

PDBA 1930

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET		1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____	DOCUMENT CODE 3
2. COUNTRY/ENTITY Sudan		3. PROJECT NUMBER 650-0046		
4. BUREAU/OFFICE AFR		5. PROJECT TITLE (maximum 40 characters) Southern Region Agricultural Development I		
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 30 86		7. ESTIMATED DATE OF OBLIGATION (Under "B:" below, enter 1, 2, 3, or 4) A. Initial FY 82 B. Quarter <input type="checkbox"/> C. Final FY 84		

8. COSTS (\$000 OR EQUIVALENT \$1 =)						
A. FUNDING SOURCE	FIRST FY 82			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	6,980		6,980	10,100		10,100
(Grant)	(6,980)	()	(6,980)	(10,100)	()	(10,100)
(Loan)	()	()	()	()	()	()
Other 1.						
U.S. 2.						
Host Country		340	340		6,180	6,180
Other Donor(s)						
TOTALS	6,980	340	7,320	10,100	6,180	16,280

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) EN	123	070				6,980		10,100	
(2)									
(3)									
(4)									
TOTALS						6,980		10,100	

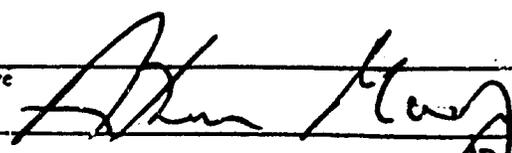
10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 030 140 023 061 053 080						11. SECONDARY PURPOSE CODE	
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each) A. Code _____ B. Amount _____							

13. PROJECT PURPOSE (maximum 480 characters)

To relieve key policy, production, marketing, institutional and infrastructure constraints to increasing private sector agricultural production, processing and marketing in the Southern Region of Sudan.

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY 05 85 06 86				15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" type="checkbox"/> 000 <input checked="" type="checkbox"/> 941 <input checked="" type="checkbox"/> Local <input type="checkbox"/> Other (Specify) _____			
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16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

17. APPROVED BY	Signature 	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 08 26 82
	Title Director USAID/Sudan	

ACTION MEMORANDUM FOR THE DIRECTOR, USAID/SUDAN

From: *Gene Morris*
Gene Morris, Project Operations

Subject: Project Authorization - Southern Region Agricultural Development I
(650-0046)

Problem:

Your approval is required to authorize a grant to the Government of Sudan (GOS) in the life of project amount of \$10,100,000 from Section 103 of the Foreign Assistance Act (ARDN) for the Southern Region Agricultural Development I Project (650-0046). The FY 1982 obligation for the project will be \$6,980,000.

Discussion:

The Southern Region Agricultural Development I (SRAD I) Project is the first phase of a proposed 10 year effort on the part of the Southern Regional Ministry of Agriculture and Natural Resources (RMANR), with A.I.D. assistance, to promote increased agricultural production and incomes in the Southern Region of Sudan. The long-term goal of the project is to increase agricultural production and the incomes of farmers and pastoralists as well as promoting the participation of private entrepreneurs in agricultural processing and marketing. Specifically, the purpose of this four year, Phase I activity is to relieve key policy, production, marketing, institutional and infrastructural constraints to increasing private sector agricultural production, processing and marketing.

To deal with the complex issues involved in removing technical constraints while providing incentives for increased agricultural production, the project includes five major components: (1) marketing, (2) farming systems research, (3) budget and financial planning; (4) manpower development, and (5) an area development program. The marketing component will focus on improving agricultural policies that affect production and incomes, the development of a regional marketing strategy, and market and transportation infrastructure improvements that are identified as highest priorities in the marketing strategy. The farming systems research activities included in the project are designed to help eliminate key technical constraints faced by farmers. The budget/financial planning and the manpower development components will assist the RMANR of the Southern Regional Government (SRG) to ensure that budgeting, planning, fiscal and manpower development policies and programs are implemented in such a way as to (1) provide maximum efficiency in the utilization of financial and human resources and (2) promote private production, marketing and processing by creating and appropriate set of incentives. The area development portion of the project includes the rehabilitation

of farm to market feeder roads, credit for rural enterprises, feasibility studies, the development of on-farm storage facilities, and assistance to local Area Councils in the implementation of decentralized agricultural development activities.

While most of the project's expected accomplishments will have regional implications, Phase I will concentrate on two Districts in the Southern Region, Yambio and to a lesser degree, Rumbek. Phase II will expand the discrete credit, feeder roads, market infrastructure, and farming systems research programs into other Districts. The outputs of the marketing strategy, budget and fiscal policies and plans as well as the manpower development component of the project will continue to have region-wide impact during the follow-on phase.

To accomplish the above stated purpose the GOS and AID will provide assistance as summarized in the budget table below:

<u>Project Input</u>	<u>GOS (LS 000)</u>	<u>AID (US \$000)</u>
I. Technical Assistance	306	4409
II. Training	-	330
III. Commodities, Equipment & Vehicles 1/	76	303
IV. Construction 1/	90	30
V. Feeder Roads	635	528
VI. Operating Budget	748	218
VII. a. Credit Program	400	30
b. Market and Transportation Infrastructure	250	250
VIII. Contractor Support	355	1035
IX. Project Evaluation	45	180
X. Contingency	436	731
XI. Inflation	2159	2056
Total	<u>5500 (\$6,180)</u>	<u>10,100</u>

1/ Does not include feeder road program or direct contractor support.

The following special conditions precedent and covenants are included in the project authorization:

Conditions Precedent

- (1) Prior to the disbursement of funds under the Grant for support of the project training programs at Yambio Institute of Agriculture (YIA) and Rumbek Agricultural Training Center (RATC) after September 30, 1984, or to the issuance of documentation by AID pursuant to which disbursement will be made with respect thereto, the Cooperating Country will provide, in form and substance satisfactory to A.I.D.:

- (a) evidence that the Regional Ministry of Agriculture and Natural Resources can provide adequate administrative support by the presence of strong Sudanese administrators at both institutions; and
 - (b) evidence that the Southern Regional Government can begin to meet a greater share of the operating costs of these institutions, by agreement or a plan to reduce the proportion of funding from outside sources.
- (2) Prior to the disbursement of funds under the Grant for project activities other than:
- (a) short and long-term technical assistance advisors and support thereto (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - (b) participant training and support of training institutions (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - (c) preparation of studies, analyses, plans and reports; and
 - (d) feeder road rehabilitation and reconstruction;
- the environmental review and analyses of such activities required by AID Regulation 16 will be completed and the results thereto approved by AID.
- (3) Prior to the disbursement of funds under the Grant for rehabilitation and/or reconstruction of each segment of feeder road (except for disbursements of funds for technical assistance advisors and commodities), or to the issuance of documents by AID pursuant to which disbursements will be made with respect thereto, the cooperating country will provide, in form and substance satisfactory to A.I.D., a detailed description of the arrangements under which the rehabilitation/reconstruction of such segment will be carried out which includes:
- (a) an identification of the office or organization which will be responsible for the construction (e.g. Provincial Commissioner, Area Council, or village chief or council);
 - (b) an implementation plan which includes a time schedule for completion of the work, an estimate of the personnel, equipment required, and their cost;

- (c) a description of the contractual or other arrangements to be made for all personnel required (laborers, supervisors, mason and/or pipe layer where needed, time-keeper, book-keeper) including the times during which such personnel will be expected to work and the basis upon which they will be paid;
 - (d) arrangements made to obtain specific designs for any major work to be undertaken such as major filling at drainage crossings; and
 - (e) arrangements to be made for maintenance of completed road sections.
4. No funds authorized herein shall be obligated for the provision of credit funds for support of agricultural marketing or manufacturing activities of small-scale entrepreneurs or for market or transportation system improvement activities until the requirements of Section 611 (a) of the Foreign Assistance Act are met with respect to that project activity.

Covenants

(1) Within ninety (90) days of the date of signature of this Agreement, or such other date as A.I.D. may agree to in writing, the Cooperating Country will submit to A.I.D. a detailed implementation plan for the activities to be conducted during the first year of the project. A similar plan shall be submitted annually thereafter for activities to be conducted during the next year.

(2) No funds provided under this Agreement shall be used for assistance for the procurement and use of pesticides until the environmental analysis requirements of AID Regulation 16 are satisfied.

Based on information recently submitted by USAID/Sudan to the Regional Environmental Officer, REDSG/EA, it is expected that all project activities will soon be certified as meeting the requirements of AID Regulation 16.

The condition precedent to obligation is necessary since AID, the GOS, and the Agricultural Development Bank (ADB) have not yet fully developed loan criteria and other terms, conditions and procedures under which the credit will be provided. Therefore, an analysis of the adequacy of the credit fund's proposed capitalization and overall viability cannot be made at this time. The ADB can satisfy these requirements for farm production loans but as yet has no program for credit to agri-business. This condition precedent to obligation also applies to market and transportation infrastructure improvement and is necessary because the GOS and AID cannot fully define these activities until the marketing study is completed. During the first year of the budget, steps will be taken to satisfy the requirements of Section 611 (a)

of the FAA for rural enterprise and village market center credit programs as well as transportation infrastructure improvements. Should the requirements of 611 (a) be satisfied with respect to these project components, additional funds will be obligated for these activities or funds already obligated for the project may be made available for the credit fund and transportation infrastructure through reallocation from other budget line items, if such funds are then available for reallocation. The purpose of the other special conditions and covenants described above is self explanatory.

The Project Paper has been reviewed by the USAID/Sudan Project Review Committee which has recommended that the project be approved. An Advice of Program Change was submitted to Congress on August 10, 1982; the fifteen day waiting period expired on August 25, 1982 without Congressional objection. The responsible project officer at USAID/Sudan will be James Beebe and the AID/W backstop officer will be Chris Brown, AFR/DR/EAP. The Regional Ministry of Agriculture and Natural Resources, SRG, will be responsible for project implementation on the part of the GOS.

It has been determined by the analyses in the Project Paper that:

- (1) the project is technically, economically, socially, and administratively sound;
- (2) the timing and funding of project activities are appropriately scheduled;
- (3) sufficient planning has been made for the monitoring and evaluation of the project; and
- (4) statutory criteria have been satisfied.

Recommendation

Based on the authority delegated to you by State 213636 and the Delegation of Authority 140, Revised, it is recommended that you sign the attached Project Authorization and thereby authorize the project.

Date: August 26, 1982

Drafted by E. ^{5/21} Morris

Clearance: J. Beebe (in draft)
E. Witt (in draft)
D.E. Dembowski (in draft)
M. Van Doren (in draft)
P. Scott, RLA (in draft)

EM/ssm

PROJECT AUTHORIZATION

Name of Country: Sudan
Name of Project: Southern Regional Agricultural Development
Number of Project: 650-0046

1. Pursuant to Section 103 of the Foreign Assistance Act of 1981, as amended (the "Act"), I hereby authorize the Southern Region Agricultural Development Project for Sudan ("Cooperating Country") involving planned obligations of not to exceed \$10,100,000 in grant funds over a four year period from the 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.

2. The project consists of five major components that are designed to promote increased agricultural production and incomes in the Southern Region of Sudan by relieving key constraints to private sector agricultural production, processing and marketing activities. To accomplish this objective, A.I.D. will provide technical assistance, training, equipment and commodities, construction funds and operating cost support in the following areas:

(1) Agricultural Marketing:

The project will assist in the creation of a policy and marketing environment that will provide incentives to encourage the production, processing and marketing of agricultural commodities. To this end, appropriate agricultural policies will be developed, a regional marketing strategy will be formulated and improvements will be made in the Region's market and transportation infrastructure.

(2) Farming Systems Research:

A farming systems orientation will be initiated at Yambio Research Station in order to define specific on-farm constraints to increasing production and address these constraints by on-farm and on-station adaptive research;

(3) Manpower Development and Utilization:

Assistance will be provided to define the quantity and quality of agricultural manpower needed by the agricultural sector, to assist in the pre- and in-service training of this personnel, including direct farmer training, and to improve the utilization of existing Ministry personnel;

(4) Budget and Financial Planning for the Agricultural Sector:

Assistance will be provided to help the RMANR develop an improved budget process, financial management system and improve its financial planning capabilities. A comprehensive development budget will be prepared and

a long-term program will be developed to identify and resolve capital and recurrent cost issues, and;

(5) Area Development Program:

The Area Development program brings elements of these different components together in up to two geographic areas in order to determine the extent to which interventions are effective and to identify implications for the design of a follow-on activity. Feeder roads (farm to market center) will be rehabilitated, a program to improve on-farm storage initiated and credit will be provided for rural enterprise development that in turn will promote private sector involvement in the supply of farm inputs, processing of farm products and the marketing of farm output. Special attention will be given to ensuring a conducive environment at the local level for increased agricultural production and private enterprise development.

3. No funds authorized herein shall be obligated for the provision of credit funds for support of agricultural marketing or manufacturing activities of small-scale entrepreneurs or for market or transportation system improvement activities until the requirements of Section 611 (a) of the Foreign Assistance Act are met with respect to this project activity.

4. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. 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 financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in countries included in A.I.D. Geographic Code 941 except as A.I.D. may otherwise agree in writing.

b. Conditions Precedent

1. Prior to the disbursement of funds under the Grant for support of the project training programs at Yambio Institute of Agriculture (YIA) and Rumbek Agricultural Training Center (RATC) for the second and third years, or to the issuance of documentation by AID pursuant to which disbursement will be made with respect thereto, the Cooperating Country will provide, in form and substance satisfactory to A.I.D.:

- a. evidence that the Regional Ministry of Agriculture and Natural Resources can provide adequate administrative support by the presence of strong Sudanese administrators at both institutions; and

- b. evidence that the Southern Regional Government can begin to meet a greater share of the operating costs of these institutions, by agreement or a plan to reduce the proportion of funding from outside sources.
2. Prior to the disbursement of funds under the Grant for project activities other than:
- a. short and long-term technical assistance advisors and support thereto (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - b. participant training and support of training institutions (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - c. preparation of studies, analyses, plans and reports; and
 - d. feeder road rehabilitation and reconstruction;

the environmental review and analysis of such activities required by AID Regulation 16 will be completed and the results of such review approved by AID.

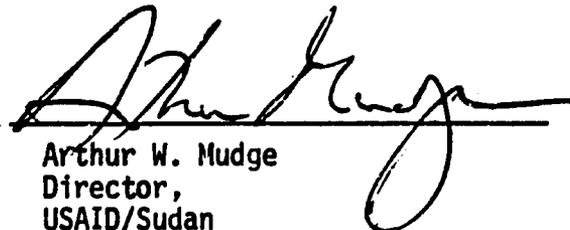
3. Prior to the disbursement of funds under the Grant for rehabilitation and/or reconstruction of each segment of feeder road (except for disbursements of funds for technical assistance advisors and commodities), or to the issuance of documents by AID pursuant to which disbursements will be made with respect thereto, the cooperating country will provide, in form and substance satisfactory to A.I.D., a detailed description of the arrangements under which the rehabilitation/reconstruction of such segment will be carried out which includes:
- a. an identification of the office or organization which will be responsible for the construction (e.g. Provincial Commissioner, Area Council, or village chief or council);
 - b. an implementation plan which includes a time schedule for completion of the work, an estimate of the personnel, equipment and commodities required, and their costs;
 - c. a description of the contractual or other arrangements to be made for all personnel required (laborers, supervisors, mason and/or pipe layer where needed, time-keeper, book-keeper) including the times during which such personnel will be expected to work and the basis upon which they will

- d. arrangements made to obtain specific designs for any major work to be undertaken such as major filling at drainage crossings; and
- e. arrangements to be made for maintenance of completed road sections.

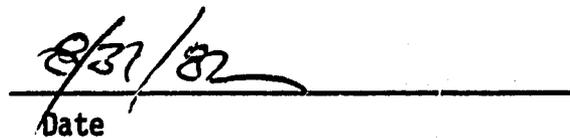
C. Covenants

The Cooperating Country shall covenant that:

1. Within ninety (90) days of the date of signature of this Agreement, or such other date as A.I.D. may agree to in writing, the Cooperating Country will submit to A.I.D. a detailed implementation plan for the activities to be conducted during the first year of the project. A similar plan shall be submitted annually thereafter for activities to be conducted during the next year.
2. No funds provided under this Agreement will be used for assistance for the procurement and use of pesticides until the environmental analysis requirements of AID Regulation 16 are satisfied.



Arthur W. Mudge
Director,
USAID/Sudan



Date

Southern Region Agricultural Development Project I

Project Paper

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I. Introduction

A. Project Summary

Southern Region Agricultural Development Phase I (SRAD I) is the first phase of a proposed 10 year effort on the part of the Regional Ministry of Agriculture and Natural Resources with AID assistance to promote increased small farmer agricultural production and incomes. SRAD I established an iterative process of addressing already identified key constraints to the development of private sector, and key public sector institutional constraints to the effective utilization and management of resources in the public sector; learning from these efforts; continuing to identify specific constraints; and developing additional interventions. The project consists of five related components: (1) Marketing, (2) Farming Systems Research, (3) Budget and Financial Planning, (4) Manpower Development and Utilization, and (5) Area Development. Impact on the private agricultural sector depends upon removing technical production constraints while providing incentives for increased production. The Farming Systems Research component of the project deals with the farm constraints while a Marketing component addresses some of the constraints to ensuring adequate incentives such as policy, physical markets and credit. This component also deals with planning for transportation while a program for construction of feeder roads is implemented. The SRG ability to plan and manage the changes required both for dealing with technical production constraints and ensuring incentives for increased production depends upon its ability to utilize the financial and human resources at its disposal. Budget and Financial Planning and Manpower Development and Utilization components are included in the project to address and support the production components. The Budget and Financial Planning will also play a key part in ensuring that the collection of revenues needed for the public sector does not create disincentives for private sector. Finally, an Area Development component brings elements of these different components together in two geographic areas in order to determine the extent to which interventions are effective and to identify implications for the design of SRAD II.

The project purpose is to relieve key policy production, marketing, institutional and infrastructure constraints to increasing private sector agricultural production, processing and marketing in Southern Region of Sudan.

B. Recommendations

This Project recommends that: (1) In order to relieve key policy, production, institutional and infrastructure constraints to increasing private sector agricultural production, processing and marketing in the Southern Region of Sudan and based on AID's long-term commitment to this effort, extending beyond this project, a grant in the amount of \$10,000,000 to be authorized for this project. (2) Financing covers four years beginning in FY 82 with most of the project activities scheduled between September 1983 and September 1986. (3) The grantee to be the Government of Sudan (GOS) represented by the Southern Regional Ministry of Agriculture and Natural Resources (RMANR).

II. Project Background

A. Agricultural Development in the Southern Region.

The Southern Region of the Sudan has a population estimated at six million people spread over 650,000 square kilometers, an area roughly the size of France. The Region contains about a fourth of the country's total population and a third of its land area. Ninety percent of the population are traditional farmers or pastoralists who produce a wide range of food and cash crops and engage in livestock production.

Annual per capita income is estimated to be \$150, only one third of the national average of \$450. Industrial activity contributes less than 5 percent to the regional economy and the level of capital accumulation is very low. The Southern Region has a net trade deficit with the Northern part of the country as well as the neighboring countries of Zaire and Kenya.

The region which was once a net exporter of food and cash crops, now imports as much as 15 percent of its annual food requirements. The principal cause of the decline in the agricultural productivity of the South was the seventeen year long civil war which isolated the Southern Region from 1955 to 1972. Physical infrastructure was not only destroyed throughout the region, but the fighting brought about physical and social dislocations that have not been easy to correct. Even after ten years of assistance from international donors and a major effort on the part of the Government of Sudan the network and general infrastructure have not been returned to the condition they were in 1955.

Another problem has been previous national economic policies favoring parastatal enterprises and an economic environment hostile to the development of private enterprise. The GOS has recently moved toward an overall policy that will strengthen and encourage a greater role for the private sector in the production, processing, and marketing of agricultural commodities. The Southern Regional Government has explicitly stated a policy which will give priority to private sector development of agricultural production and related businesses while attenuating the previous focus on government investment in, and control of, large-scale mechanized farm schemes. The area covered under SRAD I varies from the high rainfall "green belt" of the Yambio area to the slightly dryer Ironstone Plateau in the Wau-Rumbek area. Among the commonly grown crops in the area are sorghum, peanuts, corn and cowpeas, with some cassava and yams. Cash crops grown include coffee, sesame and cotton. Farmers in the project area practice different methods of farming generally representative of prevailing systems throughout the region. In the areas around Yambio, the farmers are sedentary with mixed food and cash crops. In the Ironstone Plateau area of Wau/Rumbek semi-nomadic pastoralists base their production systems on cattle and sorghum.

The major subsector constraints inhibiting agricultural development in the Southern Region and particularly in the project area are the

following.

1. An economic policy environment not conducive to increases in farm outputs, investment in rural infrastructure and farm support services, combined with a serious lack of local financial resources.
2. Low yielding farm technology limiting the ability of farmers to produce marketable surpluses.
3. Underdeveloped marketing systems which limit farmer access and do not provide incentives for farmers to produce for the market.
4. Inadequate capacity of principal public sector institutions to plan, implement and manage an effective program of agricultural development at both the local and regional levels.
5. Grossly underdeveloped transportation and communications networks.

