The Bureau of Reclamation will assist the mission in the procurement of items of equipment listed on Attachment A. Funding will be accomplished by USAID Somalia.

Reporting Requirements:

A report will be prepared by BUREC covering the water and land resource investigations using the following general outline:

Chapter I. Introduction

- A. Objectives
- B. Summary of findings and conclusions
- C. Recommendations
- D. Summary data sheet
- E. Names of personnel involved

Chapter II. General Description

- A. Location and extent of survey area
- B. Geology and geomorphology of area
- C. Climate as related to irrigated agriculture
- D. Agricultural development

Chapter III. Lands

- A. Soils
- B. Topography
- C. Drainage
- D. Salinity and sodicity

Chapter IV. Water

- A. Sources
- B. Characteristics
- C. Leaching requirements
- D. Suitability for irrigation
- E. Quality of return flows

Chapter V. Land Classification

- A. General description
- B. Methods
- C. Specifications
- D. Detailed descriptions of land classes

JUSTIFICATION FOR HELICOPTER ASSISTANCE

Due to considerable pressure placed upon USAID/Mogadishu by the Ministry of Juba Valley Development (MJVD) in Somalia, USAID would like to begin field work on the land classification study in the Juba Valley as soon as aerial photographs of the area are available at the end of February 1984. However, there are only two four-wheel drive vehicles which will be available for the Bureau of Reclamation land classification team, and these will be made available by the MJVD (they have not yet been purchased). Due to the lack of USAID vehicles and the fact that project vehicles to be funded by the PASA will not arrive for 6-9 months, alternative arrangements for transportation will be necessary. A helicopter is the only available alternative which can transport the project team to the field locations. USAID/Mogadishu has located a helicopter and a cost estimate for its use in the field work was obtained (\$45,000). A cable was sent to Nairobi, Kenya, requesting USAID there to determine if other helicopters were available. No further information on the response from Nairobi has been obtained.

While the cost estimate appears high, the area to be studied is remote and totally inaccessible without a four-wheel drive convoy or helicopter. The area is a considerable distance from any accommodations or food, so supplies will be required for the helicopter crew as well as a considerable amount of fuel (included in the cost estimate).

National Academy of Science, USAStatement of WorkI Objective

The overall project objective is to assist the Ministry of Juba Valley Development to generate current data for use in preparation of a Master Plan to optimize resource development in the Juba River Valley. To achieve part of that objective AID is contracting with a private firm to undertake an environmental and sociological impact assessment. The immediate objective of services described herein is to provide the AID Mission, MJVD the environmental/sociological study contractor and other interested parties with an independent source of objective, authoritative advice on the scope, conduct, direction and outcome of the environmental/sociological study.

II Background

The Juba River Valley is the most important area in Somalia for future agricultural development. The Ministry of Juba Valley Development is preparing to create a Master Plan for the River Valley which will optimize resource use. The plan will involve analysis and synthesis of data generated from hydrology studies, soils studies, siltation rate studies, economics, environmental and social assessments.

The Juba Valley Environmental and Sociological Assessment funded by AID will provide a major source of baseline data for the Juba Valley Master Plan. In addition, the study's resulting analysis, findings and recommendations should have an important impact on planning decisions for valley development. The major objectives of the Environmental/Sociological study are to:

- A) Provide the GSDR with timely information to be used in formulating future development programs and projects that are environmentally/ socially sound.
- B) Identify and evaluate the interrelated sociological and environmental effects which will be caused by the various development options of the Juba River Valley; further describe procedures and development activities that will mitigate adverse impacts and enhance beneficial impacts.
- C) Provide the GSDR with a realistic plan for the monitoring of environmental, social, land-use and agricultural parameters of the Juba River Valley so that national development decisions can be made based on sound current data.

- D) Develop institutional strengths in the MJVD through classroom and on the job training.

The study contractor will carry out the work in 3 phases each including its own work-plan and final report:

Phase I Review of available data, maps and literature, including sources both inside and out of Somalia, in order to assess current conditions, ongoing and proposed development projects and existing data base.

Phase II Field studies including village level surveys and specialized consultancy missions to complete data gathering. Provision of interim reports focused and timed in consultation with MJVD to provide data and recommendations that will have an impact on the Master Plan.

Phase III Synthesis and analysis of data and formulation of Environmental and Sociological Assessment including identification of impacts, recommendation for investigating and enhancement measures, and a Plan of Action (Final Report).

The study components of the environmental/sociological assessment are:

1. Environmental/social data base mapping
2. Environmental investigations
 - a) Physical Resources - surface water quantity and quality, ground water, soils, geology/seismology, sedimentation and erosion, climate.
 - b) Natural Resources Assessment - fisheries, aquatic biology, wildlife, forests and reservoir ecology.
 - c) Human Use Values - water supply, agriculture, navigation, flood control, mineral development, roads, land-use, health, energy.
3. Sociological studies:
 - a) Populations Studied
Will include persons to be displaced, valley residents, agro-pastoralists and pastoralists who periodically enter and leave the area to use water resources, wage laborers on agricultural schemes, labor pool for dam or irrigation construction.
 - b) Data collection
Household surveys and other research activities will produce data on production and land-use systems, social organization

of production including labor availability, availability of productive inputs and markets; local rules regarding access to land and water resources, organization and function of local institutions, social services.

c) Analysis

Presentation of demographic and sociological characteristics of Valley population, likely impacts of development on people, industry, agriculture.

4. Public Health
5. Nutrition
6. Municipal and industrial Development
7. Archaeology and historical Sites/Treasures
8. Environmental/Social Monitoring Plan

In planning and carrying out their activities, the environment/sociological study team will have to work closely with the MJVD master planning staff, the AID funded soil/land classification team, and numerous other donors and government ministries active in river valley development. The study contractors will also provide in-service and classroom training to MJVD counterparts and staff to ensure long-range institutional benefits.

III Scope of Work

Type and Purpose of the Work to be Performed:

The National Research Council of the NAS will appoint an Advisory Panel (NASAP) for the Juba Valley Environmental/Sociological study to provide advice on all aspects of the environmental/sociological study. The NASAP will not be responsible for supervision of or for the quality of the contractor's work.