B. Administrative Decentralization

The agreement that ended the civil war in the South established the Southern Region as a semi-autonomous area, with its own legislative body, executive and ministry structure. The entire Region has had considerable authority, but limited resources to implement development activities.

The government for the Southern Region elected during the summer of 1982 is committed to decentralization within the region and has indicated it will implement the People's Local Government Act of 1981. While all of the implications of this policy are not known at present, it is clear that much of the responsibility for development and many of the functions of government will shift from the regional government level to the provincial and area council levels. Under this plan, districts consisting of urbanized central places and their satellite villages will be governed by Area Councils, and these councils will have responsibility for implementing government services at the local level. The project is designed to work with government at both the regional and local levels and provides specific assistance to these different levels in implementing the policy of decentralization.

C. Major Donor Assisted Agricultural Activities in the Region

The most important agricultural activity in the Region has been the World Bank (IBRD), Overseas Development Administration (ODA), and International Fund for Agriculture Development (IFAD) cofinancing of the Southern Agricultural Project.

The Project has made \$56 million available to increase smallholder production and food crops and crops of high export value. The Project Development Unit (PDU) was created as the implementation agency and has not to date integrated its activities into those of the RMANR. PDU activities have included significant applied research in Yei and activities at reduced levels in Wau, Rumbek, Tonj, Mundri and Maridi. A

Project Formulation Unit (PFU) was established and recently integrated into the planning department of RMANR to advise the Ministry on project proposals and to prepare district development programs. The PFU has completed one district planning report, another is under preparation and most of the field work has been completed for a third. The IBRD/ODA project has suffered from over-extension and criticism that its activities are not integrated into the RMANR. At the time of preparation of SRAD I the future of these activities was uncertain. SRAD I is designed to complement planning activities in the Ministry already initiated by the IBRD/ODA project. PDU has not significant activities planned for Yambio district. Even though SRAD I was designed not to conflict with PDU activities in Rumbek, the exact nature of how these programs will complement each other has not been fully resolved and cannot until the future of IBRD/ODA project has been agreed upon.

Other multilateral donor activities include UNDP/FAO support to the Yambio Agricultural Training Institute, a WHO/UNICEF rural water program, a Work Food Program, Food for Work program and European Economic Community support for Aweil Rice Scheme (originally initiated by the UNDP/FAO) and the Upper Talanga Tea Project.

Bilateral programs include Dutch financed integrated rural development program at Bor, a Federal Republic of Germany livestock disease survey and control project and a forestry project, and a Denmark project covering the development and operations of the Malakal Fisheries Training School. In addition to assistance provided by the United Kingdom under the IBRD project, the ODA has supported the Imatong Forestry Project.

Voluntary agencies involved in southern agriculture include the Norwegian Church Aid program in Eastern Equatoria Province, ACROSS in Mundri and Tonj Districts and the Sudan Council of Churches in Rumbek and Yirol Districts.

SRAD I builds upon the work in manpower development and utilization begun by the USAID-funded Southern Manpower Development Project (650-0021). SRAD I activities in the area of farming systems research will be based at the Yambio Agricultural Research Station, a facility that was physically rehabilitated with a USAID Operational Program Grant to the International Volunteer Services under Project number (650-0035). The choice of districts within which to begin activities under SRAD I was influenced by USAID experience under the above projects in Yambio and Rumbek and the projected impact on the removal of transportation constraints in those areas resulting from the construction of the USAID-funded road between Mundri and Wau via Rumbek.

Activities of SRAD I will be closely tied to the Agricultural Planning and Statistics Project, 650-0047. The purpose of the Agricultural Planning and Statistics Project is to strengthen the Central Ministry of Agriculture's policy analysis and planning capability in order to more effectively utilize domestic and foreign donor resources and to increase production and income in rural areas of Sudan. The project has four

long-term advisors: a Macro-Economist, an Agricultural Marketing and Trade Analyst, a Planner and an Agricultural Statistician. These advisors will focus upon national issues and policy formulation for the rainfed sector. However, regional issues and planning needs will also be addressed and it is envisioned that the Central Planning and Agricultural Economics Administration (PAEA) to which these advisors are attached will be in frequent communication with regional planners and advisors. Consequently, efforts will be made to establish an effective system of communication between the Central project and its expertise and the long-term specialists provided under SRAD I particularly the Agricultural Marketing and Budgeting/Financial Specialist. SRAD I specialists will be concerned with project and regional issues, however communication with the PAEA and its expertise is essential for both policy guidance and periodic short-term professional exchange and mutual assistance.

III. Project Description

A. Overview

SRAD I is the first phase of a proposed 10 year effort on the part of the Southern Regional Ministry of Agriculture and Natural Resources (RMANR) with AID assistance to promote increased agricultural production and incomes in the Region. This can only be accomplished by removing technical production constraints while providing incentives for increased production. This in turn requires interventions in the private sector and in key public sector institutions in the areas of policy, institutional development, production and marketing. SRAD I establishes an iterative process of addressing already identified key policy, institutional, production and marketing constraints; learning from these efforts; continuing to identify and specify constraints; and developing additional interventions. Important concepts underpinning the strategy to be used in SRAD I are that the project: (1) is geared to the needs of the traditional farmer, (2) is oriented to problem-solving at the farm, market and policy level, (3) is comprehensive in the sense that proposed interventions are not bound by the farm, market and policy sectors, and (4) recognizes the critical role of the private sector in promoting agricultural development and the need for a conducive environment for private entrepreneurial development.

To deal with the complex issues of removing technical production constraints while providing incentives for increased agricultural production, SRAD I is divided into 5 components. These components focus on technical assistance aimed at addressing specific problems in the following five substantive areas: (1) Marketing, (2) Farming Systems Research, (3) Budget and Financial Planning, (4) Manpower Development and Utilization and (5) Area Development.

SRAD I is designed to begin a long term process of removing constraints at both the local and regional levels that face the agricultural producers of the project area. Because almost all the agricultural producers of the project area farm less than five acres using traditional methods, and because investment in these farmers is expected to yield substantial returns, much of the project is aimed at the small scale, traditional farmers. This does not, however, mean that the project will not extend assistance to larger scale farmers where a potential for increased productivity is present. Many of the project activities aimed at removing constraints to private sector development may well have a quicker impact on larger farmers. One consequence of this project may also be the development of larger farm units. The removal of constraints will have a direct and in some cases

almost immediate impact on the farmers. The Marketing component provides the focal point for the changes needed in policy and credit systems to ensure there are incentives for increased production. While the marketing component identifies transportation bottlenecks in the regional marketing system, the Area Development component will implement an ambitious program of improving the feeder roads in one district. The Farming Systems Research component provides the focal point for project activities designed to deal with technical production constraints. Actual work with farmers and on farmers' fields is designed to address some of the farm level constraints while making recommendations for the removal of non-farm level constraints. The SRG's ability to plan and manage the changes required both for dealing with technical production constraints and ensuring incentives for increased production depend on its ability to develop and use more effectively the financial and human resources at its disposal. The Budget and Financial Planning and the Manpower Development and Utilization components are included in the project to address these problems. The project also includes provision for transportation infrastructure improvements that may be identified in the marketing study.

The Budget component will work with the Area Development component to ensure that local fiscal policies and regulations do provide incentives to the farmer and the private sector enterprises that support the farmer. It will also deal with the issues of resource allocation in the agricultural sector and the effective utilization of financial resources that are available. The Manpower component directly influences the quality of the agriculturalist who works with the farmer. The greatest impact of the manpower component on the farmer could be the provision for direct farmer training in the use of technologies that remove technical production constraints. Finally, the Area Development component brings elements from all of the other components together in two geographical areas. This component should better enable the local Area Council to mobilize public sector resources that serve the farmer. It also provides direct assistance to small scale enterprises that provide services to the farmer such as grain grinding, the buying and selling of commodities and storage. This component also provides for assistance to the farmer in improving on-farm storage and influences the availability of logistical support to enable these agriculturalists to make contact with the farmer. The single most significant impact of the project on the farmer may result from the provision of feeder roads that improve access to the marketing system.

Extensive activities in the more developed of the two areas, Yambio, will help determine the extent to which interventions have their intended effect. A reduced level of activities in the lesser developed and more complicated area of Rumbek is designed primarily to identify implications for activity under SRAD II in Rumbek, and ecologically and culturally similar districts in the Region.

Because some of the most important constraints to increased agricultural production are determined at the Regional level, the project is designed to deal with them at that level. Increased production requires markets outside the local

area if farmer incomes are to be increased and the Marketing component is designed to help identify constraints in the regional system and to begin to address them. This component is also responsible for getting information to the farmer on market conditions and prices throughout the region, thereby increasing his or her ability to make rational decisions. Since the agricultural sector is the major potential source for public sector revenues, the farmer has a direct interest in both how these revenues are collected and how they are spent. The Budget component is designed to influence both as well as helping improve the efficiency with which agricultural support is delivered to the farmer. The Manpower component plays a key role in determining the overall quality of the services the government delivers to the farmer as well as ensuring that trained manpower is available for the entire agricultural sector.

B. Program Goal and Project Purpose

1. Goal

The goal of USAID/Sudan's agricultural program in the South is to improve the standard of living of the people living in the Region. As a means to reach this ultimate objective, the goal of this project is to increase agricultural production and the incomes of traditional farmers and pastoralists as well as promoting the participation of private entrepreneurs in agricultural processing and marketing.

Indicators of long-term goal achievement are defined as follows:

1. Increased farm productivity;
2. Higher farm incomes;
3. Increased total volume of marketed agricultural commodities;
and
4. Larger numbers of small to medium-scale entrepreneurs involved in the processing and marketing of agricultural commodities, including farm inputs.

2. Purpose

The purpose of this five-year, Phase I project is to relieve key policy, production, marketing, institutional and infrastructural constraints to increasing private sector agricultural production, processing and marketing in the Southern Region of Sudan. Phase I will lay the foundation for an expanded AID agricultural assistance program in the South and, based on AID's long term commitment to this effort, a more comprehensive Phase II follow-on project will be designed during Phase I.

Achievement of the Project's Purpose will be measured by the following End of Project Status (EOPS) conditions:

EOPS:

1. The identification of policy and physical infrastructure changes necessary to provide incentives to (a) encourage the production of marketable agricultural surpluses; (b) stimulate private sector investment in the marketing of agricultural commodities; and (c) promote small to medium-scale agribusiness, as well as the implementation of some of these changes, especially in the Yambio and Rumbek areas.
2. An integrated regional marketing strategy and appropriate sub-sector marketing programs based upon policy reform, with the implementation of the initial stages of the marketing plans for Yambio and possibly Rumbek Districts.
3. Training programs in Yambio and Rumbek functioning on the basis of a clear definition of quality and quantity of manpower needed by the agricultural sector using appropriate curricula and with programs within the administrative and financial capabilities of the Region.
4. An operating prototype credit program for small to medium-scale entrepreneurs involved in agribusiness.
5. An improved RMANR budget planning process that will allocate financial and manpower resources in more efficient and effective manner, including consideration of donor resources flowing into the Ministry.
6. Improved farmer access to markets and input suppliers including feeder roads in place and being maintained in Yambio.
7. A firm foundation for a farming systems research program capable of identifying farm constraints, conducting applied research on farmers fields and recommending a package of practices and inputs to increase agricultural productivity and increase farm income with actual experience with such a program in the Yambio district.
8. Improved coordination among the institutions involved in agricultural linkages among research programs, farm extension, agricultural training institutes and RMANR provincial and Area Council activities.
9. A functioning system at the Area Council level in Yambio that will be capable of administering programs to assist farmers, pastoralists and rural business in such areas as credit, input supply, small business feasibility assessment, etc.
10. Selection criteria developed and a process established for future (Phase II) assistance to the agricultural sector including the identification of viable small/medium scale agribusiness opportunities, and the expansion of major project activities to the Rumbek area and to other areas.

C. Project Components

1. Agricultural Marketing

The current marketing systems within the project area do not provide financial incentives for farmers to expand output or produce a marketable surplus, nor do they effectively supply consumers in different parts of the region with adequate food items for which there is an effective demand.

In order to encourage farmers to innovate and increasingly produce a marketable surplus, the farming system and producer incentives must be dramatically improved. Incentives can be communicated to farmers via favorable price policies, improved access to village markets, and regulations and improved input delivery systems. However, at the present time village markets are poorly developed and physically isolated from farmers and larger markets and consuming centers, primarily due to inadequate physical and economic infrastructure (roads, rural market centers, storage facilities, grading systems and processing facilities). Improved economic infrastructure and marketing policies can be expected to not only provide financial incentives for farmers to increasingly produce for the market but also foster the development of important farmer support services originating in the private sector (e.g., provision of farm inputs and consumer goods, implement repair and fabrication, crop storage facilities, and most importantly farm to village transport services).

The marketing component of the project will encompass the commodity marketing chain, however, the major thrust during SRAD I will be upon improving small farmer access to village markets and improving small farmer support services.

a. Regional Marketing and Transportation Study

In order to more specifically identify and define the technical and economic constraints of the present marketing system and provide the framework for market interventions, one of the first tasks to be undertaken by the project will be a major marketing and transport study. The purpose of this study will be to provide a diagnostic analysis of the commodity marketing systems and to identify interventions (structural, policy, investment) required to improve (1) small farmer access to rural markets and (2) technical and economic efficiency of the agricultural marketing system.

This study is to be undertaken during the months of September-November 1982, before other parts of the project are underway. This study will provide the basis for the project's continued involvement in agricultural market development and will provide a conceptual framework for the long term marketing advisor to be provided by the project.

-- Inputs to support this activity will include:

- . 9 pm of short term T.A.

b. Regional Crop Marketing Strategy

Formulation of regional crop marketing strategy that can serve as the basis for pilot activity under SRAD I and will identify specific market interventions to be implemented under SRAD II

-- Inputs to support this activity will include:

- . Up to 60 percent of the time of the long-term marketing specialist
- . 12 pm of long-term participant training in marketing and government programs for promoting private enterprise development.

c. Market Information Systems for Farmers

Develop an improved regional and district level (Yambio) marketing information system to communicate market prices and trading volumes (surplus and deficits) at key market centers within the region. The project will provide electronic equipment necessary to modify the existing satellite relay station in Yambio to broadcast standard band radio as well as provide transceivers capable of connecting central station to at least three village centers.

-- Inputs to support this activity will include:

- . 1 pm of short term T.A.
- . \$50,000 and LS 50,000 for commodities and operating costs.

d. Market Surveillance System

Establish a viable, low cost system of market reconnaissance/surveillance that can identify constraints in the crop marketing chain, measure changes in commodity trade and monitor commodity prices.

-- Inputs to support this activity will include:

- . Up to 10 percent of the time of the long-term marketing specialist
- . LS 60,000 for operating costs, including production and distribution of necessary forms, data analysis and reproduction and distribution of results in forms useful to policy-makers and for general distribution through existing media sources.

e. Regional Marketing and Transportation System Improvement

Specifications on improvements that can improve the flow of commodity trade within the regional marketing system will depend upon the completion of the marketing and transport study and development of the regional marketing strategy. The types of activities that might be funded include central crop storage facilities, grading and bulking facilities, river channel markers, navigational system improvements, etc. It is envisioned that some of these

improvements can be implemented by the private sector and technical advice provided by the project and through existing credit institutions such as the Agricultural Development Bank. Other improvements will require assistance to appropriate government agencies.

-- Inputs to support this activity will include:

- . \$250,000 and LS 250,000 for construction and commodities
- . 2pm short-term T.A.

f. Feasibility Studies for Small Business/Private Enterprise Development

The purpose of these studies will be to investigate the economic feasibility of supporting small to medium scale private entrepreneurs to invest in agri-business activities, (e.g., equipment fabrication, construction of on-farm storage, primary processing) and other farmer support services (e.g., input delivery, crop protection, and farm to village transport services).

-- Inputs to support this activity will include:

- . 2 pm of short-term T.A.

AID inputs under this component will have a total value of \$980,000 and LS 419,000 broken down among the following categories.

A. Technical Assistance	\$	LS
1. Long-Term (36 pm)	432,000	3,000
2. Short-Term (14 pm)	224,000	56,000
B. Training		
Long-Term U.S. (12 pm)	24,000	-
C. Commodities and construction	300,000	300,000
D. Operating Costs	-	60,000

2. Farming Systems Research

The project will support the design and implementation of a farming systems approach to research at the Yambio Agricultural Research Station. Both adaptive and applied research, directed toward the production constraints and circumstances of the small farmer, will be implemented during SRAD I. Initial research activity will center on diagnostic surveys of the small farm resource base, production systems, constraints and the small farmer's capacity to innovate. In addition to these on-farm parameters, the off-farm conditions influencing the farming system will be investigated. On the basis of these on- and off-farm investigations a program of applied (trials on farmer's fields) and the adaptive (initial screening and diagnostic trials) research will be designed and implemented in the second and subsequent years of the project.

The purpose of Farming Systems Research (FSR) is to generate appropriate technologies for farmers and where possible to improve policies and support services to increase farm production and income. The FSR approach to research has particular merit for small farmers, who produce a wide range of commodities, face both risk and uncertainty and have very limited resources. The approach is unlike conventional, empirical crop-specific agricultural research carried out on experiment stations. The FSR approach requires (1) studying the many facets of the farm household through close and frequent contact with household members on their farms, (2) considering problems and opportunities as they influence the whole farm, (3) setting research priorities accordingly, (4) recognizing the linkages among enterprises and activities within the farm system, (5) evaluating research results in terms of the whole farm situation, and (6) carrying out research on farmers' fields where results are judged not by disciplinary standards but rather against farm circumstances and farmer standards.

At the present time the research station at Yambio does not have either the necessary physical facilities, equipment, supplies, operating budget or critical mass of research and extension personnel to conduct such a program. The project will provide technical assistance, training, commodities and construction and operating funds to implement such a research program.

Outputs under this component are of three types: (1) information gathering necessary for the formulation of the research strategy, initial research design and design of SRAD II, (2) institution building and (3) generation of appropriate farm technology.

a. Establishment of the necessary manpower, facilities and operating funds to begin to carry out a farming systems approach to research.

-- Inputs to support this activity will include:

- . 36 pm of long-term T.A. in the field of agronomy and farming systems research management.
- . 36 pm of long-term T.A. in the field of agricultural economics with a strong background in farm management research in developing countries.
- . 24 pm of a U.S. Peace Corps volunteer to be a physical plant engineer.
- . 36 pm of a locally hired extension/communications specialist.
- . 18 pm of short term T.A. in technical areas not covered by resident staff including agrometeorology, research station farm development, data management, weed science, pest management and agricultural engineering.
- . LS 9000 to cover per diem and extraordinary travel costs of ARC staff to provide 12 pm of short term T.A. in areas such as food science, pathology, nutrition, biometrics and nematology.

- . 72 pm of long-term participant training leading to 3 M.S. degrees.
- . 6 pm of short-term participant training and observational visits at International Agricultural Research Centers.
- . \$30,000 and LS50,000 for minor construction and alternations in physical facilities including construction of a screenhouse and a seed storage facility. The screenhouse will be approximately 4 meters by 14 meters, x 2,5 meters high, divided into two parts, with double screen doors and wire mesh attached to a wood frame and a concrete floor. The seed storage facility is to be 4 meter by 4 meter by 2,5 meter and constructed of walls, concrete floor and a galvanized iron roof, with special doors and ventilation systems made for this purpose to control moisture and insect damage.
- . \$30,000 for a 50 kw generator
- . \$15,000 for auxiliary 10,000 liter diesel fuel storage tank.
- . \$3,000 for radio equipment.
- . \$3,000 for 6 kerosene refrigerators
- . \$6,000 for mimeograph equipment including an electric stencil cutter
- . \$50,000 for two four-wheel drive utility vehicles including spare parts.
To standardize with existing vehicles, Landrovers are needed.
- . \$4,500 for 6 motorcycles.
- . \$3,500 for 18 bicycles.
- . \$6,000 for office furniture for 6 scientists.
- . \$11,000 for guest-house furniture and kitchen appliances
- . \$15,000 for specialized equipment to be specified by program scientists.
- . \$5,000 for micro-computer for statistical analysis.
- . \$5,000 for medical diagnostic lab equipment for station clinic.
- . \$56,000 for 8000 feet of chain link fence, including gates and barbed-wire top.
- . Operating expenses - \$80,000 for fuel
- . Operating expenses - LS210,000 for local hire employees, compensation for on-farm trials, etc.
- . Operating expenses - facility maintenance of \$30,000 and LS60,000.
- . Operating expenses- office and research commodities \$45,000 and LS30,000.
- . LS4,000 to clear 50 feddans of land at research station.

b. Collection of information needed for the design of SRAD II including (1) development of a long-term research program based on local conditions and limited manpower and financial resources, (2) assessment of manpower and resource needs for SRAD II based on the experience of the project during the first 18 months and (3) based on exploratory work in Rumbek including consultation and work with the PDU Halima Station near Wau, assessment of resources needed to expand the farming systems approach to research in that area.

-- Inputs to support this activity will include:

- . Up to 15 percent of the time of two long-term advisors during the first 18 months of the project.

c. Implementation of a farming systems approach to research in the Yambio area including: (1) definition of the system and identification of constraints, (2) initiation of an on-farm research program of adaptive research, (3) initiation of an on-research station program of adaptive research, (4) recommendation for agricultural policy reform, (5) development of a program for dissemination of research findings based on cooperation with other local agencies and (6) development of a program of cooperation including sharing of facilities with the Yambio Institute of Agriculture.

-- Inputs to support this activity will include:

- . All of the inputs included under output (a) above.

d. Support for the Regional Agricultural Technical Committee (RARTC). The RARTC is responsible for coordinating and planning agricultural research in the Southern Region. The RARTC is composed of representatives of both government agencies and donors involved in the Region and is playing a vital role in disseminating information and assessing the extent to which research coincides with priorities for agricultural development. The RMANR is committed to providing personnel, office facilities and the use of a vehicle. SRAD I assistance to the RARTC will be channelled through the RMANR.

-- Inputs to support this activity will include:

- . \$5,000 for office equipment including a typewriter, duplicating equipment and calculators.
- . \$5,000 and LS2,000 for office supplies and publications.
- . \$6,000 for PUL, vehicle maintenance
- . LS40,000 for additional personnel including secretary and office manager.

AID inputs under this component will have a total value of \$1,782,000 and LS483,000 broken down among the following categories:

		\$	LS
A. Technical Assistance			
1. Long-term (72 pm)	(72 pm)	864,000	6,000
2. Short-term (18 pm)	(18 pm)	288,000	72,000
3. Local hire (36 pm)		54,000	-
4. Peace Corps Volunteers	(24 pm)	-	-
B. Commodities and Construction		248,000	50,000
C. Training (72 pm leading to 3 Master Degrees)		144,000	
(6 pm short-term)		18,000	
d. Operating Expenses		166,000	355,000

The long-term farming systems specialists will work with the Director General of the Yambio Agricultural Research Station.

3. Budget and Financial Planning for the Agricultural Sector

The ability of the Southern Regional Ministry of Agriculture (RMANR) to successfully deal with the financial, institutional and policy constraints to the development of the traditional agricultural sector depend, to a large extent, on the ability of the RMANR to allocate the budget resources available to both the RMANR and the private agricultural sector. At the same time the RMANR must insure that the raising of revenues for public sector activities does not create disincentives for the agricultural sector.

The normally difficult decisions which must be taken during annual budget preparation, at a time of growing demands and scarce resources is made even more difficult for the government agencies involved in agriculture by the presence of numerous donor activities that make demands for both present and future resources. In the future the budgeting process will be further complicated by the process of decentralization of both Ministry functions and financial accounting.

Assistance provided by this component of SRAD I is designed to help the RMANR improve its budgeting process, financial management, and its macro financial planning capabilities. Assistance under this component is also designed to provide the analytical capability necessary to determine the implications of alternative courses of action and to provide the types of analyses necessary for macro policy formulation for the agricultural sector. In addition, assistance provided under this component will undertake the necessary analysis to ensure that SRG tax policies do not create disincentives for agricultural production or private investment in farm or rural support systems. Finally the technical assistance is designed to assess the entire issue of financing agricultural development and to provide recommendations for specific project interventions under SRAD II. Specific outputs include:

a. Improved Financial Planning and Budget Process

Improved institutional capability on the part of the RMANR and other government units involved in agriculture to carry out the financial planning and budgeting process.

-- Inputs to support this activity will include:

- . Up to 30 percent of the first year and 45 percent of the remaining year and half of the 30 pm long-term T.A. to be provided by the Budget and Finance Specialist.
- . 6 pm of third country short-term participant training in budget preparation for senior RMANR officials involved in the process.
- . 3 pm of short-term T.A. to design and implement a training program, including the preparation of instructional aids in budget preparation for Ministry personnel, heads of organizations, such as the training institutes, Yambio ARS personnel and Area Council officials.
- . 6 pm of U.S. short-term participant training in financial planning and the economic analysis of projects.
- . 12 pm of U.S. long-term participant training in budget formulation.

b. Agricultural Development Budget

Preparation of the comprehensive agricultural development budget showing all government and donor resources committed to agricultural development.

-- Inputs to support this activity will include:

- . Up to 20 percent of the time during the first year of the long-term Budget and Finance Specialist. By indicating the nature and magnitude of all resources committed to agricultural development in the region, with particular attention to donor activities, this budget will allow RMANR and SRG officials to compare commitments to development priorities and to make adjustments as needed.

c. Recurrent Cost

Development of a long-term program for identifying and dealing with issues of capital and recurrent costs.

-- Inputs to support this activity will include:

- . Up to 10 percent of the time during the first year of the long term Budget and Finance Specialist.

d. Budget Implication Studies

At the request of the Director General or other senior RMANR officials, preparation of cost-benefit analysis and budget implication studies for activities proposed by the Ministry.

-- Inputs to support this activity will include:

- . Up to 10 percent of the time of the long-term Budget and Finance Specialist.

e. Rural Fiscal Policies

Study of rural fiscal policy and as appropriate provide recommendations for policy reform to ensure that revenue collection by different levels of government are not providing disincentives to increased agricultural production or rural private enterprise development.

-- Inputs to support this activity will include:

- . Up to 10 percent during year one and 25 percent during the second and third year of the time of the long-term Budget and Finance Specialist working in conjunction with the Area Development Advisor.
- . 2 pm of short-term T.A.

f. Planning for SRAD II

Based on an overall assessment of the financial resources committed or available for the development of the agricultural sector, with particular emphasis on the development of the small farm sector and private enterprise engage in farm support services, identify specific interventions to be included under SRAD II.

-- inputs to support this activity will include:

- . Up to 20 percent during the first two years of the time of the long term Budget and Finance Specialist.

AID inputs under this component will have a total value of \$500,000 and LS 23,000 broken down among the following categories:

A. Technical Assistance	\$	LS
1. Long-term (30 pm)	360,000	3,000
2. Short-term (5 pm)	80,000	20,000
B. Training		
6 pm of short-term third country	18,000	-
6 pm of short-term US	18,000	-
12 pm of long-term U.S.	24,000	-

The long-term Budget and Finance Specialist will work with the Planning Department of the RMANR and through the direction of Planning will report to the Director General. He or she will be expected to provide liaison as appropriate with the Regional Ministries of Decentralization (formerly the Ministry of Administration, Policies, and Prisons) and Finance and Planning.

4. Manpower Development and Utilization

Considerable progress has been made by the Southern Region with assistance from a variety of donors in meeting manpower needs of the agricultural sector. With the end of the civil disturbances in 1972, the newly formed Ministry of Agriculture correctly identified the lack of even minimally qualified personnel as one of its major problems. Since that time the FAO and UNDP have reactivated the Yambio Institute, the only facility in the region for post secondary school training in agricultural technology. With assistance from the USAID-funded Southern Manpower Development Project (SMDP) some progress has been made in upgrading instructor qualifications and in re-directing the curriculum towards the needs of the traditional sector. Additional work however remains to be done in both areas. Both the World Bank PDU project and the Southern Manpower Development project have been involved in the training of more junior technicians. The major problem facing all of these institutions is reconciling their programs to the needs of the RMANR and to the RMANR's ability to provide administrative and financial support. SMDP has assisted the RMANR in developing a program to better utilize its existing manpower, but considerable additional effort is needed in this area. Limited assistance is needed by the University of Juba to enable it to play a role in SRAD I activities.

Extension and the dissemination of technical innovations are areas of critical importance for the agricultural development of the Region. It is, however, not anticipated that during SRAD I "tech packages" ready for wide-scale dissemination will become available. During this time some extension type activities associated with trials on farmer fields as part of the farming system approach to research will be supported by the project. Even before decentralization the "extension service" was very complex, with confused lines of responsibility and inadequate supervision. Initially decentralization will make the system even more complex. Even if attractive, output increasing innovations were available, the existing system would be hampered by inadequately trained and compensated manpower and lack of even the most basic logistical support.

SRAD I will continue limited support to the Ministry and local units of government for working out cost-effective means of using its existing extension personnel, especially in the districts where the project is involved. The project will also support efforts to link research to pre- and in-service agricultural training. Because of the large area of the Region and the likely difficulty on the part of the Regional and local governments in financing a comprehensive extension service based on salaried and academically trained extension workers, the project will

provide substantial assistance to setting up a program of training farmers to serve as extension workers for their neighbors.

By the time of the evaluation of SRAD I, it should be possible to better identify the requirements of a comprehensive system and to include as part of SRAD II the assistance needed to implement it. Specific outputs include:

a. Training Plan

Development of a comprehensive plan for pre- and in-service training of the manpower needed by the agricultural sector in the Southern Region based on the work already done by SMDP. This study will pay particular attention to the agricultural sector needs for university and graduate training and opportunities for meeting this needs within the country or abroad. This study will look at the implications of admission qualification and educational background of likely candidates for training. This study will also explore the need for and mechanism for establishing ongoing relationships between the RMANR and foreign universities, possibly in conjunction with activities at the University of Juba.

-- Inputs to support this activity will include:

. Up to 25 percent of the time during the first year of the long term specialist in Manpower Development and Utilization.

b. Support for Existing Training Programs

Funding to continue during the first year of the project training programs at Yambio Institute of Agriculture (YIA) and the Rumbek Agriculture Training Center (RATC) until a decision can be reached by the RMANR on the role of these institutions and the Ministry ability to support them.

-- Inputs to support these activities will include:

- . \$11,000 to cover the costs of fuel for transportation and generating electricity
- . \$6,000 to cover the cost of fuel for RATC.
- . LS 35,000 to cover subsistence for students at YIA
- . LS 14,000 to cover subsistence for students at RATC
- . LS 5,000 to cover transportation and other expenses related to student field work at YIA
- . LS 2,000 to cover transportation and other expenses related to student field work at RATC
- . LS 26,000 to cover other recurring costs at YIA
- . LS 11,000 to cover other recurring costs at RATC
- . 3 months of short-term participant training at Edgerton College for instructional staff from YIA or RATC as a means of maintaining the linkage between these institutions and Edgerton.

c. Future Role Report for RMANR Training Facilities

Preparation of a report on the future role of the training facilities at Yambio and Rumbek with particular attention to the possible employment opportunities of their graduates and the ability of the RMANR to support them administratively and financially.

This report must be completed not later than April 1984 to permit budget implications to be included in the SRG budget as well as planning to carry out other implications of the report. It should include careful consideration of costs and benefits of the training program, means of reducing training costs and making them more appropriate to the economic environment of the South and the ability of the RMANR to provide required administrative leadership. A condition precedent to the release of funding by the project for activities in YIA and RATC for the second and third years will be submission to USAID of evidence that the RMANR can provide adequate administrative support by the presence of Sudanese administrators at both institutions and evidence that the SRG can begin to meet a greater share of the operating cost of the institutions, by agreement or a plan to reduce the proportion of funding from outside sources.

-- Inputs to support this activity will include:

- . Up to 50 percent of the time during the first year of the long-term specialist in Manpower Development and Utilization.

d. Support During the Second and Third Years

Support of the training program at Yambio and Rumbek during the second and third years of the program based on the finding of the report on the future roles of these institutions. Activities and curriculum changes at Rumbek are to be coordinated with the program at Yei, and extensive in areas such as curriculum development is to be shared between Yei and Rumbek.

-- Inputs to support this activity will include:

- . Up to 40 percent of the time during the second year of the project of the long-term specialist in Manpower Development and Utilization, to work with the Ministry and the administrators of these institutions to carry out changes proposed in the study outlined in (c) above.
- . 4 pm of short-term T.A. to work on curriculum changes.
- . 10 pm of short-term third country participant training if necessary to implement the revised program.
- . 4 pm of short-term U.S. participant training.
- . \$5,000 to cover costs at Yambio
- . \$5,000 to cover costs at Rumbek.
- . LS 50,000 to cover costs at Yambio
- . LS 30,000 to cover costs at Rumbek.

e. University of Juba Program

The level of assistance required for the University of Juba to be able to play a major role in the development of the traditional agricultural sector of the South is beyond the scope of SRAD I. All assistance to the University under SRAD I will be aimed at permitting University participation in specific SRAD I activities with limited T.A. to help design an assistance program for possible inclusion in SRAD II.

-- Inputs to support this activity will include:

- . 1 pm of short-term T.A. to identify and specify a program, for possible inclusion in SRAD II based on establishing a "sister university" relationship with a U.S. university, that would re-direct emphasis of the University towards the traditional agricultural sector and the private agrobusiness sector necessary to support it.
- . LS 60,000 to support up to 10 students a year to do their practical ninth semester field work. Support to include transportation of both students and supervising Faculty members, subsistence expenses and where necessary, research expenses.
- . \$10,000 and LS 10,000 for books, teaching materials and laboratory supplies relating specifically to University activities supporting SRAD I.
- . \$10,000 and LS 50,000 for a RMANR research fund that can be used to contract research projects related to SRAD I with the University in areas such as area development, markets or agricultural research.

f. Career Development

Preparation of a program for career development of employee of the RMANR. This program is to pay special attention to the issues of assignments, opportunities for training and promotions under a decentralized system.

-- Inputs to support this activity will include:

- . Up to 40 percent of the time during the second year of the long-term specialist in Manpower Development and Utilization.

g. Project Participant Training

Establishment of a program for implementing project provided participant training

-- Inputs to support this activity will include:

- . Up to 10 percent of the first year and up to 5 percent during the remaining year of the time of the long-term specialist in Manpower Development and Utilization.

h. Farmer Training Program

Strengthen the farmer training program at the Yambio Institute of Agriculture.

-- Inputs to support this activity will include:

- . Up to 15 percent of the long-term specialist in Manpower Development and Utilization
- . 6 pm of short-term 3rd country participant training at a place such as the International Institute for Rural Reconstruction in the Philippines.
- . 6 pm of short-term T.A. to help develop curriculum for the program, assistance in implementation and evaluation.
- . LS 20,000 for the construction of facilities including 5 "tukal" type buildings and sanitary facilities for student farmers. "Tukals" will have brick walls, thatched roofs, concrete floors and be 8 meter wide with approximately 28 square meters of floor space. Sanitary facilities will consist of drop latrines with brick walls and a thatched roof with approximately 8 square meters of floor space. Estimates of cost are based on SMDP and USAID/Juba experience building "tukals" as temporary building during the construction of more permanent facilities.

AID inputs under this component will have a total value of \$580,000 and LS 360,000 broken down among the following categories:

	\$	LS
A. Technical Assistance		
1. Long-term (24 pm)	288,000	3,000
2. Short-term (11 pm)	176,000	44,000
B. Commodities and Other	47,000	313,000
C. Training: (19 pm short term third country)	57,000	
(4 pm short term U.S.)	12,000	

The long-term specialist in Manpower Development and Utilization will work as an advisor to the persons in the RMANR identified by the Director General as responsible for training and career development.

5. Area Development

The major thrust of the Area Development program is removal of constraints to increased agricultural production through private enterprise development. This approach recognizes a legitimate role for government by providing an environment conducive to the growth of private enterprise while ensuring that the general welfare is protected.

The Area Development component of the project will address already identified constraints to the development of traditional agricultural sector at the district level. The strategy will be to initiate activities to remove this obvious constraints, while recognizing that research findings generated by other parts of the project will most likely result in additional constraints to be alleviated. At the same time, it is understood that the proposed interventions are experimental and during the first phase of the project considerable attention must be given to establishing feedback mechanisms, both to permit adjustments in local areas development program, and to permit the application of lessons learned to other areas.

The concept of Area Development is a broadly based one, encompassing basic infrastructure such as feeder roads and other areas which have a direct impact on agricultural production. From the outset, community involvement is necessary in the planning and execution of projects initiated under this activity. The recent creation of Area Councils, as part of the GOS's decentralization process, recognizes the role of the local community in development and meeting its needs. The Area Councils will play an instrumental role in the selection and execution of area development projects.

As it was recognized that the project could provide assistance to only a limited number of areas, two districts, Yambio and Rumbek were chosen. Yambio was selected due to its high agricultural potential, the existence of a qualified cadre of GOS personnel, and a receptive target group whose social structure was easily adaptable to activities requiring community involvement. Rumbek district was chosen on the basis of being representative of a large part of the Southern Region in that a large percentage of the population combines transhumant pastoralist activities with sedentary farming. Both districts are within the larger Yambio/Yei/Mundri/Rumbek/Wau triangle which has been selected as the project area.

Initially, the area development program will concentrate on Yambio district. An Area Development Specialist will be stationed in Yambio for three years. Another Specialist may be assigned to Rumbek during the second year and could remain there for two years in order to initiate and guide activities in that area, if such a position appears necessary at the time of the first Mission review of the project. It is believed that some of the experience in Yambio area, especially relating to institutional development, can be transferable to Rumbek. At the same time, it is recognized that development in the Rumbek area will take longer to accomplish and at most SRAD I can lay foundation for work in this area.

Specific outputs include:

a. Baseline Study

Prior to the initiation of area development activities a study will be carried out to collect baseline data on income and agricultural production in Yambio and Rumbek districts. This study should be completed during the first six months of the project, and, to the extent possible, should make use of secondary data sources that can be collected without carrying out a detailed household survey. Special attention should be given to ensuring the comparability of this data to information collected by the planning department of the RMANR in other districts.

-- Inputs to support this activity will include:

- . Up to 10 percent of the time of the Area Development Specialist.
- . 2 pm of short-term technical assistance.

b. Assistance to Area Councils

Funds from the project will be used to develop a program to enable Area Councils to coordinate various technical activities aimed at assisting the target group. This will include some of the basic operating costs of the Area Council until a system of revenue collection can be put into effect. An annual review of regulations and other actions of area councils will be conducted to determine whether council activities are creating an environment conducive to the development of traditional agricultural and herder activities and to other private enterprise activities which support the agricultural sector.

-- Inputs to support this activity will include:

- . Up to 30 percent of the time of the Area Development Specialist.
- . 2 pm of short-term technical assistance
- . \$15,000 and LS 50,000 to cover basic area council operating costs of technical activities.

c. Credit for Private Entrepreneurs and Village Market Development

There is not enough capital available to indigenous small-scale entrepreneurs in the South to permit them to respond to the needs of the agricultural sector nor to benefit from the development of this sector. The project will provide credit for activities such as the marketing and/or manufacture of agricultural inputs including: seeds, chemicals, improved hand tools, sorghum grinding mills, sesame oil presses and rice hullers as well as to other activities contributing to production and marketing such as storage, bulking, weighing, etc. It is envisioned that the Agricultural Development Bank (ADB) will administer this program from its office in Juba and Wau, based on recommendations from the Area Councils on the needs of the areas, the appropriateness of the activity, the integrity of the individual, etc. Technical assistance will be provided to the ADB by the Marketing Specialist and the Area Development

Specialist in setting lending criteria, reviewing loan applications, arranging feasibility studies, and identifying training needs. Because a number of activities under this program such as grain grinding are within the domain of women, this activity should have specific benefits for them.

-- Inputs to support this activity will include:

- . Up to 60 percent of the time of the Area Development Specialist, supported by assistance from the Marketing Specialist
- . LS 400,000 and U.S.\$ 30,000 to make credit available to small-scale rural enterprises.
- . LS 20,000 to contract with a Sudanese firm or university to perform feasibility studies to be carried out under the policy component of the project.
- . 4 pm of short-term technical assistance to develop a training program for area council members and Agricultural Development Bank representatives responsible for administering the program.
- . 4 pm of short-term participant training and observational visits.
- . 1 pm of short-term T.A. to work on establishing and reviewing credit procedures.

d. On-farm Storage

One of the factors causing the "hungry period", a time of scarcity of basic foodstuffs between April and July, is the lack of adequate on-farm storage. This lack of storage also influences the farmer ability to maximize his/her return from marketing crops when prices are higher.

To correct this situation, the project will institute a program to test various on-farm storage alternatives, initially in the Yambio Area. Two U.S. Peace Corps volunteers, with special training in on-farm storage will be assigned to Yambio. Short-term back-up assistance will also be provided. If the Yambio program appears successful after nine to ten months of operations, two additional volunteers will be recruited for Rumbek district for the second and third years of the project.

-- Inputs to support this activity will include:

- . Four U.S. Peace Corp volunteers with training in on-farm storage assigned, but the decision of the fielding of volunteers to Rumbek depending upon results in Yambio.
- . \$4,000 and LS 20,000 for four motorcycles, tools and four traditional "tukals" housing units. "Tukal" units will have approximately 32 square meters of floor space, brick walls, thatched roofs with indoor toilet, shower and sink.
- . LS 10,000 to cover costs and the construction of demonstration/experimental storage units. Open systems similar to the GTZ maize crib will likely require not more than LS.20,

Closed systems such as the modified Ghona Mudblock, capable of holding 1.5 tons of grain with requirements for wood, concrete (2 bags of cement), waterproof sealant and white wash will cost approximately LS 200 including incidental labor costs. Approximately 50 experimental storage units are to be constructed for evaluation and demonstration purposes.

e. Feeder Roads

Nothing constrains farmer access to markets more than the lack of roads. With the construction or reconstruction of roads linking the major local markets as well as markets outside the region, attention can shift to the rehabilitation of roads that provide access to primary markets.