The purposes of the activity are to:

1. Ensure scientific criteria are met in selection of study contractor, in design and conduct of the study.
2. Provide the project with access to a broader pool of information and experience from academic, private sector and public sources than might otherwise be possible, ensuring accuracy, balance and scientific soundness.

3. Provide AID, MJVD and the study contractors with a forum in which the exchange of information of importance to the study can take place with an independent, objective group of authoritative specialists, permitting more effective guidance and advancement of the project.
4. Provide objective, authoritative review and analysis of the study's findings which will assist the Somali government and donors in planning for development of the river valley.
5. Ensure transfer of research and analytical skills and methodology to the Somali scientific community and strengthen its ties with the US scientific community.

Activities

1. The National Research Council will convene a panel of experts (NASAP) selected for their experience in river basin development, particularly in analysis of social and environmental consequences of dam construction, impoundments of large bodies of water and development of irrigated agriculture. The NASAP will carry out its activities under the usual strict guidelines of the NRC and will be responsible for the conclusions and recommendations of issued reports and for overall guidance of contractual obligations.
2. Staff of the NRC Board on Science and Technology for International Development (BOSTID) will be assigned to carry out the day to day activities of the contract.
3. The NASAP will assist in the review and selection of proposals for the environmental/sociological study.
4. The NASAP will plan, organize, lead and report on a series of workshops concerning the environmental sociological study which will be for the purpose of reviewing and finding solutions for technical problems which are foreseen or encountered in the course of the study.

The workshop participants should include members of the NASAP, foreign and Somali staff of the study contractor and officials of the Ministry of Juba Valley Development, the AID/Somalia mission and other relevant Somali agencies and ministries (such as the Academy of Arts and Sciences). Workshops may include site visits to locations relevant to environmental or social impact problems or opportunities to review progress on the study, and identify technical problems and issues requiring more in-depth analysis.

BEST AVAILABLE DOCUMENT

These workshops should serve as vehicles to use information generated by the study to modify the terms of reference or workplan or undertake additional, unforeseen activities as may be agreed upon by

AID, the MJVD and study contractors. In the course of these workshops, NASAP members will assist with analysis of topical issues and identify, where suitable, potential sources of information or training opportunities for Somali specialists involved with the study, and potential consultants who might be required for specific aspects of the study not covered adequately by the contractors' terms of reference.

The workshop will also allow Somali scientists and policy makers to learn about the methodology, progress and findings of the study, provide advice or information from their experience, and to initiate or strengthen contacts with the American scientific community.

The issues to be covered and timing of the workshops will be determined in close cooperation with the study contractors in order to best meet the needs and complement the implementation plan of the study.

- A. Workshop I - The first workshop will be held at the end of Phase I of the environmental sociological study, which is an extensive and intensive information search and literature review. The workshop participants will review results of the information search, assess the quality or hardness of the information, identify the important gaps in essential information, suggest available Somali and international resources for providing the needed information and discuss issues, methodology and resources required for the Phase II field data collection which will complete the data base. The workshop will also discuss the Phase II workplan with the intent of ensuring completeness of issue coverage, soundness of methodology, identifying possible points of difficulty and suggesting solutions. Problems of logistics, methodology, training, staffing or coordinating can be covered. Suggested solutions might include :
- a) provision of short term consultants by the National Academy of Sciences
 - b) cooperation with another Somali government ministry such as Agriculture or Livestock
 - c) short term training research opportunities or study tours for study personnel for a specific purpose such as remote sensing interpretation
 - d) modification of a survey instrument
 - e) new ideas from the workshop participants based on their experience and knowledge.

The NASAP will produce two reports following workshop I. The first report will review the results of Phase I literature search, and identify additional sources of information for the study, including new information and recommendations stemming from follow up work by NAS. The second report should review workshop discussion of the issues and methodology for field studies (Phase II), identify the specific technical problems foreseen and recommend solutions either from the workshop or arising from further follow up study by NAS or other participants. Based on the workshop discussions and follow up work by NAS, the paper may recommend additional areas of research, or modifications in the workplan or methodology for Phase II for consideration by AID and the contractor. The report should also clearly define what NAS follow up activity including consultancies or training opportunities are planned for Phase II.

- B. Workshop II - Should be scheduled at approximately the midpoint in the Phase II field studies. The workshop will:
- a) review progress of data collection and initial analysis
 - b) identify any problems which may have arisen so far
 - c) assess the quality and completeness of data and analysis
 - d) suggest possible solutions to problems, modifications in study work plan, refinements of methodology, or research instruments, and training needs or specialized expertise required to improve data collection and analysis in the remaining course of the study.

The NASAP will produce an in-depth report following the workshop, summarizing the findings and recommendations of the workshop, and providing further analysis of topical issues and recommendations based on the Committee's own deliberation, expertise, or follow-up work. Additional consultancies or study or research opportunities, or sources of information should be clearly defined.

- C. Workshop III - This workshop will be held at the end of Phase II of the environmental/sociological study and before commencement of Phase III - (synthesis and analysis of data and formulation of environmental/sociological assessment). The workshop will assess the completeness and quality of the field data, review any analysis and findings to date, discuss the Phase III workplan and the possible approaches to analysis and presentation of data and formulation of the environmental/sociological assessment. Solutions will be sought for information gaps and potential difficulties, recommendations may be made to add to, modify or strengthen the Phase III workplan and assistance needed for issues and data analysis may be identified.

The NASAP will issue an in-depth report following Workshop III reviewing the topics covered, recommendations made, problems and solutions identified, etc.

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D. Workshop IV - A final workshop will be held in Washington, to evaluate the outcome of the environmental/sociological study and to prepare the final report for AID and the Somali Government. This report will review the results of the study, especially recommendations for actions that may ameliorate any potentially negative social or environmental consequences of the construction of a dam, or the impoundment of water in the Juba Valley, or related irrigation and other uses. The report should also analyze the implications of study findings for the Juba River Master Plan and should outline additional analytical studies required, as identified by the workshops. The final report must be delivered in draft by the PACD, June 30, 1988.

5. Workshop follow-up

BOSTID should monitor the acceptance, understanding and implementation and results of workshop recommendations, and this information should be fed into subsequent workshops. Therefore it may be necessary for BOSTID staff to make monitoring and planning visits to Somalia as follow up to previous workshops and in preparation for subsequent activities or for consultations with AID and MJVD officials.