Specific outputs include:

- (1) 87 kilometers of rehabilitated feeder road
- (2) Culverts and bridges constructed over an additional 125 km of roads that are otherwise usable
- (3) A/Commissioner Roads engineer trained in implementing labor-intensive road construction programs
- (4) Foremen and timekeepers trained and capable of supervising and implementing rehabilitation and maintenance programs for feeder roads.
- (5) Development of an on-going maintenance program.

-- Inputs to support this activity will include:

(1) Technical Assistance

9 pm of short-term TA (3 pm each year)

During the first 3 months of project implementation, the roads engineer will:

- a) Work with Area Council, Area Commissioner of Roads and Local Chiefs to establish procedures for feeder road program, supervisory responsibilities;
- b) Assist construction team Administrative Officer prepare equipment and commodity list, specifications and procurement plan.
- c) Conduct workshop for A/Comm., roads engineering staff, village foremen and timekeepers.

Each of the subsequent two years, the short-term roads Specialist will return for three months to inspect progress and conduct additional training, assist with additional procurement, and provide supervision as necessary. Major supervisory responsibilities for the actual construction work will rest with the office of A/Comm., Roads Yambio District.

- (2) Third country training - 1 pm for engineer from A/Comm., Roads in Kenya to observe Kenya Rural Roads Project.
- (3) Commodities - \$172,000 for culverts, cement, reinforcing steel, etc.
- (4) Equipment - \$356,000 tipper trucks, hand tools, cement mixers, water drums rollers, motorcycles.
- (5) LS 635,000 for labor, supervision, local materials and maintenance.

f. Extension Support and Area Councils

Strengthening of the RMANR ability to support private sector enterprise development, extension and outreach activities in Yambio district by providing support to Ministry employees involved in these activities.

-- Inputs to support this activity will include:

- . 1 pm of short-term T.A. to work with the RMANR and Area Council and an extension strategy that integrated extension with training and farming systems research and identifies an appropriate government supported extension activity for Yambio.
- . \$21,000 and LS 6,000 to provide for additional transportation including 3 motorcycles, 15 bicycles, maintenance of existing vehicles and motorcycles, and fuel for vehicles.

AID inputs under this component will have a total valued at \$1,349,000 and LS 1,220,000 broken down among the following categories:

	\$	LS
A. Technical Assistance		
1. Long-term (36pm)	432,000	3,000
2. Short-term (10pm)	160,000	40,000
(9 pm) roads	144,000	36,000
Local studies		20,000
3. Peace Corps Volunteers (48 pm)		20,000
Traditional house construction		
B. Commodities and other (roads)	547,000	695,000
C. Commodities	21,000	6,000
D. Training		
Short-term third country	15,000	-
E. Credit	30,000	400,000

D. Primary Benefits to be Generated by SRAD

One way of examining the relationship of different project components to each other is by identifying primary benefits in terms of the policy, production, marketing, institutional and infrastructural constraints referred to in the project purpose. In many cases, it will require activities in all components to address specific constraints. Because SRAD I will not achieve all of these benefits, but provides the foundation for later activities under SRAD II that can accomplish them, these benefits do not correspond exactly to EOPS.

1. Policy

- Regional marketing strategies which capture the potential productive capacity of all the small farm sector
- Marketing policies which provide financial incentives for small farmers to produce greater marketable surpluses
- Marketing and transport policies which provide incentives for private entrepreneurs to invest and engage increasingly in key farm support services
- Price policies and market infrastructure which begins to encompass greater and efficient intra- and inter-regional trade
- An overall agricultural strategy and policy support for increasing the production and income of small farmers and rural based agri-business.

2. Production

- Financially and technically attractive output-increasing technology which potentially permits small farmers to satisfy both production and consumption goals within an acceptable level of risk.
- Dissemination of such technology to increasingly larger numbers of farmers within Yambio District.
- Greater market orientation in small farm decision-making leading to increasing marketable surpluses among the target group.
- Lower unit cost of production at higher levels of farm output permitting increased total farm income and lower supply prices in local markets.
- Development of a sub-regional research capacity to identify and solve continually small farmer production constraints and disseminate the results to large numbers of farmers.

3. Marketing

- Increased small farmer physical access to commodity and inputs markets.
- Increased local effective demand and competition among commodity traders for the marketable surplus of the small farmer.
- Improved local farm support services in the form of readily available production inputs, farm to market transport services, consumer goods and needs and other market services including local primary processing.
- Provision of financial incentives to area farmers to increase production for the market.
- Price policies and market infrastructure which begins to encompass greater and more efficient intra- and inter-regional trade.
- An overall agricultural strategy and policy support for increasing the production and income of small farmers and rural based agri-business.

4. Institutional

- Improved capacity of the RMANR to plan, direct and coordinate agencies involved in agricultural development.
- Improved budget planning process which allocates funds and other resources effectively to carry out the Ministry's agricultural strategy and development program.
- Improved capacity to identify marketing constraints and formulate appropriate policy to minimize such constraints and increase private sector marketing activity in the region.
- Improved capacity to identify key sectoral constraints and design interventions and/or formulate policies to implement coordinated investments and programs to increase small farmer production and commodity trade.

5. Infrastructure

- Improved feeder roads within Yambio District leading to:
 - . improved small farmer physical access to local markets
 - . lower costs of transport per ton/km
 - . savings in form of fuel, maintenance, depreciation and foreign exchange requirements.
 - . reduction in crop losses due to spoilage and time required to transport perishable commodities.

- Financial incentives for transporters and rural businessmen to provide rural and farm support services.
- Greater regional economic integration and communications leading to growth of the private sector agricultural trade.

IV. Project Specific Analyses

A. Economic Analysis

SRAD is planned as a 10-year involvement in the Southern Region. During Phase I (first 4 years) the project will initiate activities to address the above defined constraints. However, project planning and implementation will be iterative to allow for greater study and specification of the (1) sectoral constraints and (2) appropriate project interventions to minimize these constraints and achieve the project goal.

The project strategy is comprehensive in that it is oriented to problem solving at the farm, market and policy levels. The sectoral constraints as well as the proposed interventions are defined within an overall framework which recognizes key complementarities at both the constraint and problem-solving levels.

SRAD I requires a special approach to economic analysis because of various measurement problems, particularly on the benefit-side. In fact, the ex ante specification of actual benefits for a multi-objective project such as SRAD I are extremely speculative. This is so largely because of the following:

1. the realization and timing of the actual benefits generated by any single project component within a multi-objective project will depend upon the progress made in other complementary project activities;
2. the measurement of benefits occurring from reduction of sectoral constraints (as opposed to farm-level) are difficult to estimate because of the inability to project response time or quantify beforehand the size of the target group that will respond to the new incentive environment.
3. for research it is difficult, if not impossible, to describe the characteristics, and/or the attractiveness of the products of research or when they are in fact likely to come on stream;
4. in the area of public sector institutional development it is virtually impossible to assign monetary values to an improved capacity to effectively plan and manage an agricultural development program.

Implications for Economic Analysis

The project budget specifies the financial costs or level of expenditures planned to be applied to each constraint area. For each project input the estimated cost is based upon what is considered necessary in order to achieve the planned output. That is, a "cost effective" or least cost framework was used to arrive at the level of project inputs and consequently estimated project costs. Because of the difficulty of estimating benefits for each component it was not possible to estimate optimum level of investment.

In addition the design team took into account "opportunity cost" when

determining the level of inputs to be applied to any given project component. This was particularly important given the multi-dimensional nature of the project or the number of sectoral constraints to be addressed in order to realize the project goal. Thus, during the project design, the team operated within a framework of trade-offs involving a \$16 million budget, five separate major sector constraints, and a potentially large geographic area and /or target group. The team was thus forced to adjust the level of activity (expenditures) against constraints and perceived levels of benefits as well as against the size and location of the target group.

Description of Benefits

If the project effectively minimizes the sectoral constraints defined above, financial incentives will be established to stimulate significant economic activity in the project area. The new structure of incentives will encompass the farm, market and rural transport sectors. During SRAD I economic policy formulation and project interventions will be directed or focused upon Yambio District. The initial focus will be expanded during SRAD II to (1) increase the productivity of the small farm sector and (2) decrease technical and economic inefficiencies in the agricultural marketing system over a much larger geographical area.

The increases in economic activity, to which SRAD is directed, will be in the private sector. The actors, or entrepreneurs, to whom project activities are directed include farmers (the majority of whom are small producers), commodity traders, transporters, small-scale rural industries or business firms providing key farm support services. Together the complementary interventions and the level of activity directed toward endogenous farm constraints will be to provide financial incentives to (1) farmers to increase significantly their marketable surplus of crops over time, (2) private entrepreneurs to distribute the marketable surplus efficiently to larger markets and major consuming areas and (3) private entrepreneurs who can provide cost-effective farm support services in major small producing areas.

Estimates for Economic Pay-Off

While it is not practical to undertake a cost-benefit analysis or calculate an internal rate and return for SRAD I, it is possible to estimate a project pay-back period, if one is willing to aggregate project benefits into estimated incremental income streams for primary project beneficiaries.

A project pay-back period has been calculated under four alternative scenarios under alternative net income generations. The calculations which follow assume that project costs and activities will develop production techniques, economic infrastructure and agricultural policies will provide sufficient incentives for the private sector to maintain levels of operating expenditure necessary to maintain the net estimated benefits over the stipulated pay-back period. The investment, incentives and resulting increased benefit streams to be generated SRAD II are explicitly excluded in the analysis.

This approach to assessing cost-benefits further assumes that the SRG will allocate public resources at a level sufficient to maintain the public sector activities sponsored by the project. It is assumed that this public sector will be internally financed through government revenue allocations.

Scenario I

Assumptions:

1. All project costs (\$16.3 million) should be assigned to the 9000 small farm households in the Yambio Area Council;
2. Incremental benefits will accrue in the form of real income to these small farm households;
3. The income stream will start in year 4 at an average annual rate of \$200 per household, continuing indefinitely; and
4. No other incremental incomes are realized by traders, transporters or other rural entrepreneurs and there are no net additions to rural employment as a result of project activities.

Calculation of Pay-Back Period:

1. Project cost per household

$$\$16.3 \text{ million} \div 9000 \text{ HH} = \$1811$$

2. Payback Period

$$\$1811 \div \$200/\text{year}/\text{HH} = 9 \text{ years}$$

$$9 \text{ yrs.} + 4 \text{ yrs (gestation period)} = 13 \text{ years}$$

Scenario II

Assumptions

1. Benefits in the form of an average incremental income stream will accrue to small farmers as above;
2. Starting in year 4 and continuing indefinitely, increased cash income will accrue to 100 traders within Yambio Area Council at the average rate of \$1500 per annum.
3. Starting in year 4 and continuing indefinitely, an incremental income stream will accrue to 50 transporters operating to and from the Area Council at the average rate of \$5000 per annum.

4. Private sector employment will be created within the Yambio Area Council among 1000 persons generating average annual incomes of \$700.

Calculation of Pay-Back Period:

1. Aggregate annual real income streams starting in year 4

Small Farm HHs
\$200/yr x 9000 HHs = \$1.8 million

Traders
\$1500/yr x 100 traders = 0.15 million

Transporters
\$5000/yr x 50 firms = 0.25 million

Employment Generation
\$700/yr x 1000 persons = 0.7 million
\$2.9 million

2. Pay-Back Period

\$16.3 million ÷ \$2.9 million = 5.6 years

5.6 years + 4 yrs gestation period = 9.6 yrs.

Scenario III

Assumptions

Starting in year four:

1. Incremental real incomes will accrue to 9000 small farm households at the average rate of \$300 per annum;
2. Incremental cash incomes will accrue to 150 traders at an average rate of \$1500 per annum;
3. Incremental net cash income will accrue to 60 transporters at an average rate of \$6000 per annum;
4. Private sector employment will be generated among 1500 persons generating average annual incomes of \$950;
5. Underemployment will be reduced for 1000 people creating average incremental incomes of \$200 per annum.
6. Reduced commodity prices and/or greater availability of food items (through greater marketable surpluses of food crops and/or reduced crop spoilage) will increase the real incomes of 20,000 urban consumers at the average annual rate of \$50 per year.

Calculation of Pay-Back Period:

1. Aggregate annual cash income streams starting in year 4.

Small Farm HHS \$300/yr x 9000 HHS	= \$2.7 million
Traders \$1500/yr x 150 traders	= 0.22 million
Transporters \$6000/yr x 60 firms	= 0.45 million
Reduced Underemployment \$200/yr x 1000 persons	= 0.20 million
Consumer Real Incomes \$50 x 20,000 persons	= 1.0 million
Total	\$6.0 million

2. Pay-Back Period:

$$\$16.3 \text{ million} \div \$6.0 \text{ million} = 2.7 \text{ years}$$

$$2.7 \text{ years} + 4 \text{ years gestation period} = 6.7 \text{ years}$$

Scenario IV

One might argue that it is inappropriate to assign all project costs to the primary project beneficiaries. For example, long-term technical assistance and training costs are investments in Sudanese human capital which are likely to pay for themselves over the professional life of the beneficiaries. Also, the project funds for contractor support are extraordinary costs associated with external assistance which the GOS would not have to bear if locally trained expertise were available to implement the project.

Thus, the project costs for this scenario would be reduced in the following manner:

-50% of long-term TA:	\$2.17 million
-100% of training:	0.28 million
-50% of Contractor Support	0.52 million

Applying these assumptions project cost associated with direct incremental income streams to primary beneficiaries is reduced from 16.3 million to 13.3 million.

The estimated project pay-back period for each scenario described above would be:

Scenario I :	11.4 yrs.
Scenario II:	8.6 yrs.
Scenario III:	6.2 yrs.

Conclusion:

It is a widely held view that a long-term donor commitment is necessary in order to stimulate economic development in the Southern Region of Sudan. This is largely due to the deplorable state of the regional economic infrastructure and the magnitude of the sectoral constraints which must be redressed.

Given the estimated project benefits, the distribution of these benefits, the anticipated contribution of the project toward an improved economic incentive structure for the private sector to be an engine of economic growth in the South and the reasonable estimated economic pay-back periods (Scenarios II-IV), SRAD I is considered to be economically viable.

B. Social Soundness Analysis and Project Beneficiaries

The pilot area development activities to be carried out primarily in Yambio and to be investigated and possibly experimented with in Rumbek are intended to field test approaches to stimulating production and increasing income by addressing what are believed to be the major constraints impeding the production/marketing system. These districts are chosen for attention because the farming systems of each are representative of prevailing systems throughout most of the region: at Yambio one finds sedentary farmers with mixed food and cash crops; at Rumbek there are semi-nomadic pastoralists whose production systems are based on cattle and sorghum (*dura*). The following summarizes the salient socio-cultural features of the major beneficiary populations: (See Annex 5 for the comprehensive Social Soundness Analysis).

A. Yambio: The Azande People

Yambio, the administrative capital of Western Equatoria Province, is located in the far southwestern corner of the region. It is linked by an all-weather road to Juba to the east and by a soon-to-be-completed all-weather road to Wau to the north. It is a major commercial and trading center. The Yambio Area Council includes Yambio town, plus three village and two rural councils, and is one of three area councils in Western Equatoria Province. Many Area Councils cover geographical areas formally referred to as districts.

Approximately 95 percent of the estimated population of 40,000 in the Yambio district are members of the Azande tribe. Outside Yambio town the Azande are almost exclusively farmers. They live in individual homesteads along roads and trails and practice an elaborate form of shifting slash-and-burn cultivation. Major crops are cassava, sorghum, millet, corn, peanuts, sesame, pulses, tobacco, rice, coffee, mangoes, pineapples, tomatoes, bananas, yams, sweet potatoes and cotton.

Since the mid-fifties the Azande have proven their responsiveness to change and economic incentives. Additional proof of this is provided by the widespread development of coffee as a cash crop during the past 3 to 4 years.

Among the Azande, tribal organization is well articulated and operational. Chiefs, who by tradition are usually from a distinct aristocratic clan, rise and fall depending on the personal following they are able to attract. Chiefs work to secure resources for their constituents and are also able to require their followers to work on roads, pay taxes and meet loan obligations.

The individual homestead is the basic unit of economic production for the Azande. Men and women share equally in land preparation, sowing, weeding, and harvesting. Food crops, are usually grown by women while marketing of cash crops is largely the responsibility of men. Since Azande homesteads tend to hold nuclear families and since most men have only one wife, labor availability is the greatest on-farm constraint to production.

The inability of most farmers to reach the major market in Yambio, or for traders to reach the farmers because of the absence of feeder roads, results in scarce and expensive food in town and a lack of incentives to farmers to produce more. A lack of credit appears to be another obstacle to the development of Azande entrepreneurs.

Azande women are thoroughly integrated into the prevailing cultivation system. They receive any income earned from their plots and typically they control the family's cash. Introduction to labor-saving devices, such as improved hand tools or simple grinding and hulling mills, would directly benefit women by reducing their labor and making available to them increased income earning possibilities.

B. Rumbek: The Dinka

Rumbek is the administrative capital of Lakes Province and is linked by poor roads that are often impassable during the wet season to Wau to the north and to the Yambio-Juba Road to the south. The Dinka tribe constitute roughly 90 percent of the Rumbek district population. Their economy, like that of most inhabitants of the upper South, is based on cattle and sorghum.

While the Azande constitute basically a single socio-political unit, the Dinka are divided into sub-tribes, clans and extended families. There is no tribal-wide authority, and even at sub-tribal and clan levels the traditional hierarchies wield little organizational control. Chiefs play a part in village affairs, but civil authority shares power with, and generally takes precedence over, traditional leaders.

Apart from tribal hierarchies, Dinka are nominally organized by an age cohort that can be enlisted to work for communal projects. An Area Council is not expected to be functioning for Rumbek by the end of 1982.

The Dinka are primarily herders who grow sorghum and limited variety of food crops. Cattle stand at the center of the Dinka culture, religion and economy and are used for bridewealth and collateral for loans. Healthy cattle are rarely slaughtered for home consumption.

As recently as a decade ago, a Dinka almost never sold an animal commercially. Today, increasing numbers of Dinka Cattle appear in local markets. This may reflect an increased requirement for cash caused by the lure of a widening variety of consumer goods, a desire for veterinary medicines to protect the herd and perhaps a necessity to buy sorghum in needy times.

During the dry season most herds, accompanied by the men and

some teenage girls, leave their homesteads for the wetlands. Thus for 3-5 months most able-bodied males are absent and cannot be tapped for any contribution to developmental activities. Men and women collaborate in land preparation, planting, weeding and harvesting. Virtually all of the harvest is for home use, although some portion might be given as gifts or possibly bartered. Labor shortages, due to outmigration of young males leaving their villages to earn cash to purchase cattle in order to marry, create a major constraint to sorghum production.

Agricultural production in the Rumbek area has declined for a variety of reasons, including poor roads, lack of storage and lack of access to improved technologies and is now insufficient to meet local demands.

Among the Dinka there is a lively market for cattle, fueled by young men with cash earned from urban or other hire, who buy to start herds of their own. The transfer of livestock as collateral or as brideprice remains the predominant feature of Dinka "marketing."

Often because of a lack of on-farm storage surplus agricultural harvests are sold or bartered at harvest. Then during the wet season before a new crop can be harvested, some families are forced to buy sorghum from merchants at 3 to 4 times what they were originally paid. Since merchants demand cash livestock must be sold when prices are lowest because of inaccessibility to markets. The absence of short-term credit thus precludes capital formation among the Dinka.

The Dinkas continue to maintain much of their traditional way of life. One expression of this cultural continuity is the primacy given to livestock over farming. Prevailing values also dictate sharing crop surpluses with kin instead of selling for cash. This does not mean the Dinka are immune to commercial interests, as illustrated by their increased willingness to sell cattle.

Dinka women participate in the cultivation of sorghum, and to a lesser extent, in animal husbandry. Improvements to traditional implements and grain mills would be of direct benefit to them as labor-saving, potentially income earning, devices. Small sorghum mills would be especially useful since milled flour is preferred. Given the communal tendencies of Dinka society, small-scale producer/consumer cooperatives in areas such as grain mills, poultry, weaving or other enterprises, could be organized among women.

Improved on-farm grain storage would also affect women favorably by allowing the family to preserve food which now is often sold at a low post-harvest price only to be bought back later at a much higher rate. By custom, women and children eat after the males have finished; therefore more food kept from premature sale or loss means better nutrition for the secondary feeders who are the most likely to suffer deprivation.

C. Engineering Analysis for the Feeder Roads Element of the Area Development Component.

Because roads are to be rehabilitated rather than built, the amount of engineering required is greatly reduced. Rehabilitated roads will serve areas with more concentrated population than would new roads and will permit productivity in these areas to return to its former levels. Rehabilitation strengthens the existing system and the ability to build upon the existing physical structure greatly increases the return to be expected from the investment in feeder roads.