6. Consultancies

Workshops may also identify needs for short term consultants to assist the study contractors, AID or MJVD with information or specialized expertise essential for the progress of the study. NAS may provide up to three consultants over the life of the contract, whose terms of reference will be agreed upon by AID, MJVD and NAS and in any event will not duplicate or overlap the services of the study contractor's permanent or TDY staff. Consultants will be expected to work in a close counterpart relationship with Somalis involved in the study or working in closely related activities. Each consultant will provide, as part of the scope of work, a mission report.

7. Training and Research Opportunities

Workshops and consultancy or BOSTID planning mission may identify training or research requirements which cannot be met in Somalia or by study contractors. Accordingly, NAS will arrange for a maximum of three visits by Somali counterparts involved in the study to US institutions in connection with gathering or analysing information for the study or acquiring skills, using library or data processing facilities or other purposes identified and mutually agreed to by AID and BOSTID.

Environmental/Social Effects AssessmentWORK STATEMENT1. BACKGROUND

The Juba River Valley is situated in the south-western part of Somalia. It is bordered on the east by the Shabelli River Valley, on the west by the Kenya border, on the north by Ethiopia, and on the south by the Indian Ocean. The Valley has an area of 170,720 km² (27% of Somalia's total land area) with about 300 km of coastline. The Juba River flows southward for some 700 kilometers, and discharges into the Indian Ocean just north of Kismayo. The Juba is the only river in Somalia with a perennial flow, with an average annual discharge entering Somalia at about 6000 million cubic meters. Essential to the overall development of the Valley area is construction of the Bardhere dam on the Juba River. The dam would assure some 4000 mcm of water annually for irrigation with flood storage capability to limit flood flows downstream. A site has been selected for the proposed dam located about 35 km upstream from the town of Bardhere. The reservoir created above the dam would extend upstream approximately 200 kilometers, occupying an area of about 550,000 hectares.

The primary emphasis up to the present time has been on engineering for the major structure, the Bardhere dam. It is essential that the other resources of the valley, land and human, be examined closely so that the potential benefits for the civil work can be realized. Further complexity is introduced by the existence of several options for development including one dam at Bardhere; a dam at Bardhere and an off-stream storage at Saakow; main stream storage at Saakow and delay the Bardhere dam; Bardhere and Saakow works with water diversion to the Shabelli valley to permit full utilization of irrigable land there. The choice between these various options and the timing of implementation require accurate knowledge of the entire resource base and a resultant master plan for development to optimize resource use.

The Valley is the most important area in Somalia for future agricultural development. When fully developed, it is estimated that it will produce enough crops for meeting nearly all the country's food requirements and have amounts left over for export.

The climate is arid with two rainy seasons. Mean annual rainfall in the valley ranges from 500 mm in the hills in the north to 300-400 mm on the alluvial plain. The valley is covered by deciduous forest which becomes very sparse in the north. Along the banks of the river is a gallery forest which reflects the presence of good alluvial soils.

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2. GENERAL DESCRIPTION OF THE JUBA DEVELOPMENT ANALYTICAL STUDIES PROJECT (649-0134)

On September 29, 1983, AID signed a grant agreement with the Government of the Somali Democratic Republic (GSDR) to fund the Juba Development Analytical Studies Project. The goal of the project, in cooperation with IBRD and other bilateral donors, is to create a master plan for Juba Valley development which optimizes resource use. In order to reach this goal, data must be generated for input into the plan, through such activities as a hydrologic study of river flow, siltation rates study, water quality and salinity studies, livestock and agricultural assessments, and detailed soil, social and environmental studies.

The purpose of AID assistance to the GSDR is to provide the necessary information on the last three items in the above listing: (1) land use and soils classification; (2) social effects; and (3) environmental studies. All these studies will be integrated into an overall Master Plan for the Juba Valley.

The project will result in the following outputs:

- (a) Classification of soils, and land classification of highest irrigation potential in the Juba and lower Shabelli valleys;
- (b) Identification of likely social and environmental impacts of the various options of development; and
- (c) Developing the Ministry of Juba Valley Development (MJVD) as an effective coordinative body for master planning in the Valley. This will include long- and short-term training in the U.S. for MJVD technicians in the fields of Agriculture, Environment, Natural Resource Planning, and Soils.

In conjunction with the project, commodity assistance will be provided to the MJVD, including field survey and camping equipment, soil and water analysis equipment, and basic commodities needed for logistical support.

This contract is for the performance of the environmental and sociological assessment (No. [2] above). However, there will be a high degree of coordination between all three of the above components within the project. The team performing the environmental and social assesment under this contract will work closely with the soils/land use team in developing MJVD expertise in all study areas involved.

As this project is primarily field data collection oriented, it is expected that the team will travel widely within the area of the valley. Team members will be functional as well as advisory, and will be required to train MJVD staff in some aspects of environmental/social data gathering and monitoring.

The Contractor will be responsible for progress in the project. AID has a financing, programmatic, advisory, and approval role. However, the Contractor's team will receive day-to-day guidance from the MJVD.

3. MINISTRY OF JUBA VALLEY DEVELOPMENT

The MJVD is primarily responsible for the overall planning and implementation of development projects in the Juba Valley and coordinating various donor-assistance in development efforts regarding the Valley. Newly established, the MJVD hopes to build the necessary expertise and data information base to more effectively determine the development potential of the Valley. The MJVD is currently organized into divisions including the Bardhere Dam Project, Bardhere Cement Plant Project, Department of Planning and Economic Development, Department of Agriculture and Environment, and Department of Financial Administration. A German Advisory Support Team is located in the Department of Planning, which is responsible for coordination of the Juba Valley Master Plan. The Department of Agriculture and Environment has the main responsibility for cooperation with the AID soils/land classification and environmental/sociological studies, including provision of counterparts and logistical support. However, the Contractor will also work very closely with the Somalis and German advisors in the Department of Planning, in order to ensure effective and timely inputs into the master plan. To promote the long range institutional benefits of project activities, the Contractor will help to improve the skills of MJVD counterparts and technical staff through both classroom and on-the-job training.

4. NATIONAL ACADEMY OF SCIENCES (NAS) ADVISORY ROLE

The National Research Council (NRC) of the National Academy of Sciences, and its Board on Sciences and Technology for International Development (BOSTID) will advise the USAID/Somalia and MJVD on the scope, direction, conduct, and outcome of the environmental and sociological assesment. The purpose of the NAS cooperation is to provide AID, MJVD and the Contractor with a forum in which the exchange of information of critical importance to the assesment can take place with an independent, objective group of concerned, authoritative specialists. This information exchange will permit the

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assessment to be redirected, where necessary, into additional areas of emphasis, to be advanced more effectively, and to have access to a broader range of expertise concerning data acquisition and analysis than would otherwise be possible. During the three year period of the environmental and sociological assesment, BOSTID will organize a series of workshops involving AID, MJVD, the Contractor, and other knowledgeable individuals. The five workshops will include: A preliminary workshop in Washington, D.C. at the commencement of the study, to discuss the scope of work and potential difficulties and possible sources of information and approaches; three field workshops, to review study progress and suggest modifications, assist with analysis of topical issues, and help identify sources of information or potential specialists who might be required; and a final workshop held in either Washington D.C. or Somalia, to evaluate the outcome of the study and prepare a final report for AID and the GSDR.

5. GENERAL INFORMATION

Since this project cuts across many disciplines and government sectors, the Contractor will be required to coordinate studies and data collection with other government agencies, including the Ministries of Agriculture, Livestock, Forestry and Range, and National Planning, and the Water Development Authority. The Contractor will also have the advantage of reviewing and, in some cases, relying on previous studies and data collection concerning the valley area. Available studies and maps are as follows: A detailed land-use/natural resources survey for Southern Somalia, due to be completed in September 1984; some site-specific studies on the refugee camps; the 1979 AID country environmental profile; 1983 Stephenson/Zalla/Gun report, and the 1984 Dowhan report. Also available are 1:100,000 topographical maps, 1:200,000 landsat interpretation package, and 1:30,000 aerial photography with 1:50,000 mosaics of the valley.

6. CONTRACT REQUIREMENTS

The Contractor shall provide the services necessary to carry out the environmental and sociological assessment of the effects of development in the Juba Valley. Work consists of three phases: (a) preliminary data collection; (b) field data collection and preliminary assessment of the environmental and sociological effects of irrigation and dam development; and (c) final analysis and assessment of the environmental and sociological effects of irrigation and dam development, including a final report consisting of an environmental and social impact statement with procedures on mitigating adverse impacts. All work is to be performed in cooperation with assigned Somali counterpart staff from the MJVD and other Somali agencies and organizations.

The work to be performed shall be carried out by the Contractor in the three aforesaid phases, under the guidelines which follow. At the conclusion of each phase, the Contractor will submit a report to USAID/Somalia and MJVD, which will contain findings of the preceding phase and a detailed work plan for the succeeding phase. Where findings so indicate, the report shall contain feedback and recommendations for redirection or modification of studies. Such recommendations shall include sufficient justification for any deviation for proposed new studies. A rationale for establishing the priorities shall be part of the report. The phases of the project are as follows:

(a) Phase I: Under Phase I, the Contractor shall review available data, literature, existing conditions, ongoing and proposed development activities in the valley, and others outside the valley, which could have impact on the proposed developments in the valley. At the end of this phase, the Contractor shall submit a report which will include the Contractor's findings and recommendations for activities to be undertaken in Phase II, e.g. field surveys to collect baseline data for use in environmental and sociological assessment of proposed and potential development projects. Analytical methods proposed for this study (indicating a balance between qualitative and quantitative data collection) will be refined as appropriate at this time. Full consideration shall be given to coordination and compatibility with other studies ongoing in the basin. The report shall include a work plan and specify personnel and logistical support needed for phase II work. USAID/Somalia, with concurrence from MJVD, shall approve the Phase I report, and authorize the Contractor to proceed with Phase II.

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(b) Phase II: Under Phase II, the Contractor shall collect field data and preliminarily formulate certain anticipated impacts and related mitigating proposals. The workplan for this phase must allow for interim reports timed to provide data and provisional recommendations that might have an impact on the final design of the Bardhere dam and on the master planning process. The timing and emphasis of these interim reports will be determined in collaboration with USAID/Somalia, MJVD, and other donors.

At the end of this phase, the Contractor shall submit a comprehensive and detailed report, including annexes, of data collected and an outline of the perceived potential environmental/sociological impacts of various development scenarios which will be assessed in detail in Phase III. USAID/Somalia, with concurrence from MJVD, will approve the Phase II report, and authorize the Contractor to proceed with Phase III.

(c) Phase III: Under Phase III, the Contractor shall analyse and assess environmental and sociological impacts of proposed development projects and submit a final report, which shall recommend mitigating and enhancement measures, and contain a plan for continuing with environmental and socioeconomic monitoring to be carried out by MJVD after the contract is completed.

7. SCOPE OF WORK FOR THE JUBA VALLEY ENVIRONMENTAL AND SOCIOLOGICAL ASSESSMENT

(a) Objectives

The objectives of this assessment are to:

(1) Provide the GSDR with timely information to be used in formulating a socially and environmentally sound master plan for the Juba Valley, and to provide the GSDR with guidelines to be used in formulating future projects which are socially and environmentally sound.

(2) Identify and evaluate the interrelated sociological and environmental effects which will be caused by development of the river valley; and to further describe procedures and development activities that will mitigate adverse impacts and enhance beneficial impacts.

(3) Provide the GSDR with a realistic plan for the monitoring of environmental, social, land use, and agricultural parameters of the Juba River Valley so that national development decisions can be made based on sound, current data.

(3) Develop institutional strengths in the MJVD through classroom and on-the-job training.

(b) Assessment Components

(1) Mapping and Status of Valley Development Schemes

(A) The Contractor shall review available data, literature, existing conditions, etc., and shall complete, as required, a detailed environmental/sociological data base map of the study area, including watershed, watershed tributaries, and downstream zones, using the latest information including available baseline data. Note: A soil/land classification of the project area will be conducted under a separate component of the project, resulting in soil base and land use maps and irrigation suitability maps. Detailed land use/natural resources maps are due to be completed under another AID project by September 1984. The environmental/sociological data base map will be at a scale compatible with these maps and will complete and complement, rather than duplicate these maps.