The labor intensive methods of construction proposed are technically feasible and will provide benefits to the District of Yambio. Since the inhabitants that live along the roads will be providing labor for construction, they will directly benefit from the continued development of roads in the area and have an opportunity to develop a sense of ownership of the roads.

The road section to be constructed will be a 3.5 meter laterite pavement 15 cm thick laid on a 6 meter road formation with trapezoidal ditches on each side. No earth shoulders are proposed. The basic construction method is through village labor supplemented by minimum equipment. Generally, alignment of the existing 3 meter road and grade can be used as basis for the proposed feeder road.

Hand tools will be supplied under the project from host country or US Code 941 and would include spades, shovels, wheel barrows, rakes, tree saws, crow bars, machetes and concrete mixers. The use and maintenance of all equipment is within the capability of village people,

The importation of equipment is to be minimized with large equipment limited to one truck on each road for transportation of supplies, labor and/or laterite as needed, and an additional truck would be given to the Roads Council for use on culverts and bridges. Several water drum rollers will be purchased and shared between the five roads. This equipment will also be used for road maintenance at a later date. The Yambio District will supplement the road building equipment occasionally with equipment from the existing plant when the situation deems it necessary.

Drainage requirements vary from road to road but generally should be controlled by side ditches outletting where possible, squashed ARMCO pipes to give maximum volume at minimum height for small crossings, and single or multiple ARMCO for major crossings. Bridges where needed will be limited to slab bridges on structural beams. Reconstruction of existing bridges will be reinforced concrete slabs on top of existing steel plate and supporting beams. Simple standardized design will minimize the need for detailed site specific engineering design.

Simple lockable storage huts are to be provided for storage of materials and tools along the road. Fuel will be stored at central facilities where security can be maintained.

Force account labor is not to be used, except perhaps initially on specialized work such as pipe laying or bridge work. The main labor force will be from the village as recruited by the village chief or village council and directly responsible to them.

Where the community is not capable of administering wages, bookkeeping, time-keeping, etc., the labor force will be administered through the Area Council which will supply a timekeeper and administer salary payments from a bank account established in Yambio.

No special designs by consultants are needed for this type of road as it follows direction and grade of the existing road.

Improvements to grade in long vertical stretches may be required but this is within the capability of staff from the Assistant Commissioner for roads. Only major filling at drainage crossings will require more specific design or attention to construction methods. Required technical expertise as well as training will be obtained through short-term technical assistance, as well as through existing local engineers.

Road maintenance on labor intensive roads would be the villagers at the rate of one villager per kilometer with an overseer for every ten men, and using road construction hand tools.

With this type of activity, which is on-the-job training in construction and methods of practical engineering design, monitoring will be frequent at the beginning of the road project and lengthen out as the work proceeds. Monitoring is proposed at monthly intervals by the Area Council and bi-monthly by the AID Mission or REDSO/EA in the first year and quarterly thereafter.

D. Administrative Analysis

1. Assessment of RMANR's Manpower Capabilities

The Regional Ministry of Agriculture and Natural Resources (RMANR) was established in 1972 shortly after the conclusion of the 17 year civil war. The RMANR inherited a skeletal middle and high echelon staff of varying levels of experience and competence. At the lower levels a fairly large number of staff workers were available, although efficiency was quite low as a result of the prolonged instability in the region and the consequent lack of education opportunities.

Confronted with this severe constraint of lack of trained manpower, the Regional Ministry has over the years adopted the strategy of attracting qualified graduates in the various disciplines of agriculture from universities, diploma-level agricultural institutes and certificate-level agricultural training schools. The RMANR also has begun a program of training middle and lower level staff, and re-training staff through in-service training programs abroad and within the country. With assistance provided by numerous international donors and voluntary agencies, these efforts gave rise to the rehabilitation and reactivation of the Yambio Agricultural Research Station and the Yambio Institute of Agriculture; the conversion of the Ox-Plough Training Center in Rumbek to a Training Institute, and the upgrading of numerous staff members through the various training programs.

Despite the progress made by RMANR in recent years with respect to staff development, a number of areas need further improvement, particularly in the planning and execution of projects as well as overall administrative skills. Some higher level staff members have received technical degree training through a cooperative program with the University of Juba, and there is a good possibility that this program could be expanded to include planning and administration. The SMDP project has been extended to June 1983 to continue to address high priority areas of manpower development and thus will provide continuity to the SRAD phase I Project.

At the higher levels the RMANR organizational structure consists of four major directorates: Agricultural, Animal Resources, Forestry and Fisheries, as well as five departments: Agricultural Planning, Research and Training, Administration, Irrigation, and Parastatal Enterprises and Externally Financed Projects. Each of the directors and department heads reports directly to the Director General. Department heads ostensibly have the same status as directors, however, in actual practice, the four directorates are considered higher ranking.

While the current RMANR administrative structure will remain intact, a number of administrative and technical powers have been delegated to area councils as a result of the 1981 Local Government Act. Resources will also be redistributed to area councils, while provincial governments will retain few of their former responsibilities and will mainly serve as coordinating mechanisms. Rural development and agricultural activities will be coordinated through area councils which will have technical staff attached to their jurisdiction.

A recent survey completed under the Southern Manpower Development Project, shows that the agricultural sector employs 15,579 persons, the vast majority being unskilled RMANR workers whose salary commitments account for 79 percent of the RMANR salary costs. As salaries are approximately 95 percent of all recurrent costs,

the salary commitment for unskilled labor amounts to 75 percent of all recurrent costs, leaving few resources available for support costs, such as transportation, fuel, equipment, supplies training, etc., needed to enhance the effectiveness of professional and skilled workers.

The execution of the SMDP survey marks the first time that the RMANR has been able to undertake an assessment of its manpower resources. While further disaggregation and analysis of the data is needed, the study ultimately will provide a basis for deployment of personnel and training programs. It also points to the need for the RMANR to divest itself of the responsibility of paying for workers involved in parastatal enterprises.

2. Project Execution

The project will be implemented by the Regional Ministry of Agricultural and Natural Resources with USAID assistance. As such from the very beginning the project will be integrated into the existing institutional framework of the RMANR. Project personnel will be assigned to work with existing administrative units.

Personnel assigned to the Area Council are expected to relate to the RMANR in much the same way as the Assistant Commissioner for Agriculture assigned to provincial headquarters. Personnel assigned to the Research Station will be responsible to the Director of the Station. Their link with the RMANR will be through existing links such as the Regional Agricultural Research Technical Committee and specific agreements between the ARC and the RMANR. Specific activities involving several different agencies may require special inter-organizational committees. Roads and credit for private enterprise development will likely require such committees.

The Directorate of Parastatal Enterprises and Externally Financed Projects will play a role in ensuring overall coordination of the project and the coordination of this project with other donor activities. The Chief-of-Party will be the only member of the team who reports directly to the Director General of the Ministry.

Integration into the Ministry from the outset is expected to enhance the RMANR's capability to deal with both the conceptual and administrative challenge presented by a change of focus for the Ministry from attempting to produce directly to facilitating and promoting production by the traditional agricultural sector.

It is anticipated that working with the existing system will impose less of a burden of recurring costs than would a separate administrative mechanism.

While the need for training and upgrading RMANR personnel will be a continuing priority, a capable nucleus of Ministry staff is available to carry out the project.

It is the conclusion of the design team that the RMANR has the administrative and technical capability to carry out this project. In areas which need assistance, technical specialists will assist the Ministry as necessary.

Financial Plan

A. Narrative

Basic financial Tables, including summary cost estimates and projection of expenditures by fiscal year are presented below.

Total project cost will be 16.3 million over five years. Of this total, about 38 percent represents the host country contribution in local currency not including a substantial investment by the host country in personnel and facilities. AID dollar contribution have been inflated at 10 percent annually while GOS local currency contribution have been inflated at 20 percent annually. Contingencies have been calculated at 10 percent on the non-inflated costs.

B. Budgets

<u>Source and Use of Funds</u>	<u>A.I.D (US \$000)</u>	<u>GOS (LS 000)</u>
<u>I. Technical Assistance</u>		
A. Long-term (249 pm)	2988	18
B. Home Office (38 pm)	181	
C. Short-term (67 pm)	1072	268
D. Local hire (74 pm)	168	20
Subtotal	4409	306 (\$345)
<u>II. Training</u>		
A. Long-term - U.S. (96 pm)	192	
B. Short-term - U.S. (10 pm)	30	
C. Short-term - third country (36 pm)	108	
Subtotal	330	
<u>III. Commodities, Equipment, Vehicles ^{1/}</u>		
A. Yambio Research Station (includes 2 vehicles)	213	
B. RARTC	5	
C. Market Information System	50	50
D. University of Juba	10	10
E. RMANR	21	6
F. Area Development - On-farm Storage	4	10
Subtotal	303	76 (\$85)
<u>VI. Construction ^{1/}</u>		
A. Yambio Research Station	30	50
B. Yambio Institute of Agriculture		20
C. PCV Traditional Houses		20
Subtotal	30	90 (\$100)

^{1/} Excludes equipment, commodities and construction related to feeder road program and direct contract support.

<u>V. Feeder Roads</u>	<u>AID (US \$000)</u>	<u>GOS (LS 000)</u>
A. Equipment	356	
B. Commodities	172	
C. Supervision, Labor, Local materials (includes LS 60 for maintenance program)		<u>635</u>
Subtotal	528	635 (\$714)
<u>VI. Operating Budget Support</u>		
A. YIA	16	116
B. RATC	11	57
C. University of Juba	10	110
D. Yambio Agriculture Research Station	155	313
E. RARTC	11	42
F. Area Council	15	50
G. Market Surveillance System		<u>60</u>
Subtotal	218	748 (\$840)
VII. A. Credit for Rural Enterprises and Village Market	.30	400
B. Market and Transportation Infrastructure	<u>250</u>	<u>250</u>
Subtotal	280	650 (\$730)
<u>VIII. Contractor Support</u>		
A. TA Housing Construction (1)	75	100
B. TA Housing Renovation (6)	30	30
C. House Furnishing	-	10
D. Vehicles (9)	180	
E. Vehicle Fuel and Maintenance	100	25
F. Office Equipment and Maintenance	75	15
G. Generators, Fuel and Maintenance	150	15
H. Air Charter and Transport	245	
I. Shipment of Project Commodities	180	
J. Local Truck Rental		40
K. Local Salaries		<u>120</u>
Subtotal	<u>1035</u>	<u>355 (\$400)</u>
IX. Project Evaluation	180	45 (\$ 50)
Subtotal-Project	7313	2905 (\$3264)
Contingency (10%)	731	436 (\$490)
Inflation (10% p.a. - FX)	2056	2159 (\$2426)
(20% p.a. - LC)		
Grand Total	<u>\$10,100</u>	LS. 5500
Converted to U.S. \$	\$10,100 (62%)	\$6180 (38%)
Grand Total U.S.\$	\$16,280	

Expenditures by Fiscal Year (\$000)

<u>1. Technical Assistance</u>	<u>FY 82 Cost</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>Total</u>
A. Long-term (249 pm)	12/mo	144	1128	984	732	2988
B. Home Office (38 pm)	4.75/mo	10	57	57	57	181
C. Short-term (67 pm)	16/mo	144	400	320	208	1072
D. Local hire (74 pm)	2.25/mo	<u>10</u>	<u>54</u>	<u>54</u>	<u>50</u>	<u>168</u>
Subtotal		308	1639	1415	1047	4409
<u>2. Training</u>						
A. Long-term - U.S. (96 pm)	2/mo		96	72	24	192
B. Short term U.S. (10 pm)	3/mo		12	9	9	30
C. Short term - Third Country (36 pm)	3/mo	<u>18</u>	<u>30</u>	<u>30</u>	<u>30</u>	<u>108</u>
Subtotal		18	138	111	63	330
<u>3. Commodities, Equipment and Vehicles 1/</u>						
A. Yambio Research Station	213		213	-	-	213
B. RARTC	5		5	-	-	5
C. Market Information	50		50	-	-	50
D. U. of Juba	10		10	-	-	10
E. RMANR	21		21	-	-	21
F. On-farm Storage	4		<u>1</u>	<u>1</u>	<u>2</u>	<u>4</u>
Subtotal			300	1	2	303
<u>4. Construction 1/</u>						
A. Yambio Research Station	30	30	-	-	-	30

1/ Excludes Feeder Roads and direct contractor support.

	<u>FY 82 Cost</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>Total</u>
5. Feeder Roads						
A. Equipment	356		356	-	-	356
B. Commodities	172		172	-	-	172
Subtotal			<u>528</u>			<u>528</u>
6. Operating Budget Support						
A. YIA			11	5	-	16
B. RATC			6	5	-	11
C. U. of Juba			5	5	-	10
D. Yambio Agr. Research Station			50	50	55	155
E. RARTC			4	4	3	11
F. Area Councils			<u>5</u>	<u>5</u>	<u>5</u>	<u>15</u>
Subtotal			81	74	83	218
7. Market and Transportation Infrastructure and Credit for Rural Enterprises			50	155	75	280
8. Contractor Support		345	460	115	115	1035
9. Project Evaluation				<u>180</u>		<u>180</u>
Base Project Subtotals		701	3196	2051	1365	7313
Contingency (10%)		70	317	206	138	731
Inflation (10% p.a.)		<u>70</u>	<u>665</u>	<u>682</u>	<u>639</u>	<u>2056</u>
Grand Total U.S.\$		841	4178	2939	2142	10,100

Expenditures by Fiscal Year (LS 000)

	<u>FY 82 Cost</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>Total</u>
1. <u>Technical Assistance</u>						
(Per diem, local consultants, etc.)	306	36	90	90	90	306
2. <u>Commodities, Equipment, and Vehicles 1/</u>						
A. Market Information System			15	15	20	50
B. U. of Juba	10		10	-	-	10
C. RMANR	6		2	2	2	6
D. On-farm Storage	10		<u>2</u>	<u>4</u>	<u>4</u>	<u>10</u>
Subtotals			29	21	26	76
3. <u>Construction 1/</u>						
A. Yambio Research Station	50	50				50
B. YIA	20	20	-	-	-	20
C. On-farm Storage, PCV Traditional Houses	20					<u>20</u>
Subtotals		90				90
4. <u>Feeder Roads</u>						
A. Supervision, Labor, Local materials	575		86	259	230	575
B. Maintenance	60	-	<u>-</u>	<u>-</u>	<u>60</u>	<u>60</u>
Subtotals			86	259	290	635

1/ Excludes Feeder Roads and direct contractor support.

	<u>FY 82 Cost</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>Total</u>
5. <u>Operating Budget Support</u>						
A. YIA	116		66	25	25	116
B. RATC	57		27	15	15	57
C. U. of Juba	110		20	45	45	110
D. Yambio Agr. Research Inst.	313		107	103	103	313
E. RARTC	42		14	14	14	42
F. Area Councils	50		10	20	20	50
G. Markey Surveillance System	60		10	25	25	60
Subtotals			254	247	247	748
6. Credit for Rural Enterprises and Market Infrastructure	650		150	225	275	650
7. Contract Team Support		140	72	72	71	355
8. Project Evaluation				45		45
Base Project Subtotals		266	681	959	999	2905
Contingency (15%)		40	102	144	150	436
Inflation (20% p.a.)		55	300	700	1104	2159
Grand Total Sudanese Pounds		361	1083	1803	2253	5500
(Converted to U.S.\$)		(406)	(1217)	(2026)	(2531)	(6180)

VI. Implementation Arrangements

A. Project Coordination and Administrative Support

Because of the difficulty of coordinating and supporting complex project elements in widely separated areas and because this project lays a foundation for a longer term project, a considerable effort is devoted to these tasks.

The Chief of Party is the focal point for assimilating lessons during this project into the process of formulating recommendations for the Phase II SRAD project. The Chief of Party provides professional leadership to the team and ensures that all project activities are consistent with RMANR policy and objectives. Previous experience in the Southern Region indicates that it will require a significant amount of effort on the part of the Chief of Party to coordinate the activities of a team of professionals working in varied disciplines. Experience also has taught that success of the project will depend to a large extent, on the ability of the project to provide adequate logistical and administrative support to project team members and their respective activities. The following specific tasks will be accomplished under project coordination and administrative support:

1. Coordination of Technical Inputs:

Functioning system for coordination of technical inputs.
-- Inputs to support this activity will include:

- . Up to 70 percent of the time of the Chief of Party during the first two years and two months and 100 percent during the third year.

2. Logistical and Administrative Support:

Functioning system providing logistical and administrative support for the project in the areas of (1) procurement and transportation of commodities; (2) transportation of project personnel; (3) housing and utilities; and (4) finance and inventory control for the project.

-- Inputs to support this activity will include:

- . 100 percent of the time of an administrative/logistics specialist for one year, who in addition of setting up systems will train a locally hired administrator.
- . 100 percent of the time of the locally hired administrator for 38 months.
- . \$181,000 38 pm home office support.

- . LS 120,000 local salaries of project personnel, including drivers, guards, groundskeepers, secretaries, administrative support personnel, etc.
- . \$180,000 purchase of 9 vehicles.
- . \$100,000 and LS 25,000 for fuel and maintenance of vehicles.
- . \$75,000 and LS 100,000 for construction of one additional house in Juba for TA personnel. House is to have 1900 sq. feet of living space, 400 feet of porches, 4 bedrooms, with two baths. Cost estimate is based on SMDP experience as well as USAID/Juba experience.
- . \$30,000 and LS 30,000 for renovation of existing houses.
- . LS 10,000 for house furniture.
- . \$75,000 and LS 15,000 for office equipment and supplies, for maintenance and repairs.
- . \$60,000 for 2-65 KVA generators and spare parts; and LS 15,000 and \$90,000 for fuel and maintenance of generators.
- . \$225,000 for air charter services and \$20,000 for 4 trips to Nairobi.
- . LS 40,000 truck rentals.
- . \$180,000 shipment of project commodities not covered elsewhere.

3. SRAD I Evaluation and SRAD II Design

Evaluation of SRAD I and design of SRAD II.

-- Inputs include:

- . \$180,000 for project design and evaluation and LS 45,000.

4. Preparation for the Design of SRAD II

Preparation of analyses and reports that can be used in the design of the follow-on Phase II SRAD project based on carefully monitoring project activities of SRAD I.

-- Inputs to support this activity will include:

- . Up to 30 percent of the time of Chief of Party during the the first two years of the project.

Project inputs to provide project coordination and administrative support will total \$2,122,000 and LS 400,000 broken down among the following categories:

	<u>(US\$000)</u>	<u>(LS 000)</u>
A. Technical Assistance		
Long Term		
Chief of Party	456	
Administrative/Logistics Specialist (13 pm)	156	
Local Hire Administrator (38 pm)	114	
Home office support (38 pm)	181	
B. Local Salaries		120
C. Commodities, Supplies and Maintenance	505	65
D. Construction	105	130
E. Travel, Transportation and truck rental	425	40
F. Evaluation Project Design	<u>180</u>	<u>45</u>
Total	2,122	400

Both the Chief of Party and the Administrative/Logistics Specialist will arrive on site two months before the rest of the team. The locally hired administrator should also begin employment at this time. Offices for all long-term advisors will be in the Ministry while a project logistics may be maintained at the USAID Juba Office.

B. Contractor, GOS and AID Responsibilities

1. GOS

The primary GOS implementing organization will be the Regional Ministry of Agriculture and Natural Resource (RMANR) of the Southern Region Government (SRG). Overall project coordination will be the responsibility of the RMANR Director General and the AID contract team Chief of Party. The principal liaison official between the RMANR and the contract team will be the Director General who will also be responsible for the

administration of local currency.

These local currencies will be administered through a special bank account in the name of project; authorized agents will be appointed by the GOS to draw on the account in the name of the RMANR. The RMANR will be responsible for all accounting and disbursing procedures related to local currency generations with the exception of the funds to be placed in a USAID trust fund account for direct contractor support.

The RMANR will be responsible for providing the personnel required to implement the project and will select participants to be trained under the project. Additionally, office space for the technical assistance team will be provided by the Ministry.

2. AID

AID's role in the implementation of the project will be the responsibility of USAID/Sudan. Project managerial responsibility will reside in the Agricultural Office, with backstopping provided by the Project Operations Office. The Project Officer will be the primary contact for the contract team's Chief of Party and will perform normal administrative functions, including PIO/T's, project implementation letters, and other administrative documentation. The Project Officer will participate in evaluations of the project and prepare scopes of work and background materials for the evaluations. USAID/Sudan will also approve PIO/P's and prepare source/origin waivers as necessary. The USAID/Juba office will provide for local contact between the project and USAID/Sudan. Copies of all correspondence and official documents are to be provided to the Juba office as well as the Khartoum office. The Juba office will be assigned specific monitoring tasks on behalf of the Project Officer.

Funds will be disbursed by USAID/Sudan in accordance with procedures outlined in the Project Agreement and in Project Implementation Letters. Disbursements for dollars will be on a cost reimbursable basis. Eleven light duty vehicles and three months supply of fuel will be procured directly by USAID/Sudan in order for transportation to be available to the contract team upon arrival in the Sudan. USAID may contract for the construction of houses in Juba for the team, if other housing cannot be arranged and will order furniture for all houses.