(B) The Contractor shall provide an inventory and descriptions of existing, ongoing, and planned development projects.

(C) The preliminary data collection conducted by the Contractor under Phase I shall include not only existing literature on the valley, but also the rather extensive literature available outside of Somalia on settlement/resettlement, pastoralist/sedentary farmer interactions, and human aspects of dam construction (the Aswan High Dam and the Kariba Dam), etc.

(2) Environmental Investigations

(A) Physical Resources

- Surface Water Quantities (Hydrology):
Hydrologic regime of the river system will be altered. The Contractor shall compare hydrographs before and after implementation of the various development options, and describe and estimate water balance, including loss of water through evaporation and other non-project conditions. Deshek conditions shall also be described.

- Surface Water Quality: The Contractor shall describe and measure or estimate, as appropriate, water quality conditions before and after dam development (reservoir and downstream). The Contractor shall also study effects of water storage and irrigation return flows on surface water quality (dissolved minerals, temperature, BOD, pesticide pollution), and describe effects on aquatic biota.

- Ground Water Quality: The Contractor shall describe anticipated effects of development on water quality/quantity in reservoir and downstream, including leakage from reservoir, changes in water table, waterlogging of lands, and contamination of wells.

- Soils: The Contractor shall examine all aspects of soil erosion, modification, and irrigation effects, such as saline buildup, change in pH, waterlogging.

- Geology/Seimology (in Dam Development): The Contractor shall provide information on earthquake hazards or other factors related to structural stability of various development options.

- Sedimentation and Erosion: The Contractor shall describe and estimate sediment load in reservoir, and plans to mitigate this. The Contractor shall also describe effects of sediment load on proposed reservoir uses, and shall describe the estimated future extent of downstream erosion due to scour by water released by the dam.

- Climate: The Contractor shall describe and measure effects of changes in climate due to water impoundment (e.g. changes in humidity affecting insect populations).

(B) Natural Resource Assessments

- Fisheries: The Contractor shall describe expected losses of fish populations due to (a) regulated downstream flow; (b) upstream inundation; (c) decreased nutrient levels downstream from reservoir trapping; and d) migration interruptions. The Contractor shall also describe the expected new fisheries situation in the reservoir, downstream, and the estuarine system at the coast. The Contractor shall investigate possibilities of fish farming and artificial propagation techniques, and plan for fishery production to offset losses due to future habitat alterations.

- Aquatic Biology: The Contractor shall describe present and expected ecological conditions, such as salinity changes, food chain interruptions, and biological productivity. The Contractor shall also describe a program for effectively monitoring all aquatic zone characteristics (chemical, biological, physical), and shall include the likelihood of aquatic weed buildup from still water in reservoirs and irrigation, and regulated flow. The Contractor shall assess the results of increased oxygen content from aeration by turbines and spillways.

- Wildlife: The Contractor shall describe impacts on wildlife populations due to (a) water diversion; (b) increased access through road construction; and (c) increases in agriculture. The Contractor shall also develop a detailed wildlife management plan including (a) establishment of reserves; (b) new wildlife resources created by dam development; (c) salvage and rehabilitation of damaged wildlife habitat; and (d) changes in distribution of livestock and/or nomadic land-use patterns, as well as overall changes in land use. The Contractor shall perform a wildlife inventory.

- Forests: The Contractor shall develop a forestry multiple-use management plan, and shall describe the effects of river impoundment (forest inundation) and downstream effects. The Contractor shall also describe and design a plan for soil and water conservation activity through tree planting and, e.g., agroforestry activities, and shall consider present and future status of forests on the watershed.

- Reservoir Ecology: The Contractor shall describe the anticipated environment in newly-created reservoirs including:

- (a) Fishery development, storage, marketing, and regulations.
- (b) Use of the reservoir for wildlife propagation.
- (c) Physical, chemical, and biological properties of the new water-body (increases in fertilizer/pesticide pollutants).
- (d) Problems of stabilizing reservoir banks from wave action.
- (e) Health impacts at the reservoir edge.
- (f) Effects of surface water fluctuations on shoreline facilities.
- (g) Salvage of inundated vegetation.
- (h) Problem of algae and vegetation growth in reservoir.

(C) Human Use Values

Water Supply: The Contractor shall describe the impacts of development on water availability in quality and quantity, and shall assure adequate water supply for downstream communities.

- Aquaculture: The Contractor shall describe potentials for aquaculture development downstream.

- Navigation: The Contractor shall describe any changes in navigation, and shall survey current navigation uses of waterway.

- Flood Control: The Contractor shall describe benefits from dam flood control, including reclamation of lands for agricultural use.

- Mineral Development: The Contractor shall survey and describe potentials for mineral exploration and development.

- Roads: The Contractor shall describe changes and/or additions to current road and access systems.

- Land Use: The Contractor shall describe current land use patterns and anticipated changes, and shall formulate planning guidelines for rational land use management, which would optimize human and natural resources.

- Health: The Contractor shall investigate the presence of schistosomiasis-carrying snails, and describe economic measures to build-in control of the spread of habitat. The Contractor shall also survey means of eradication or control of other diseases such as malaria, onchocerciasis, typhoid, cholera.

- Energy: The Contractor shall describe present energy and fuelwood consumption, and describe benefits from future hydropower and reforestation programs.

(3) Sociological Studies

(A) Objectives

The social studies will generate a data base that can assist the GSDR in the formulation of strategies and plans for basin development, which relate to the circumstances, and are responsive to the needs of the populations who live in, or periodically make use of, the Valley's land and water resources. They will provide new information concerning social institutions and patterns of agricultural production and resource management that currently exist in the Valley. Such information is required if Juba Valley development is to lead to social and economic benefits to the affected Somali population, and build upon the considerable skills and strengths of that population. Through data collection and analysis, the Contractor shall address the following topics, which relate to social issues likely to be of concern in the development of the Juba Valley.

- Description of existing water and land-use practices, productive systems, and the socio-political organization of the different occupational groups who make use of Valley resources.

- Assessment of direct, indirect, and short- and/or long-term impacts of specific development activities proposed for the basin, and of differential effects on different categories of people. Special attention shall be paid to the effects of relocation and resettlement on the affected population.