3. Contractor

The technical assistance contractor will be responsible for carrying out specific project activities as described in their contract based on the Project Paper and Project Agreement.

The contractor will provide all long and short-term technical assistance personnel. Additionally, the contractor will be responsible for administrative arrangements, transportation, shipments of household effects and other such matters.

The technical assistance team will be involved in the selection and placement of both long and short-term participants for U.S. and third country training, and will prepare all PIO/P's for USAID review and approval. All procurement, with exception of 11 vehicles, furniture and initial fuel requirements will be carried out by the contractor following AID procurement regulations. Prior to procurement of non-expendable items, the contractor must obtain approval from USAID/Sudan. Prospective contractors must be able to present evidence and their ability to carry out the required procurement.

The technical assistance team through the Chief of Party, will prepare an overall project work plan, as well as yearly work plans, to be approved by the RMANR and the USAID Project Officer. Monthly, quarterly and yearly program reports, technical reports and a final end-of-project report will be submitted by the contractor to USAID/Sudan.

The contractor will also be accountable for the utilization of a local currency trust fund to be established for the project. The trust fund will be utilized for direct contractor local currency needs. Disbursement and accounting procedures will be set forth by USAID/Sudan in the PIO/T for the technical assistance contract and further clarified in writing, if necessary.

C. Activities Schedule

Even though the official life-of-project runs from August 1982 to the end of September 1986, and officially project implementation begins with the signing of the Project Agreement, most of the project activities are scheduled between September 1983 and September 1986. The time before September 1983 is referred to as "project mobilization" in the body of the paper and includes: contracting for the long-term T.A., construction of needed facilities, ordering of some of the commodities needed by the team, completion of the Regional Marketing Study and the arrival two months before the rest of the team of the Chief of Party and the Administrative/Logistical Specialist. Reference in the body of this paper to the first three years of project cover the period September 1983 to September 1986.

Following is a schedule of major project events:

<u>Month</u>	<u>Activity</u>
August 1982	Approval of PP. Project Agreement signed
September 1982	PIO/T submitted for Marketing Study Purchase Order for house plan Arrival of T.A. for Marketing Study Review of house plans
October 1982	Preparation of PIO/T for long-term T.A. PIO/C for vehicles PIO/C for project fuel PIO/C for furniture
November 1982	Invitation to bid on house construction RFP issued for long-term T.A. Bids due for house
December 1982	Contract signed for house
February 1983	Proposal due to T.A. Request for Peace Corps Volunteers
Feb - June 1983	Contracting Arrival of vehicles Arrival of fuel Arrival of furniture
June 1983	Contract signed
July 1983	Arrival of Chief of Party and Logistical/ Adm. Specialist Initial order of commodities for project. Order of commodities for Yambio/Rumbek Training
August 1983	Set up procedures for local currency Initial house repair maintenance

September 1983	Completion of House Arrival of rest of T.A. team except Budget and Finance Planning
October 1983	Arrival of Peace Corps Volunteers Arrival of Road T.A. Arrangements for baseline studies and P.T. Order commodities for outreach
November 1983	Order commodities for research Arrange P.T. for research
December 1983	Order commodities and arrange assistance for RARTC Arrange P.T. for Yambio/Rumbek training
January 1984	Arrival long term T.A. for Budget and Financial Planning Arrange P.T. Budget Assistance to Yambio Area Council and order of commodities
February 1984	Completion of Baseline Studies
March 1984	Finance Plan for T.A. for Budget Order books etc. for U. of Juba
April-May 1984	In-country budget training Comprehensive Ag. Development Budget completed Information systems planned
May 1984	Mission review of project progress and decision on changes if any required before the project evaluation
June 1984	Decision on PCVs for Rumbek
July 1984	Marketing surveillance and information system operational Completion of report on Yambio and Rumbek Future Role Completion of in-country Training Plan
September 1984	Decision on future assessment to Yambio and Rumbek training
October 1984	PCVs arrive Rumbek Completion of Region crop marketing strategy initial paper

November 1984	Completion of plans for interventions on village and regional markets. Assistance to farming training program and arrangement for T.A. and P.T.
December 1984	Commodities ordered Initial implementation of credit program for regional and village market development
January 1985	Arrangements for remaining inputs U. of Juba
February 1985	Completion of capital cost and remaining cost study Deadline for decisions on long term P.T. and candidate application
April 1985	Report on Budget Planning SRAD II design Report on project implementation for SRAD II design
May-June 1985	Evaluation and SRAD II Planning Institute training program
July 1985	SRAD II PP
August 1985	Project Agreement signed for SRAD II
September 1985	Planning work on career development completed Latest possible date for beginning long term 12 month P.T. program
November 1985	Planning of T.A. Rural Fiscal policy
June 1986	Contract signed for SRAD II Departure of Budget and Financial Planning T.A.
July 1986	Completion of career development program. GOS Mission Review of Project
July - August 1986	Wrap up of project activities and preparation of final reports.
September 1986	Departure of remaining long term T.A. SRAD I Arrival of long term T.A. SRAD II
June-September 1986	Return of long term P.T. under SRAD I

D. Evaluation Plan

One evaluation and two formal mission reviews of project progress will be conducted during the course of the project. The first formal mission review to be carried out by a combination GOS/USAID team is scheduled eight months after the arrival of the majority of the long term T.A. team. This review will serve as the basis for decision concerning the last two years of project implementation and will examine specifically (1) implication for the project of the marketing study and initial work in the area of market development and (2) project activities for Rumbek in the light of RMANR developed plans for the district and other donor activities. At this time a decision may be made that additional long term T.A. will be needed to develop a bases for activities under SRAD II in Rumbek and similar districts, while implementing limited activities in Rumbek under SRAD I.

The first evaluation is scheduled 20 months after the arrival of the long-term T.A. team (May 1985) and will be carried out by the GOS, USAID personnel and outside consultants. This evaluation will serve as a basis for project adjustments during the last year of SRAD I and as well as the design of SRAD II.

A second formal mission review will be carried out by a combination GOS/USAID team approximately two months before the end of Technical Assistance under SRAD I and will provide a baseline for the evaluation of SRAD II.

E. Conditions and Covenants

Conditions Precedent

1. Prior to the disbursement of funds under the Grant for support of the project training programs at Yambio Institute of Agriculture (YIA) and Rumbek Agricultural Training Center (RATC) after September 30, 1984 or to the issuance of documentation by AID pursuant to which disbursement will be made with respect thereto, the Cooperating Country will provide, in form and substance satisfactory to A.I.D.:
 - a. evidence that the Regional Ministry of Agriculture and Natural Resources can provide adequate administrative support by the presence of strong Sudanese Administrators at both institutions;
 - and
 - b. evidence that the Southern Regional Government can begin to meet a greater share of the operating costs of these institutions, by agreement or a plan to reduce the proportion of funding from outside sources.

2. No funds shall be disbursed under the Grant for project activities other than
 - a. Short and long-term technical assistance advisors and support thereto (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - b. participant training and support of training institutions (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - c. preparation of studies, analyses, plans and reports; and
 - d. feeder road rehabilitation and reconstruction,

until the environmental review and analysis of such activities required by AID Regulation 16 have been completed, reviewed by the Regional Legal and Environmental Officers, and approved by the Mission Director.

3. Prior to the disbursement of funds under the Grant for rehabilitation and/or reconstruction of each segment of feeder road (except for disbursements of funds for technical assistance advisors and commodities), or to the issuance of documents by AID pursuant to which disbursements will be made with respect thereto, the cooperating country will provide, in form and substance satisfactory to A.I.D. a detailed description of the arrangements under which the rehabilitation/reconstruction of such segment will be carried out which includes:
 - a. an identification of the office or organization which will be responsible for the construction (e.g. Provincial Commissioner, Area Council, or village chief or council);
 - b. an implementation plan which includes a time schedule for completion of the work, an estimate of the personnel, equipment and commodities required, and their costs;
 - c. a description of the contractual or other arrangements to be made for all personnel required (laborers, supervisors, mason and/or pipe layer where needed, time-keeper, book-keeper) including the times during which such personnel will be expected to work and the basis upon which they will be paid;
 - d. arrangements made to obtain specific designs for any major

work to be undertaken such as major filling at drainage crossings; and

e. arrangements to be made for maintenance of completed road sections.

4. No funds authorized herein shall be obligated for the provision of credit funds for support of agricultural marketing or manufacturing activities of small-scale entrepreneurs or for market or transportation system improvement activities until the requirements of section 611 (a) of the Foreign Assistance Act are met with respect to that project component.

Covenants

1. Within ninety (90) days of the date of signature of this Agreement, or such other date as A.I.D. may agree to in writing, the Cooperating Country will submit to A.I.D. a detailed implementation plan for the activities to be conducted during the first year of the project. A similar plan shall be submitted annually thereafter for activities to be conducted during the next year.
2. No funds provided under this Agreement shall be used for assistance for the procurement and use of pesticides until the environmental analysis requirements of AID Regulation 16 are satisfied.

LOGICAL FRAMEWORK MATRIX

APPENDIX A

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Goal:</u></p> <p>To increase agricultural production and the incomes of traditional farmers and pastoralists as well as promoting the participation of private entrepreneurs in agricultural processing and marketing.</p>	<ol style="list-style-type: none"> 1. Increased farm productivity. 2. Higher farm incomes. 3. Increased total volume of marketed agricultural commodities and farm inputs. 4. Increased number of small to medium-scale entrepreneurs involved in the processing and marketing of agricultural commodities, including farm inputs. 	<p align="center"><u>Goal-level Indicators</u></p> <ol style="list-style-type: none"> 1. RMANR records 2. Project reports 3. On-site observation 4. Phase I and Phase II Project Evaluation 5. Phase I Baseline Study 	<p align="center"><u>Purpose to Goal Assumptions:</u></p> <ol style="list-style-type: none"> 1. Farmers will adopt recommendations 2. Farmers will realize increased income from increased production. 3. Farmers and entrepreneurs will use credit for productive purposes. 4. Commercial transport and fuel will be available to take advantage of improved physical infrastructure. 5. Adequate financial resourced from the SRG budget will be made available to cover an increasing proportion of recurrent costs.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Purpose:</u></p> <p>To relieve key policy production, marketing, institutional and infrastructural constraints to increase private sector agricultural production, processing and marketing in the Southern Region of Sudan</p>	<ol style="list-style-type: none"> 1. The identification of policy and physical infrastructure changes necessary to provide incentives to (a) encourage the production of marketable agricultural surpluses; (b) stimulate private sector investment in the marketing of agricultural commodities; and (c) promote small to medium-scale agri-business, as well as the implementation of some of these changes, especially in the Yambio and Rumbek areas. 2. An integrated regional marketing strategy and appropriate sub-sector marketing programs based upon policy reform, with the implementation of the initial stages of the marketing plans for Yambio and possibly Rumbek Districts. 3. Training programs in Yambio and Rumbek functioning on the basis of a clear definition of quality and quantity of manpower needed by the agricultural sector using appropriate curricula and with programs within the administrative and financial capabilities of the Region. 	<p><u>EOPS:</u></p> <ol style="list-style-type: none"> 1. RMANR records 2. Contractor final report 3. Project evaluation 	<p><u>Output to Purpose Assumptions:</u></p> <ol style="list-style-type: none"> 1. Resources will be available to implement marketing strategy. 2. Policy reform recommendations will be implemented by SRG. 3. Labor is available for feeder road construction. 4. Decentralization program is implemented. 5. RMANR commitment to regional agricultural training facilities. 6. Participants trained during the project remain in positions for which trained. 7. Donors and institutions are willing to coordinate agricultural programs in the South.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
	<ol style="list-style-type: none"> 4. An operating prototype credit program for small to medium scale entrepreneurs involved in agri-business. 5. An improved RMANR budget planning process that will allocate financial and manpower resources in more efficient and effective manner, including consideration of donor resources flowing into the Ministry. 6. Improved farmer access to markets and input suppliers including feeder roads in place and being maintained in Yambio. 7. A firm foundation for a farming systems research program capable of identifying farm constraints, conducting applied research on farmers fields and recommending a package of practices and inputs to increase agricultural productivity and increase farm income with actual experience with such a program in the Yambio district. 8. Improved coordination among the the institutions involved in agricultural linkages among research programs, farm extension, agricultural training institutes and RMANR provincial and Area Council activities. 		

Narrative Summary**Objectively Verifiable Indicators****Means of Verification****Important Assumptions**

9. A functioning system at the Area Council level in Yambio and Rumbek that will be capable of administering programs to assist farmers, pastoralists and rural entrepreneurs in such areas as credit, input supply, small business feasibility assessment, etc.
10. Selection criteria developed and a process established for future (Phase II) assistance to the agricultural sector including the identification of viable small/medium scale agri-business opportunities, and the expansion of major project activities to the Rumbek area and to other areas outside the green belt.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<u>Outputs:</u>			<u>Input to Output Assumptions:</u>
<u>1. Agricultural Marketing</u>			1. AID will provide resources required in a timely manner. 2. Phase I will be followed by a longer Phase II Project.
a. Regional marketing/transport study	a. Study completed by arrival of T.A. team	1. Project Evaluations	
b. Regional crop marketing strategy.	b. Strategy ready for implementation for Phase II.	2. Contract reports/records.	
c. Market information systems	c. x	3. USAID site inspections	
d. Market surveillance system	d. x	4. RMANR reports and records	
e. Market systems improvements	e. 2-3 central crops storage, grading, bulking facilities.		
f. Feasibility studies for rural enterprises	f. 10-12 studies		
<u>2. Farming Systems Research:</u>			
a. Institutional capability established at the Yambio ARS to carry out a farming systems approach to research.	a. x		
b. Development of long term plan for research.	b. x		

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
c. Implementation of FSR including identification of constraints, on farm or on station research, and extension.	c. x		
d. Strengthened RARTC.	d. x		
3. <u>Budget and Financial Planning:</u>			
a. Improved budget planning process	a. x		
b. Comprehensive agricultural development budget	b. 1 budget prepared		
c. Long-term program for identifying and resolving capital and recurrent cost issues.	c. x		
d. Cost/benefit analyses of RMANR programs	d. 6-10 projects/programs evaluated.		
e. Analysis of fiscal policy and recommendations for reform	e. x		

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
4. <u>Manpower Development and Utilization:</u>			
a. Comprehensive plan for pre- and in-service training of agricultural manpower.	a. Plan		
b. Recurrent budget support to conduct training programs at YIA and RATC.	b. Budget support for FY 83/84		
c. Study and report on future role of training facilities at Yei, Rumbek and Yambio.	c. 1 report		
d. Support for programs at YIA and RATC during the second and third years.	d. Support for FY 84/85, 85/86 contingent upon findings of c., above.		
e. Practical agricultural work/study program at the University of Juba.	e. x		
f. Career development program for RAMNR staff.	f. x		
g. Participant training program developed	g. x		
h. Farmer training program established at Yambio.	h. x		

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
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5. Area Development:

- | | | | |
|--|---|--|--|
| a. Baseline study on income and agricultural production. | a. Studies conducted in Yambio and Rumbek districts by TA team arrival. | | |
| b. Operating plan for Area Councils. | b. Area Councils effectively coordinating program activities by end of Phase I. | | |
| c. Pilot credit programs for rural enterprises. | c. Program operating in Yambio and Rumbek districts. | | |
| d. On-farm storage facilities conducted. | d. x | | |
| e. Feeder roads rehabilitated and improved. | d. 87 kilometers rehabilitated; culverts and bridges installed over an additional 125 km. | | |
| f. Strengthened extension service | f. Program in operation with documentation on organization and impact. | | |

PID APPROVAL CABLES

15 May 1982
FM SECSTATE WASHDC
TO AMEMBASSY KHARTOUM
UNCLAS STATE 131483

AIDAC

SUBJECT: SOUTHERN REGION AGRICULTURE DEVELOPMENT (650-0046)

1. A REVIEW OF THE SUBJECT PID WAS HELD MONDAY, APRIL 12, 1982. THE PROJECT COMMITTEE RECOMMENDED THE PID NOT TO BE APPROVED AS SUBMITTED. THE PROJECT COMMITTEE ALSO RECOMMENDED THAT THE MISSION CONSIDER RESTRUCTURING THE PROJECT INTO TWO PHASES AND SUBMIT A REVISED PID FOR PHASE ONE AS SOON AS POSSIBLE. THE REASONS FOR THE COMMITTEE'S RECOMMENDATIONS FOLLOW.

2. THE COMMITTEE CONCURS WITH THE MISSION'S SELECTION OF A LIMITED AREA OF THE SOUTHERN SUDAN AS THE FOCUS FOR THE PROJECT AND THE MULTI-FACETED APPROACH TO THE AREA'S DEVELOPMENT. HOWEVER, AS CLEARLY STATED IN THE PID, THE PROJECT CONTEMPLATES A TEN-YEAR LOP AND A FINAL PROJECT DESIGN WOULD NOT EVOLVE UNTIL A SERIES OF STUDIES AND PILOT PROJECTS ARE CARRIED OUT AND THEIR CONCLUSIONS/ RESULTS ANALYZED. UNTIL THESE PRELIMINARY STEPS ARE COMPLETED, THE PROJECT DESIGN AND ITS OUTPUTS AND COSTS CANNOT BE IDENTIFIED WITH REASOBABLE ACCURACY. THEREFORE, COMMITTEE CONCLUDED IT IS PREMATURE TO RECOMMEND THE PROPOSED PROJECT BE AUTHORIZED FOR FURTHER DEVELOPMENT AS A TEN-YEAR PROJECT.

THE COMMITTEE RECOMMENDS THE MISSION DIVIDE THE PROJECT INTO TWO PHASES WITH THE FIRST PHASE SERVING AS AN EXTENDED DESIGN PERIOD FOR THE MAJOR COMMITMENTS ENVISIONED FOR THE SECOND PHASE IN ADDITION TO ADDRESSING PRIORITY INFRASTRUCTURAL AND INSTITUTIONAL CONSTRAINTS WHICH CAN BE FIRMLY IDENTIFIED FOR THE PHASE ONE ASSISTANCE.

3. DURING THE TWO TO THREE-YEAR FIRST PHASE THE MISSION CAN CONDUCT THE STUDIES IDENTIFIED IN THE PID AS NECESSARY PREREQUISITES FOR PROJECT IMPLEMENTATION; IMPLEMENT ONE OR TWO SMALLER SCALE PILOT QUOTE AREA DEVELOPMENT END QUOTE EFFORTS TO TEST VARIOUS METHODS OF INCREASING AGRICULTURAL PRODUCTION AND THE ABILITY OF DISTRICT AND LOWER INSTITUTIONS TO IMPLEMENT SUCH PROJECTS; AND UPGRADE THE INSTITUTIONS AND INFRASTRUCTURE IDENTIFIED AS CRITICAL TO THE IMPLEMENTATION OF THE SECOND PHASE OF THE PROJECT. THE INTERM GOALS OF THIS FIRST PHASE COULD BE A) TO DEVELOP A FINAL PROJECT DESIGN

FOR PHASE II AND B) STRENGTHEN THE INSTITUTIONS AND INFRASTRUCTURE NEEDED DURING THE SECOND AND EXPANDED PHASE OF PROJECT IMPLEMENTATION.

4. THE REVIEW COMMITTEE CONCURS WITH THE MISSION POSITION THAT SUCCESSFUL IMPLEMENTATION OF THE PROPOSED PROJECT REQUIRES A LONG TERM COMMITMENT FROM THE GOS AND AID. AID/AFR CONSIDERS ITS WILLINGNESS TO AUTHORIZE A TWO PHASE PROJECT AS A COMMITMENT THAT UPON THE SUCCESSFUL COMPLETION OF THE FIRST PHASE, IT WOULD CONTINUE TO FAVORABLY CONSIDER ADDITIONAL SUPPORT FOR THE PROJECT.

5. THE FOLLOWING ARE A LIST OF THE MAJOR ISSUES THAT SURFACED DURING THE PID REVIEW. THE MISSION SHOULD CONSIDER THESE ISSUES WHEN PREPARING THE REVISED PID.

A) ROLE OF THE PRIVATE SECTOR: THE PID EMPHASIZES THE NEED TO INCREASE THE ROLE OF THE PRIVATE SECTOR BUT GIVES LITTLE INFORMATION OTHER THAN TO INDICATE A STUDY WILL BE CONDUCTED TO SHOW HOW THIS IS TO BE ACCOMPLISHED. THE MIX OF TECHNICAL ASSISTANCE CONTAINED IN PID DOES NOT SEEM TO RELATE TO THIS PARTICULAR PROJECT'S GOALS. THE LACK OF ANY LONG TERM ADVISOR SKILLED IN PROMOTION OF PRIVATE ENTERPRISE WAS NOTED.