- Critical analysis of steps which might be taken to increase socio-economic benefits to affected groups, and increase participation of local institutions in management of water resources and irrigation. Complementary measures to minimize or mitigate clearly detrimental sociological effects shall also be proposed.

- The studies will provide benchmark information essential as the basis for accurate and meaningful measurement of the socio-economic benefits of Valley development.

- In addition, the studies will recommend procedures for maximum participation of local populations in the planning, monitoring, and evaluation of development activities that will affect them.

(B) Populations to be Studied

The populations to be studied by the Contractor shall include all those who are likely to be directly affected by, or affect the progress of, development of the Valley's water resources. These will include, but not necessarily be limited to:

- Persons to be displaced.
- Valley residents along river.
- People based elsewhere (agropastoralists and pastoralists), who enter the Valley periodically to graze or use water resources, especially during drought.
- People who enter the Valley for wage labor on agricultural schemes,
- Labor pool for dam construction or new irrigation schemes.

(C) Data Collection

Surveys will be undertaken by the Contractor as determined by the outcome of Phase I review of the literature, and of the plans for ongoing data collection efforts by the GSDR and other donors. Samples of each of the populations noted in (B) above shall be included. Household-level surveys shall include basic demographic, nutrition, economic, and social indicators necessary to establish a baseline and to assess potential and eventual actual impacts of valley development interventions.

In addition, data shall be collected by the Contractor on the following specific topics:

- Production and land-use systems in the area, including deshek or inundation farming, small-scale irrigation, large scale irrigation/state farms, dryland farming, agropastoralism (with interaction between cultivators and pastoralists, and interchange between residents of the Valley and those outside), pastoralism (including use of the area by residents of other parts of the country). Estimation of amount of land involved and people supported shall be included.

- Social organization of production in the valley, and relationships outside, including, but not limited to, the role of the family, labor needs, utilization and availability of local labor for productive activities, patron-client, trading, and other relationships.

- Availability of, and access to, productive inputs and government agricultural services, marketing channels, and price structure for major inputs and outputs.

- Local traditional and modern rules and regulations regarding access to land and water resources, with particular reference to their impact on local resource management.

- Local institutions, formal and informal, their organization, functions, and effectiveness, and local decision-making, to include patterns of leadership and the authority structure (religious, traditional, government). Local institutions for cooperation or self-help (water management, pond construction, irrigation canals, range management) are particularly important.

- Availability of social services, existence of local providers, projection of social service needs, any fee-for-service, or similar self-help traditions.

- Estimate of skilled and unskilled labor available for construction, and factors determining availability (incentives, working conditions).

- In order to address the above topics, it is likely that several types of data collection activities will be required (household survey, special surveys, in-depth interviews, compilation of records, etc.).

(D) Analysis

At a minimum, The Contractor shall concentrate analysis of the data collected on the following (the Contractor may include additional areas based on preliminary review):

- Presentation of the demographic and socioeconomic characteristics of relevant population groups who use the Valley's resources. These groups will be the analytical categories for whom impacts and the need for mitigating actions are likely to differ.

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- Discussion of likely impacts on the population to be displaced, including refugees, and ways to minimize or alleviate social, economic, and psychological costs of relocation.

- Organization strategies to involve Valley and all residents of Somalia in planning and decision-making for Valley development, and to strengthen local institutions for new management roles regarding water and land resources.

- Likely impacts of the dam and Valley development on the livestock industry and grazing potential of the area, on the agropastoralists and pastoralists using it, and implications for strategies and plans.

- Likely impacts of the dam and Valley development on existing types of crop production in the area, and implications for strategies and plans.

- Likely impacts of migration, urbanization, and economic growth to result from Valley development, and implications for planning, especially for education and social services.

(E) Consultations with Study Populations

The preliminary conclusions of the analysis shall be taken by the Contractor to a number of study sites, and discussed with the populations under study. This will allow feedback on the correctness and adequacy of the data, and insure initial participation of the affected populations in the design and management of their own development.

(4) Public Health Impacts

(A) The Contractor shall investigate and describe the following:

- Expected impact of development and irrigation schemes in altering hazards of water-oriented diseases and parasites in the region, including malaria, dengue fever, schistosomiasis, onchocerciasis, fecal-oral diseases, etc.

- Physical hazards expected to occur during dam construction.

- Environmental and health consequences of increased pesticide/biocide and fertilizer use, and possible accumulations in reservoirs and irrigation ditches.

Plans for provision of adequate community sanitation facilities in new villages to be located around the development area, both to improve village living conditions, and to minimize pollution of reservoirs and impoundments.

- Other anticipated public health/sanitation problems.

(5) Nutrition

(A) The Contractor shall describe anticipated effects on nutrition patterns due to altered fishery resources and increased food production.

(B) In order to obtain the background information required to enhance positive food consumption effects and minimize negative food consumption effects in future projects design, the Contractor shall:

- Identify and describe the foods directly or indirectly provided by the river and by other sources, and the consumers of each food or food group.

- Estimate the percentage contribution in calories and in protein of each food to the diet of its consumer, and identify seasonal variations.

(6) Municipal and Industrial Development

(A) The Contractor shall describe all anticipated environmental and social impacts of increased development concentrating on: water supply and waste disposal, surface water contamination, water treatment and distribution systems, and oxygen depletion problems in the river.

(7) Archaeology and Historical Sites/Treasures

(A) The Contractor shall review past data collection efforts and describe measures for assessing archaeological values and/or historical and cultural sites to be inundated, and necessary corrective programs for salvaging or preserving these values. The Contractor shall also prepare a plan necessary for archaeological survey of proposed reservoirs to determine if salvage/preservation programs are needed.

(8) Follow-up and Monitoring

An effective plan shall be developed and described by the Contractor for monitoring the environmental and social impacts through all stages of future development projects in the Valley. Monitoring should cover those parameters that are most sensitive to irrigation/dam development. These include:

- (A) Hydrology (Surface and groundwater)
- (B) Water Quality
- (C) Fisheries
- (D) Public Health Hazards
- (E) Sociological Surveys
- (F) Soil Changes/Modifications

(9) Procedures and Technical Assistance

General procedure for the analysis and assessment by the Contractor shall be:

(A) Under each study component, inventory, examine, and fully describe existing conditions, and establish a sound data base.