B) THERE IS A NEED TO JUSTIFY AND DEFINE THE OBJECTIVES OF THE STUDIES TO BE UNDERTAKEN. FOR EXAMPLE, WHILE THE GOVERNMENT IS QUOTE MOVING AWAY FROM LARGE SCALE MECHANIZED AGRICULTURE... END QUOTE (PAGE 3) QUOTE ONE OF THE INITIAL STUDIES WILL EXAMINE THE CONSTRAINTS AND POTENTIAL OF DEVELOPING MECHANIZED AGRICULTURAL PROGRAMS WITHIN THE REGION END QUOTE (PAGE 5).

C) ARE TESTED EFFECTIVE PACKAGES OF AGRICULTURE PRACTICES CURRENTLY AVAILABLE FOR EXTENSION TO THE REGION'S FARMERS?

D) RELATIONSHIP TO OTHER DONORS: THE PID DESCRIBES THE DONORS WORKING IN THE REGION BUT DOES NOT DESCRIBE THE DEGREE OF COORDINATION WHICH EXISTS AMONG THE DONORS AND THE ADEQUACY OF THIS COORDINATION TO THE PROJECT'S NEEDS.

E) SPECIFICITY OF OUTPUTS. THE REVISED PID SHOULD IDENTIFY AS SPECIFICALLY AS POSSIBLE EXACTLY WHAT IS EXPECTED TO BE ACCOMPLISHED IN PHASE ONE, WITH A FINANCIAL PLAN SHOWING ESTIMATED COSTS FOR CATEGORIES OF MAJOR INPUTS AND OUTPUTS.

6. THE IEE: THE COMMITTEE WAS UNABLE TO CONCUR IN THE MISSION RECOMMENDATION OF A NEGATIVE DETERMINATION FOR THE IEE. THE COMMITTEE'S POSITION IS THAT THE PID AND IEE AS SUBMITTED DID NOT PROVIDE THE INFORMATION REQUIRED TO MAKE THIS DETERMINATION. AID/W IS WILLING TO PREPARE REVISED IEE BASED UPON MISSION'S RESTRUCTURING PID AS OUTLINED IN THIS CABLE. THE MAJOR ACTIVITIES DURING THE FIRST PHASE OF THE PROJECT, PILOT EFFORTS AND STUDIES, QUALIFY FOR A CATEGORICAL EXCLUSION UNDER REGULATION 16. THE THRESHOLD DECISION FOR THE FEEDER ROADS WILL BE DEFERRED TO THE PP. ADDITIONAL DETAILS WILL BE PROVIDED SEPTEL.

7. IF THE PHASING OF THIS PROJECT IS AGREEABLE TO THE MISSION, SUGGEST YOU AMEND CURRENT PID VIA CABLE.

22 June 1982
FM AMEMBASSY KHARTOUM
TO SECSTATE WASHDC
UNCLAS KHARTOUM 5696

AIDAC

SUBJECT: SOUTHERN REGION AGRICULTURAL DEVELOPMENT, PHASE I,
PROJECT 650-0046

REF: STATE 131483

1. USAID CONCURS WITH RECOMMENDATION FOR TWO-PHASE PROJECT AS PART OF LONG-TERM COMMITMENT TO AGRICULTURAL DEVELOPMENT IN THE SOUTHERN REGION. USAID WILL DEVELOP PHASE I AS A FOUR-YEAR PROJECT WITH FIRST YEAR ESSENTIALLY FOR START-UP ACTIVITIES (E.G. CONTRACTING FOR TA AND PROCUREMENT OF COMMODITIES) AND THREE YEARS FOR INITIAL IMPLEMENTATION.
2. USAID INTENDS TO FOLLOW APPROACH FOR PHASE I SUGGESTED BY AID/W IN PARA 3 REFTEL, I.E. UPGRADE INSTITUTIONAL AND PHYSICAL INFRASTRUCTURE, IMPLEMENT A LIMITED NUMBER OF SMALL SCALE AREA DEVELOPMENT ACTIVITIES, AND CONDUCT STUDIES CRITICAL TO AN EXPANDED DEVELOPMENT PROGRAM IN THE SOUTH. HOWEVER, THESE EFFORTS WILL GO BEYOND THE TWO INTERIM GOALS IN REFTEL OF DEVELOPING A FINAL DESIGN FOR PHASE II AND STRENGTHENING INSTITUTIONS AND INFRASTRUCTURE. IN OUR VIEW PHASE I WILL ALSO BEGIN TO HAVE A DIRECT IMPACT ON AGRICULTURAL PRODUCTION AS A RESULT OF (1) THE FEEDER ROAD CONSTRUCTION PROGRAM (2) KEY POLICY CHANGES THAT WILL PROVIDE INCENTIVES TO PRODUCERS AND OTHER PRIVATE ENTREPRENEURS, (3) IMPROVED FARMING PRACTICES DEVELOPED BY THE FARMING SYSTEMS RESEARCH EFFORT, AND OTHER PROJECT ACTIVITIES. DETAILS FOLLOW IN PARA 7, RE SPECIFICITY OF OUTPUTS (INPUTS). THE THE FOLLOWING COMMENTS ARE KEYED TO PARA 5 REFTEL.
3. PRIVATE SECTOR. SINCE WE VIEW DEVELOPMENT OF THE PRIVATE SECTOR AS ONE OF THE MAJOR THRUSTS OF SRAD, THE PROJECT'S CHIEF OF PARTY POSITION WILL ASSUME OVERALL RESPONSIBILITY FOR THE IDENTIFICATION AND PROMOTION OF PRIVATE SECTOR ACTIVITIES. IN ORDER TO CREATE THE NECESSARY ECONOMIC ENVIRONMENT FOR THE PRIVATE SECTOR TO RESPOND TO THE MAJOR DEVELOPMENT NEEDS OF THE PROJECT AREA, THE FOLLOWING KEY CONSTRAINTS WILL BE ADDRESSED BY THE PROJECT: PHYSICAL AND ECONOMIC INFRASTRUCTURE IN THE FORM OF SECONDARY/FEEDER ROADS AND MARKET CENTERS; BASIC FARMER SUPPORT SERVICES IN THE FORM OF APPLIED RESEARCH, EFFECTIVE EXTENSION SERVICES AND IMPROVED INPUT DELIVERY SYSTEMS; AND POLICY AND ADMINISTRATIVE CONSTRAINTS. TO ADDRESS THESE CONSTRAINTS, THE SRAD PHASE I PROJECT INCLUDES A MAJOR FEEDER ROAD COMPONENT AND COMPLEMENTS USAID AND OTHER DONOR TRANSPORTATION ACTIVITIES SUCH AS THE SOUTHERN ACCESS AND SOUTHERN RURAL INFRASTRUCTURE ROAD PROJECTS AND THE PL 480 TITLE III LOCAL CURRENCIES FINANCING OF THE WHITE NILE RIVER TRANSPORT AND RAILWAY REHABILITATION ACTIVITIES. A LONG-TERM

AGRICULTURAL MARKETING ADVISOR WILL WORK TO IDENTIFY AND ANALYZE TECHNICAL AND ECONOMIC CONSTRAINTS IMPEDING THE DEVELOPMENT OF A VIABLE SYSTEM OF FOOD AND CASH CROP MARKETING. POLICY ALTERNATIVES, PRIVATE AND PUBLIC SECTOR INVESTMENT PRIORITIES, AND MARKET STRATEGY OPTIONS SUPPORTED BY QUANTITATIVE ANALYSIS WILL OFFER THE BASIS FOR REGIONAL GOVERNMENT DECISION MAKING TO INITIATE NECESSARY MARKETING REFORM IN ORDER TO STIMULATE PRIVATE COMMERCIAL ACTIVITY IN AGRICULTURAL MARKETING.

4. SPECIAL STUDIES. THE PID IDENTIFIED SEVERAL STUDIES TO BE UNDERTAKEN DURING THE LOP. THESE INCLUDE: STRUCTURE, CONDUCT AND PERFORMANCE OF AGRICULTURAL MARKETING SYSTEMS; AGRICULTURAL PRICE AND INCENTIVE POLICIES; PRIVATE SECTOR INVESTMENT PROMOTION; SPECIFYING AND PRIORITIZING INVESTMENT NEEDS IN THE REGIONAL TRANSPORTATION SYSTEMS INCLUDING TRANSPORT LINKS WITH THE NORTH; AND THE POTENTIAL FOR PRIVATE SECTOR INVESTMENT AND PROMOTION IN SMALL SCALE APPROPRIATE MECHANIZATION. (RE: ISSUE RAISED PARA 5B REFTTEL, MECHANIZATION STUDY WILL BE UNDERTAKEN TO DETERMINE THE QUOTE APPROPRIATE UNQUOTE LEVEL OF SMALL FARM MECHANIZATION). THE OBJECTIVES OF EACH STUDY WILL BE TO IDENTIFY CRITICAL AREAS AND REQUIRED INCENTIVES TO ENCOURAGE THE INCREASED INVOLVEMENT OF PRIVATE COMMERCIAL ACTIVITY TO SUPPORT AGRICULTURAL GROWTH AND DEVELOPMENT IN THE PROJECT ZONE. THE PP DESIGN TEAM WILL DEVELOP THE SCOPES OF WORK FOR THE MAJOR STUDIES.

5. AVAILABILITY OF PACKAGE FOR AGRICULTURAL PRACTICES. AS PART OF THE PROJECT DESIGN FOR THE YAMBIO RESEARCH STATION COMPONENT, AN AGRONOMIST FROM THE WESTERN SUDAN AGRICULTURAL RESEARCH PROJECT AND A HORTICULTURALIST FROM THE AGRICULTURAL RESEARCH CORPORATION HAVE CONDUCTED A PRELIMINARY STUDY OF PREVAILING FARMING SYSTEMS AND PRODUCTION CONSTRAINTS IN THE PROJECT AREA AND HAVE INVESTIGATED THE PRESENT AVAILABILITY OF IMPROVED AGRICULTURAL INPUTS AND PRACTICES. THEIR REPORT ALSO DETAILS HOW A FARMING SYSTEMS APPROACH TO RESEARCH/EXTENSION CAN BE IMPLEMENTED AT THE YAMBIO RESEARCH STATION. AMONG THEIR FINDINGS ARE THAT THE FOLLOWING IMPROVED INPUTS ARE PRESENTLY AVAILABLE IN THE REGION FOR DISSEMINATION TO FARMERS: IMPROVED, CERTIFIED SEED VARIETIES FOR SORGHUM, PEANUT AND WHITE AND YELLOW MAIZE; PINEAPPLE SUCKERS; COFFEE SEEDLINGS; AND AN IMPROVED PACKAGE OF INPUTS AND PRACTICES FOR COTTON.

6. RELATIONSHIP TO OTHER DONORS. THE REGIONAL MINISTRY OF AGRICULTURE (RMOA) HAS STARTED TO PLAY A KEY ROLE IN COORDINATION OF DONOR ACTIVITIES. FOR EXAMPLE, A DECISION WAS MADE APPROXIMATELY SIX MONTHS AGO TO ABOLISH THE SEPARATE IBRD PROJECT FORMULATION UNIT AND BRING IT UNDER THE RMOA. COORDINATION OF AGRICULTURAL RESEARCH IN THE SOUTH HAS BEEN INITIATED WITH THE FORMATION OF A RESEARCH COMMITTEE WHICH HAS SPONSORED TWO CONFERENCES. HOWEVER, THERE IS A NEED TO FURTHER DEVELOP COORDINATION AMONG DONORS AND TO INTEGRATE DONOR ACTIVITIES WITHIN THE RMOA STRUCTURE. WE ANTICIPATE A MAJOR ROLE FOR SRAD I TO ASSIST THE RMOA COORDINATE DONOR PROGRAMS INCLUDING ASSISTANCE IN IMPLEMENTING A PLAN TO DECENTRALIZE AGRICULTURAL PROGRAMS. SPECIFIC SUPPORT IN THIS AREA IS DESCRIBED IN PARA 7 BELOW.

7. SPECIFICITY OF OUTPUTS (AND INPUTS) FOLLOW:

A. POLICY REFORM.

1. UNDER THE GOS DECENTRALIZATION PROCESS THE SOUTHERN REGION GOVERNMENT (SRG) WILL CONTINUE TO HAVE POLICY MAKING AUTONOMY, AND THE SRG IS COMMITTED TO POLITICAL AND ADMINISTRATIVE DECENTRALIZATION WITHIN THE REGION. CONSEQUENTLY AGRICULTURAL POLICY FORMULATION AND PLANNING AT THE REGIONAL AND EVEN SUB-REGIONAL LEVEL ARE APPROPRIATE PREROGATIVES AND FUNCTIONS OF THE SRG AND THE RMOA. A NEED FOR POLICY REFORM AT THE REGIONAL LEVEL HAS

BEEN IDENTIFIED IN THE AREAS OF PRODUCER INCENTIVES, COMMODITY MARKETING, GOVERNMENT INVOLVEMENT IN PRODUCTION AND MARKETING, AND GOVERNMENT INVESTMENT IN INFRASTRUCTURE. THE EXPECTED OUTPUT IS POLICY REFORM WHICH WILL ENSURE THAT ADEQUATE FINANCIAL INCENTIVES ARE PROVIDED TO FARMERS AND OTHER PRIVATE ENTREPRENEURS TO DEVELOP AND EXPAND COMMERCIAL PRODUCTION AND PRIVATE SECTOR MARKETING OF AGRICULTURAL COMMODITIES WITHIN AND OUTSIDE THE REGION. TO ACHIEVE COMPLEMENTARITY WITH THE GOALS AND STRATEGIES AT THE NATIONAL LEVEL, SRAD POLICY INPUTS WILL BE COORDINATED WITH THE AGRICULTURAL PLANNING AND STATISTICS PROJECT (650-0047) IN ORDER TO ENSURE THAT NATIONAL AND REGIONAL AGRICULTURAL POLICIES AND PLANS ARE CONSISTENT WITHIN A SYSTEM OF ADMINISTRATIVE DECENTRALIZATION.

II. INPUTS INCLUDE THE FUNDING OF STUDIES SPECIFIED IN PARA 4. SCOPES OF WORK FOR THE MAJOR STUDIES WILL BE PREPARED BY THE PP DESIGN TEAM. 36 PM OF LONG-TERM T.A. AND 16 PM OF SHORT-TERM CONSULTANTS WILL ALSO BE PROVIDED TO WORK IN THE AREA OF AGRICULTURAL MARKETING (AS MENTIONED PARA 3 ABOVE), SPECIFICALLY IN THE FIELD OF INTRA-REGIONAL COMMODITY MARKETING, AGRICULTURAL TRADE WITH NORTHERN SUDAN AND PRICING POLICY.

B. EXPANSION OF THE PRIVATE SECTOR.

I. DURING PHASE I, STUDIES WILL BE UNDERTAKEN TO FURTHER DEFINE CONSTRAINTS TO PRIVATE SECTOR DEVELOPMENT AS WELL AS TO DETERMINE MEANS FOR EXPANDING THE ROLE OF THE PRIVATE SECTOR. POLICY STUDIES PLUS THE MARKETING/TRANSPORT STUDY WILL ALSO PROVIDE USEFUL INFORMATION ON HOW WE MIGHT ASSIST PRIVATE SECTOR INVOLVEMENT. THE STUDIES SHOULD BE COMPLETED WITHIN THE FIRST HALF OF SRAD PHASE I, ALLOWING FOR THE IMPLEMENTATION OF SOME DISCRETE PROJECT ACTIVITIES DURING THE LAST TWO YEARS OF THE PROJECT. SPECIFIC OUTPUTS WILL INCLUDE THE FOLLOWING: (1) COMPLETED STUDIES LEADING TO PROJECT ASSISTANCE TO PROMOTE PRIVATE SECTOR PARTICIPATION IN TRANSPORT AND TRADE, SMALL-SCALE AGRI-PROCESSING ACTIVITIES, AND INPUT DELIVERY WITH THE OBJECTIVE OF INCREASING THE PERFORMANCE OF THE FARM AND AGRI-BUSINESS SECTORS; (2) IDENTIFICATION OF VIABLE SMALL-SCALE RURAL INDUSTRIES (SUCH AS COOKING OIL PROCESSING AND RICE MILLING) AND TRAINING PROGRAMS IN THE OPERATION OF SMALL SCALE BUSINESS; AND (3) CAPITAL LOAN TO ENTREPRENEURS.

II. INPUTS INCLUDE:

- APPROX. 50 PERCENT OF 36 PM OF LONG-TERM T.A. PROVIDED BY THE CHIEF OF PARTY AND 10 PM OF SHORT-TERM T.A. WILL BE DEVOTED TO THE IDENTIFICATION AND IMPLEMENTATION OF PROGRAMS DESIGNED TO DIRECTLY ENCOURAGE PRIVATE SECTOR INVESTMENT AND DEVELOPMENT.

- FINANCING OF FEASIBILITY STUDIES RELATED TO THE DEVELOPMENT OF AGRI-BUSINESS OPPORTUNITIES.

- FINANCING OF LOCAL TRAINING PROGRAMS TO SUPPORT PROJECT SPONSORED ACTIVITIES.

- LOCAL CURRENCY TO SUPPORT ENTERPRISE DEVELOPMENT.

C. AREA DEVELOPMENT

I. AREA DEVELOPMENT IN PHASE I IS TO BE FOCUSED IN YAMBIO AND RUMBEK DISTRICTS, AREAS WHERE USAID HAS ALREADY BEEN INVOLVED AND WHICH ARE REPRESENTATIVE OF THE POTENTIAL AND THE PROBLEMS OF AGRICULTURAL DEVELOPMENT IN THE SOUTH. SPECIFIC OUTPUTS INCLUDE: (1) THE RECONSTRUCTION OF 210 KM OF EXISTING FEEDER ROADS AND THE INSTALLATION OF BRIDGES AND CULVERTS ONLY OVER AN ADDITIONAL 125 KM; (2) SMALL-SCALE RURAL ENTERPRISE DEVELOPMENT; (3) DEVELOPMENT OF MARKET CENTERS AND ON-FARM AND TERMINAL STORAGE ACTIVITIES;

AND (4) VILLAGE LEVEL CROP DEMONSTRATIONS.

II. INPUTS INCLUDE:

- APPROX. 25 PERCENT OF THE 26 PM OF LONG-TERM T.A. TO BE PROVIDED BY THE CHIEF OF PARTY.
- APPROX. 50 PERCENT OF THE 36 PM OF LONG-TERM T.A. IN AGRICULTURAL ADMINISTRATION TO HELP THE REGIONAL MINISTRY OF AGRICULTURE IMPLEMENT ITS DECENTRALIZATION STRATEGY.
- 12 PM OF SHORT-TERM T.A. EQUIPMENT AND COMMODITIES AND LOCAL CURRENCY SUPPORT TO RECONSTRUCT EXISTING FEEDER ROADS.
- LOCAL CURRENCY AND COMMODITY SUPPORT TO IMPLEMENT PILOT AREA DEVELOPMENT ACTIVITIES.

D. AGRICULTURAL INSTITUTIONS

1. THE CRITICAL IMPORTANCE OF PUBLIC SECTOR INSTITUTIONS FOR THE AGRICULTURAL DEVELOPMENT OF THE SOUTH WAS THE BASIS FOR USAID'S INITIAL AGRICULTURAL PROJECTS IN THE SOUTH. SUCCESS OF THE SOUTHERN MANPOWER DEVELOPMENT PROJECT (650-0021) ENABLES THIS PROJECT TO IMPROVE AND MAINTAIN THE TRAINING INSTITUTE WITH ONLY MINIMAL INVESTMENT. REHABILITATION OF THE PHYSICAL STRUCTURES AT YAMBIO AGRICULTURAL RESEARCH STATION IS NEAR COMPLETION. SOME ADDITIONAL RESEARCH INFRASTRUCTURE WILL BE REQUIRED BY THE PROJECT SUCH AS RESEARCH EQUIPMENT AND SUPPLIES. HOWEVER, MAJOR EMPHASIS WILL BE DIRECTED TOWARDS IMPLEMENTING A FARMING SYSTEMS APPROACH TO RESEARCH AND EXTENSION IN ORDER TO SOLVE KEY SHORT AND LONGER TERM ON-FARM PRODUCTION CONSTRAINTS. OUTPUTS WILL BE BETTER TRAINED RESEARCH AND EXTENSION PERSONNEL, AN ATTRACTIVE PACKAGE OF INPUTS AND PRACTICES FOR THE SMALL FARMER, AND MORE EFFECTIVE AND PRAGMATIC INSTITUTIONAL SUPPORT TO AGRICULTURE. IN ADDITION, THE PROJECT WILL ASSIST THE RMOA IN THE AREA OF AGRICULTURAL BUDGETING AND FINANCE OUTPUTS WILL INCLUDE AN IMPROVED BUDGET PLANNING AND ANALYSIS SYSTEM AND THE DEVELOPMENT OF A PLAN FOR FINANCIAL ASSISTANCE TO FARMERS AND PRIVATE BUSINESSMEN. THE LATTER EFFORT WILL INVOLVE WORKING WITH SUCH INSTITUTIONS AS THE AGRICULTURE DEVELOPMENT BANK AND SUDAN RURAL DEVELOPMENT CORPORATION TO ESTABLISH AN EFFECTIVE CREDIT SYSTEM BASED UPON AN IDENTIFICATION OF CREDIT NEEDS IN THE PROJECT AREA.