(B) Outline and describe in detail the impacts (both negative and positive) of proposed developments (if known) on these existing conditions.

(C) Detail proposed mitigating procedures that will lessen adverse impacts and enhance/increase beneficial impacts.

8. REPORTS

In addition to the requirements of the clause of this contract entitled "Reports" (AIDAR 752.7026), the Contractor shall submit the following reports (5 copies to each recipient, in English) to the place(s) indicated:

(a) Work Implementation Plan: The Contractor shall prepare a life-of-project implementation plan, and an annual work plan, showing projections of data-gathering and assessment activities in each discipline to be covered (Forestry, Water, Sociology, etc.). The plans shall include projected numbers of staff to be in country and their duties. This report shall be due within one month after the effective date of this contract, and is to be submitted to MJVD and USAID/Somalia, for approval by USAID/Somalia with MJVD concurrence.

(b) Monthly Report: The Contractor shall submit monthly reports to USAID/Somalia and MJVD, which assess activities during the month in each discipline, the status of counterpart participation and training, and which provide a list of personnel in country. The report shall address progress against each item in the current work plan, include a statement of problems encountered and steps being taken to resolve them, and the status of any newly initiated and outstanding procurement or personnel actions.

(c) Daily Logs: When feasible and appropriate (as agreed to by the Contractor and USAID/Somalia), field personnel gathering data will keep daily logs of assessment and surveying activities.

(d) Special Reports: Upon completion of Phase I (compilation of existing data and literature), the Contractor shall prepare a report for USAID/Somalia and the MJVD (as noted in part 6.[a], above), which provides (1) an assessment of available information; and (2) an outline of data collection based upon a determination of the level of field work required to complete the requisite data base. Upon completion of Phase II (preliminary field data collection), the Contractor shall prepare a comprehensive report with annexes on the data collected. The report will be used in discussions with USAID/Somalia, MJVD, and coordinators of the Master Plan for the Juba Vally Development, to determine if sufficient data has been collected in order to formulate the final assessment and plan of action. All reports will be submitted with executive summaries no longer than three pages in length.

(e) Short-Term Specialist Reports: Each of the short-term specialists will submit (1) reports after each field visit; and (2) a final report, with their recommendation and findings, to the Project Coordinator, with copies to the MJVD and USAID/Somalia for inclusion in the final project documents.

(f) Final Report: The Contractor shall prepare a final report (Phase III), detailing all work carried out under the contract in each category. The final report shall include completed annexes of all data collected under the project, including maps and results of laboratory, computer, and other analyses, and an action plan for all approaches for mitigation. This final report will be incorporated into the overall Master Plan for the Juba Valley Development. It shall contain an executive summary of not more than 20 pages, and be submitted first in draft to the MJVD and USAID.

(1) Team Leader

- (A) University graduate in environmental/ sociological sciences; graduate degree necessary.
- (B) Experience in management of environmental/ sociological assessment studies, preferably ten years experience or more.
- (C) Experience in land use planning.
- (D) Experience in supervising people from a variety of environmental, sociological and natural resource development backgrounds.

(2) Public Health Specialist

- (A) University graduate in environmental or public health; graduate degree (MPH) preferred.
- (B) Experience in water-related public health problems, especially reservoir and irrigation development, preferably 5 years or more.
- (C) Experience in supervising people from a variety of health and medical backgrounds.

(3) Environmentalist/Land Use Planner

- (A) Graduate degree in environmental sciences and/or ecology, natural resource management.
- (B) Experience in field environment assessments in less developed countries (LDCs).
- (C) Experience in leading interdisciplinary project teams.
- (D) Experience in environmental and land use planning, preferably 5 years or more.
- (E) Experience in training, in methods and approaches to environmental assessments and land use planning, as well as monitoring.

(4) Sociologist

- (A) Graduate degree in rural sociology or cultural anthropology, with emphasis on development and economic studies.
- (B) Preferably should have experience in the agriculture sector, settlement/resettlement, or irrigation schemes, survey fieldwork in LDC's, working with or for international donors, host governments, or other non-academic entities, and on-the-job training.
- (C) Should demonstrate proven capacity to produce policy-oriented analyses in a timely manner.

(5) Wildlife Biologist

- (A) University graduate in wildlife management or wildlife biology.
- (B) Experience in wildlife surveys and techniques for monitoring.
- (C) Experience in natural resource planning and management, particularly reserve and multiple use areas in LDCs, preferably for 5 or more years.
- (D) Experience in training.

(6) Agriculturalist

- (A) University graduate in agriculture, agronomy, or agricultural economics, graduate degree preferred.
- (C) Experience in agricultural production assessments and integrated land use studies in LDCs, preferably for 5 or more years.
- (C) Experience in pesticide application, management, and monitoring.
- (D) Experience in training.
- (E) Experience in environmental effects or irrigation and water use in agriculture.

(7) Fisheries Biologist/Ecologist

- (A) University graduate in fisheries/aquatic biology and/or ecology.
- (B) Experience in fishery production techniques, fishery inventory, and agriculture, preferably for 5 or more years.
- (C). Experience in fishery habitat assessment.
- (D) Experience in training.

(8) Forester/Vegetation Specialist

- (A) University degree in forestry and/or forest management.
- (B) Experience in forestland surveying, production assessment, and integrated management planning, including agroforestry and plantations, preferably for 5 or more years.
- (C) Experience in soil conservation and land use planning.

(9) Agricultural Nutritionist

- (A) University graduate in nutrition.
- (B) Experience with food consumption methodology and surveys.
- (C) Knowledge of African agriculture and livestock production systems, as well as foods and taste preferences.
- (D) Understanding of how food consumption is linked to agricultural production, income flow, division of labor, and other socially defined norms of behavior; intra-household ownership of resources.

(c) Notwithstanding paragraph (a) above, AID's estimate of effort (i.e. the amount of direct employee, consultant, and/or subcontractor labor) required to complete the environmental/sociological assessment required hereunder is (230) person-months in Somalia, plus home office backstopping. The estimated composition of the field effort is as follows:

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No. of Person-Months

Team Leader (Environmental Planner)	36
Ecologist/Natural Resources Expert	36
Environmental/Public Health Expert	36
Sociologist	36
Sociologist/Agricultural Economist	36
Short-Term Specialists	30

(d) Within 15 days of notification to the Contractor of the need for various personnel, candidates for overseas assignments (long- and short-term) shall be submitted by the Contractor to the AID Project Officer for approval. Failure to do so may be considered nonperformance by the Contractor.

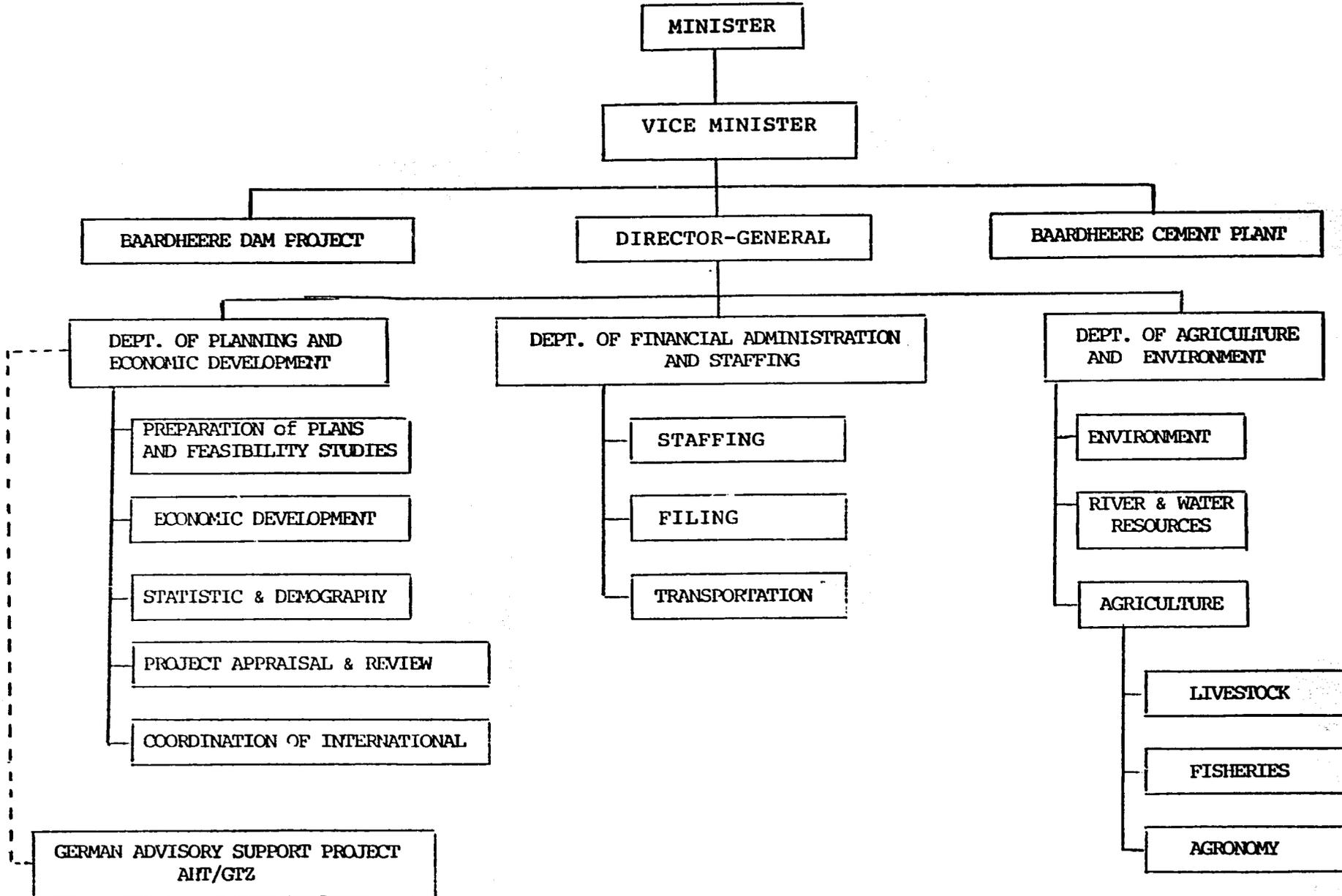
(e) All candidates for overseas assignments must have the written approval of the AID Project Officer prior to travel abroad.

(f) In proposing candidates, the Contractor shall include qualifications, scope of work, and level of effort.

(g) At a minimum, the Team Leader must be fielded within 60 days after award of this contract. It is expected that other team members will also be fielded by such time.

(h) Personnel assigned to Somalia for a continuous period of one year or more shall be considered key personnel who are essential to performance of the work required hereunder. The Contractor shall not divert such individuals to other programs without obtaining the prior written approval of the AID Project Officer. If replacement of such personnel is deemed necessary by the AID Project Officer, the Contractor shall replace such personnel within 30 days from the time the AID Project Officer approves the replacement personnel. Failure to do so may be considered nonperformance by the Contractor.

MINISTRY OF JUBA VALLEY DEVELOPMENT



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Project Management Assistant

SCOPE OF WORK

Working as assistant to the USAID Project Manager for the Juba Development Analytical Studies (JUDAS) project, the incumbent shall perform the following in a professional manner:

1. Assist the USAID Project Manager in the performance of appropriately assigned duties in accordance with the AID Handbook regulations.
2. Work closely with the Ministry of Juba Valley Development (MJVD) and Ministry of Planning in the daily implementation of AID-financed projects in the Juba Valley and the lower Shebelli region.
3. Work closely with the soils/land classification, environmental/social effects assessment, and the U.S. National Academy of Science contract personnel who will be performing specialized work under the JUDAS project.
4. Maintain complete project files and assist the USAID project manager in assuring the contractors' adherence to agreed upon scopes of work under their contracts.
5. Review the aforementioned contractors' implementation reports and assure implementation progress.
6. Work closely with USAID Management, Agriculture, Engineering, Supply Management, Projects and Program Offices to assure effective coordination within USAID.
7. Attend meetings within USAID and the MJVD and be knowledgeable of donor activities in overall Juba Valley regional development.
8. Travel to the JUDAS project site in the Juba Valley region on a regular basis to observe, monitor, and report on project implementation.