II. INPUTS INCLUDE:

- 36 PM OF LONG-TERM T.A. OF A FSR AGRONOMIST
- 12 PM OF SHORT-TERM T.A. FOR THE YAMBIO AND RUMBOK RESEARCH AND TRAINING FACILITIES.
- 24 PM OF LONG-TERM T.A. IN AGRICULTURAL FINANCE AND BUDGETING
- COMMODITY SUPPORT INCLUDING VEHICLES FOR FIELD WORK, ETC. FOR YAMBIO, RUMBOK, AND THE UNIV. OF JUBA.
- 24 PM OF SHORT-TERM THIRD COUNTRY EXTENSION TRAINING FOR STAFF MEMBERS AT YAMBIO AND RUMBOK TRAINING INSTITUTES.
- 24 PM OF SHORT-TERM THIRD COUNTRY TRAINING FOR MINISTRY OF AGRICULTURE PERSONNEL
- 6 PM OF SHORT-TERM T.A. TO HELP THE RMOA ESTABLISH AN AGRICULTURAL INFORMATION SYSTEM
- 54 PM OF SHORT-TERM PARTICIPANT TRAINING MOST LIKELY AT INTERNATIONAL AGRICULTURAL RESEARCH CENTERS.
- EQUIPMENT AND SUPPLIES TO SUPPORT THE RESEARCH PROGRAM AT YAMBIO ARS

- LIMITED BUDGET SUPPORT FOR THE YAMBIO ARS.

E. COORDINATION AND INTEGRATION OF EFFORTS

1. THE MINISTRY OF AGRICULTURE HAS PLANS TO ESTABLISH A DIRECTORATE FOR COORDINATION OF AGRICULTURAL ACTIVITIES IN THE SOUTHERN REGION. THE PROJECT WILL PROVIDE A TECHNICAL ADVISOR EXPERIENCED IN AGRICULTURAL ADMINISTRATION AND COORDINATION TO ASSIST THE DIRECTOR OF THIS NEW DEPARTMENT TO REINFORCE, COMPLEMENT, INTEGRATE AND COORDINATE DONOR ACTIVITIES AND GOVERNMENT PROGRAMS AND ACTIVITIES WITHIN THE STRUCTURE OF THE MINISTRY OF AGRICULTURE. FOR EXAMPLE, IN THE PROJECT AREA THERE IS A GREAT NEED TO COORDINATE THE ACTIVITIES OF THE SRAD PROJECT, IBRD PDU PROJECTS, FAO YAMBIO INSTITUTE OF AGRICULTURE, NZARA AGRICULTURAL PRODUCTION SCHEME, ACROSS (A PVO OPERATING IN THE SOUTH), THE SUDAN COUNCIL OF CHURCHES, AND THE ON-GOING ACTIVITIES OF THE REGIONAL MINISTRY OF AGRICULTURE. AID ASSISTANCE WILL BE PROVIDED TO PRODUCE AN INTEGRATED, COLLABORATIVE SYSTEM AMONG DONORS AND THE VARIOUS DEPARTMENTS OF THE RMOA THAT WILL LEAD TO A UNIFIED AGRICULTURAL SUPPORT SYSTEM. SUCH A SYSTEM WILL BE UNDER THE CONTROL AND LEADERSHIP OF THE RMOA.

II. INPUTS INCLUDE:

- 36 PM OF LONG-TERM T.A. TO IMPROVE AGRICULTURAL ADMINISTRATION AND COORDINATION.

F. OTHER INPUTS REQUIRED TO ACHIEVE THE ABOVE OUTPUTS INCLUDE:

- REHABILITATION OF FACILITIES SUCH AS CONTRACTOR HOUSING
- PROVISION OF INTERNAL VEHICLE TRANSPORTATION AND AIRCRAFT SERVICES
- 36 PM OF LONG-TERM TECHNICAL ASSISTANCE FOR BUDGET ADMINISTRATION/ LOGISTICS.

8. IN ADDITION, USAID IS TENTATIVELY CONSIDERING THE USE OF PEACE CORPS VOLUNTEERS TO ASSIST IN THE FEEDER ROADS AND RESEARCH COMPONENTS OF THE PROJECT (SUBJECT OF SEPTEL).

9. FINANCIAL PLAN BROKEN DOWN BY SOURCE OF FINANCING AND OUTPUTS/INPUTS FOLLOWING:

	USAID FX	PL 480 III LC	GOS BUDGET	TOTAL
I. PRIVATE SECTOR DEVELOPMENT				
A. LONG-TERM TA-COP (36 PM)	432	95	40	567
B. SHORT-TERM TA (10 PM)	160	40	16	216
C. TRAINING (IN-COUNTRY)	100	100	10	210
D. CREDIT FOR RURAL ENTERPRISES	-	500	50	550
E. STUDIES	100	50	10	160
SUBTOTALS	792	785	126	1703
II. POLICY INITIATIVES				
A. LONG-TERM TA (36 PM) (MARKETING, PRICING POLICY AGRICULTURAL INCENTIVES)	432	95	40	567
B. SHORT-TERM TA (22 PM)	352	88	35	478
C. MARKETING/TRANSPORT STUDIES	250	100	25	375
SUBTOTAL	1034	283	100	1417

III.

PUBLIC SECTOR AGR. INSTITUTIONS

A. LONG-TERM TA (60 PM) (FSR AGRONOMIST, AGR. FINANCE AND BUDGETING)	720	160	67	947
B. SHORT-TERM TA (12 PM)	192	48	19	259
C. SHORT-TERM TRAINING (102 PM)	306	-	31	337
D. EQUIPMENT AND COMMODITIES	404	-	-	404
E. CONSTRUCTION	375	160	35	570
F. OPERATING EXPENSES AGR RESEARCH	300	100	30	430
SUBTOTALS	2297	468	182	2947

IV. AREA DEVELOPMENT PROGRAM

A. SHORT-TERM TA ROADS (12 PM)	192	48	19	259
B. FEEDER ROAD RECONSTRUCTION (EQUIPMENT, COMMODITIES, VEHICLES, OPERATING COSTS, SUPERVISION, LABOR)	1656	1123	166	2950
C. FEEDER ROAD MAINTENANCE (TOOLS, COMMODITIES, LABOR)	120	132	12	264
D. COMMODITIES AND EQUIPMENT FOR RURAL ENTERPRISES	500	-	-	500
E. MARKET INFRASTRUCTURE (E.G. STORAGE FACILITIES RIVER/RAIL SERVICE AND COMMODITIES)	500	500	50	1050
SUBTOTALS	2968	1808	247	5023

V. AGRICULTURAL ADMINISTRATION
COORDINATION

LONG-TERM T.A. (36 PM)	432	95	40	567
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VI. PROJECT ADMINISTRATION AND
LOGISTICAL SUPPORT

A. LONG-TERM T.A.	432	95	40	567
B. VEHICLES FOR T.A. TEAM	96	-	-	96
C. VEHICLE OPERATION	65	10	6	81
D. TRANSPORT SERVICES	500	-	-	500
E. HOUSING RENOVATION	100	50	-	150
F. OFFICE EQUIPMENT/SUPPLIES	75	-	-	75
SUBTOTALS	1268	155	46	1469

VII. CONTINGENCY (10 PERCENT)	879	359	74	1312
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VIII. TOTAL PROJECT	9670	3953	815	14,438
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10. US DOLLAR LOP FUNDING NOW ESTIMATED AT APPROXIMATELY 9.7 MILLION. REQUEST AID/W APPROVAL TO AUTHORIZE PROJECT IN THE FIELD. EXCEPT PP COMPLETION LATE JULY/EARLY AUGUST, AUTHORIZATION MID-AUGUST AND OBLIGATION BY AUGUST 31.

11. AGREE WITH PARA 6 REFTEL THAT ALL COMPONENTS EXCEPT FEEDER ROAD QUALIFY FOR EXCLUSION UNDER REG. 16. FEEDER ROAD COMPONENT NOW BETTER DEFINED AND IEE BEING PREPARED BY REDSO/EA AND USAID/S ENGINEERS. WILL CABLE IEE FOR FEEDER ROAD COMPONENT SEPTEL WITHIN NEXT WEEK.

31 JULY 1982
FM SECSTATE WASHDC
TO AMEMBASSY KHARTOUM
UNCLAS STATE 213636

AIDAC

SUBJECT: SOUTHERN REGION AGRICULTURAL DEVELOPMENT PROJECT,
PHASE I (650-0046)

1. SUMMARY. ECPR FOR SUBJECT PROJECT HELD JUNE 29, 1982, AND CHAIRED BY DAA/AFR GLENN PATTERSON. ECPR APPROVED SUBJECT PID AND DELEGATION OF AUTHORITY TO FIELD TO APPROVE PROJECT. SOME MEMBERS OF PROJECT COMMITTEE (PC) ENCOUNTERED DIFFICULTIES FOLLOWING PID'S RATIONALE FOR PROPOSED ACTIVITIES AND HOW GOS/AID COULD SUCCESSFULLY ACHIEVE PROJECT OBJECTIVES. USAID DIRECTOR EXPLAINED HOW THIS PROPOSED PROJECT WILL BUILD-UPON ONGOING RESEARCH AND EXTENSION PROJECTS IN SUDAN, AS WELL AS HOW ITS DESIGN INCORPORATES FINDINGS OF RECENT AG SECTOR ASSESSMENT, CDSS ET. AL. PC AGREED THAT PP DESIGN AND PROJECT IMPLEMENTATION WILL BE EXTREMELY DIFFICULT AND COMPLEX. FOLLOWING ARE PC CONCERNS AND ISSUES TO BE ADDRESSED PRIOR TO PP APPROVAL. END SUMMARY.

2. PROJECT RATIONALE AND ALTERNATIVES. SUDAN'S POOR ECONOMIC SITUATION IS WELL KNOWN AND DOCUMENTED IN MANY RECENT REPORTS (CDSS, WORLD BANK REPORTS, ETC.). WHILE PID DOES NOT ADEQUATELY JUSTIFY EMPHASIS ON RAINFED AGRICULTURE (BY VIRTUE OF ITS RESPONSE TO POLICY CHANGE): ON PRODUCTION OF PREDOMINANTLY SORGHUM AND OTHER SELECTED CROPS (PROJECTED COMPARATIVE ADVANTAGE): OR ON INSTITUTION-BUILDING AND INFRASTRUCTURE (MOST IMMEDIATE AND OBVIOUS CONSTRAINT TO PRIVATE HOLDERS), AS APPROPRIATE ACTIVITIES TO BE UNDERTAKEN NOW IN SUDAN, RECENT AGRICULTURAL ASSESSMENTS AND MISSIONS'S CDSS, AMONG OTHERS, HOWEVER, DO MAKE STRONG GENERAL CASE FOR THIS APPROACH. PROJECT COMMITTEE FELT THAT MISSION SHOULD HAVE EXPLAINED WHY THIS PROJECT IS MOST APPROPRIATE ALTERNATIVE COMPARED TO OTHER SHORT-TERM INTERVENTIONS. PROJECT ECONOMIC ANALYSIS SHOULD DEMONSTRATE (A) WHEN PAYOFFS THAT MAKE THESE INTERVENTIONS RATIONALE CAN BE EXPECTED (I.E., NEED TO ELUCIDATE HOW SPECIFIC CRITERIA/MIX OF INTERVENTIONS WERE SELECTED IN TERMS OF BEST COST/BENEFIT ANALYSIS) AND (B) WHY ECONOMIC ANALYSIS DOES NOT WEIGH MORE HEAVILY TOWARD PROJECTS WITH MORE IMMEDIATE PAYOFFS (IN LIGHT OF FACT SUDAN MIGHT REALISTICALLY NOT GET TO MEDIUM OR LONG TERM UNLESS SPECIFIC PROBLEMS ARE ADDRESSED IMMEDIATELY).

PP SHOULD ALSO ADDRESS POSSIBLE EXPORT/REVENUE GENERATING POTENTIAL OF PROJECT OR POSSIBLE IMPORT SUBSTITUTION FOR WHICH IDENTIFIED MARKETS EXIST. ALSO IF ABOVE IS NOT THE CASE, WILL PROJECT CREATE ADDITIONAL IMPORT DEPENDENCY?

3. RECURRENT COSTS. CONCERN THAT PROJECT MIGHT NOT BE SELF-SUPPORTING WAS A MAJOR ISSUE. PP SHOULD ADDRESS ISSUE OF ENTIRE BUDGETARY CONTEXT PRIOR TO (AND IN ADDITION TO) QUANTITATIVE ANALYSIS OF RECURRENT COST IMPLICATIONS OF THE PROPOSED PROJECT INFRASTRUCTURE. GIVEN SUDAN'S CURRENT BUDGETARY DEFICITS AND REQUIREMENTS IT SEEMS THAT, EVEN IN PRESENCE OF DEMONSTRATED HIGH ECONOMIC RETURN OF A PARTICULAR INSTITUTION OR INFRASTRUCTURE DEVELOPMENT ACTIVITY (ROAD CONSTRUCTION, FOR EXAMPLE) FURTHER INVESTMENT SHOULD BE POSTPONED UNTIL A RATIONAL PLAN FOR ALLOCATING SCARCE BUDGET RESOURCES AMONG LINE OR RECURRENT EXPENDITURE IN THE ENTIRE SECTOR HAS BEEN ESTABLISHED. SUCH A PLAN WOULD HELP TO ASSURE THAT ALREADY OPERATING ROADS PROJECTS WITH EVEN HIGHER ECONOMIC RETURNS WOULD NOT BE SACRIFICED TO MAINTAIN THE PROPOSED ROAD (ASSUMING A CONSTANT OR DECLINING RECURRENT BUDGET).

THUS, HOW GOS OR REGIONS INTEND, IN LIGHT OF ABOVE, TO MAINTAIN AND OPERATE (AND EXPAND) INFRASTRUCTURE ASSISTED THROUGH THIS PROJECT AND OTHER IN EXISTENCE IN CONTEXT OF RECURRENT BUDGETARY CONSTRAINTS OUTLINED ABOVE SHOULD BE THOROUGHLY TREATED IN PP.

4. FINANCIAL PLAN. BECAUSE OF TENUOUS FOREIGN EXCHANGE POSITION OF GOS, COMMITTEE SUGGESTS THAT EXTRA CARE SHOULD BE TAKEN TO ENSURE THAT COSTS IDENTIFIED AS LOCAL CURRENCY (LC) IN BUDGET WILL NOT, IN EFFECT, CREATE FOREIGN EXCHANGE EXPENDITURES (E.G., POL, ROAD CONSTRUCTION COMMODITIES, ETC.). PROJECT SHOULD BE DESIGNED SO THAT FURTHER FOREIGN EXCHANGE PROBLEMS ARE NOT CREATED.

5. EVALUATION. WITH ASSUMPTION THAT ECONOMIC SITUATION IN SUDAN WILL NOT SIGNIFICANTLY IMPROVE OVER THE LIFE OF THIS PROJECT, AN IMPORTANT ISSUE WILL BE WHETHER OR NOT TO CONTINUE PROJECT APPROACH IN FOLLOW-ON. IT WILL BE CRITICAL TO KNOW THE QUOTE LESSONS LEARNED UNQUOTE FROM THIS PROJECT TO ASSURE SUCCESS OF POSSIBLE FOLLOW-ON AND WHAT CONDITIONS MUST BE PRESENT A PRIORI IF FOLLOW-ON IS TO BE APPROPRIATE. THIS REQUIRES THAT CRITERIA FOR THOROUGH EVALUATION BE DEVELOPED DURING DESIGN OF THIS PROJECT. BY DEFINING MORE CLEARLY EXPECTED OUTPUTS OF THE INITIAL PROJECT, A MORE CLEARLY FOCUSED SET OF FOLLOW-ON ACTIVITIES FOR PHASE II SHOULD EMERGE.

ALSO, THE PC RECOMMENDED THAT EARLY ON IN FIRST PHASE IT IS CRITICAL THAT THE PROJECT WOULD GENERATE A BODY OF BASELINE DATA WHICH COULD (A) GUIDE ALLOCATION OF FUTURE PROJECT RESOURCES AND (B) PROVIDE A BASIS FOR EVALUATION.

6. PRIVATE SECTOR INVOLVEMENT. USAID DIRECTOR POINTED OUT THAT THIS PROJECT WILL TRY TO BUILD UPON WHAT IS PRESENTLY BEING DONE IN SUDAN TO ADDRESS THE TWO MAJOR CONSTRAINTS TO PRIVATE SECTOR EXPANSION: (A) POOR STATE OF INFRASTRUCTURE AND (B) GOVERNMENT POLICIES. PP SHOULD FOCUS ON MEANS TO DETERMINE EARLY ON IN PROJECT WHAT AREAS HAVE THE MOST POTENTIAL FOR PRIVATE SECTOR INTERVENTIONS, AND EXPLAIN WHY.

7. LOCAL CURRENCY PROGRAMMING. PC RECOMMENDED THAT AS STUDIES UNDER PROJECT ARE COMPLETED, THEY BE CAREFULLY REVIEWED IN PROGRAMMING OF LOCAL CURRENCY AND BE GIVEN CLOSE SCRUTINY PRIOR TO SECOND PHASE OF PROJECT.

8. OTHER DONOR COORDINATION. PC RAISED QUESTION OF OTHER DONOR INVOLVEMENT IN SOUTHERN SUDAN IN THIS SECTOR AND THE INTERFACE OR REINFORCEMENT THIS NEW PROJECT WOULD HAVE WITH ONGOING EFFORTS OF OTHER DONORS. REQUEST MISSION ADDRESS THIS QUESTION IN PP PREPARATION.

9. INITIAL ENVIRONMENTAL EXAMINATION. IEE SUBJECT OF SEPTEL.

10. SECTION 611 (A). PID INDICATED THAT CERTAIN ACTIVITIES PROPOSED FOR FINANCING MAY NOT SATISFY 611 (A) PLANNING REQUIREMENTS PRIOR TO OBLIGATION OF FUNDS. SINCE IT IS UNLAWFUL TO OBLIGATE FUNDS PRIOR TO MEETING THESE BASIC PLANNING REQUIREMENTS, METHODOLOGY FOR DEALING WITH THESE REQUIREMENTS MUST BE DEVELOPED. SUGGEST EARLY CONSULTATION WITH RLA RE THIS ISSUE.

Statutory Checklist

5C(1) - COUNTRY CHECKLIST

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

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

- | | |
|--|--------------|
| <p>1. <u>FAA Sec. 481.</u> Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?</p> | <p>1. No</p> |
| <p>2. <u>FAA Sec. 620(c).</u> If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?</p> | <p>2. No</p> |

3. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? 3. No
4. FAA Sec. 532(c), 620(a), 620(f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver? 4. No
No
No
5. ISDCA of 1981 Secs. 724, 727, 728 and 730. For specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727, 728 and 730 of the ISDCA of 1981. 5. NA
6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property? 6. No

7. FAA Sec. 620(k). Does the program furnish assistance in excess of \$100,000,000 for the construction of a productive enterprise, except for productive enterprises in Egypt that were described in the Congressional Presentation materials? 7. No

8. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC? 8. No

9. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters? 9.a. No

(b) If so, has any deduction required by the Fishermen's Protective Act been made? 9.b. No

10. FAA Sec. 620(q); FY 1982 Appropriation Act Sec. 517. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country? (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the appropriation bill appropriates funds? 10.a. No
10.b. No

11. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? Reference may be made to the annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)
12. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?
13. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?

11. Not applicable

12. The GOS severed diplomatic relations with the United States in 1967, but they were resumed in 1972. The 1958 bilateral assistance agreement was reconfirmed and remains in effect.

13. Current

14. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime? 14. No
15. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? 15. No
16. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (PAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.) 16. No

17. FAA Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? 17. Yes

18. FAA Sec. 721. See special requirements for assistance to Haiti. 18. NA

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria. 1. No

a. FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

2. Economic Support Fund Country Criteria

a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally 2. a. No

-7-

recognized human rights?
If so, has the country
made such significant
improvements in its human
rights record that
furnishing such
assistance is in the
national interest?

b. FAA Sec. 620B. If
ESF is to be furnished to
Argentina, has the
President certified that
(1) the Govt. of
Argentina has made
significant progress in
human rights; and (2)
that the provision of
such assistance is in the
national interests of the
U.S.?

b. NA

c. ISDCA of 1981, Sec.
726(b). If ESF
assistance is to be
furnished to Chile, has
the President certified
that (1) the Govt. of
Chile has made
significant progress in
human rights; (2) it is
in the national interest
of the U.S.; and (3) the
Govt. of Chile is not
aiding international
terrorism and has taken
steps to bring to justice
those indicted in
connection with the
murder of Orlando
Letelier?

c. NA

5C(2) PROJECT CHECKLIST

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

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

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;
(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

1. (a) Advice of Program Change submitted to Congress on August 10, 1982.

(b) Yes

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,00, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonable firm estimate of the cost to the U.S. of the assistance?

2. (a) Yes
(b) Yes

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

3. No further legislative action is required.
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973?

4. Not applicable.
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

5. Not applicable.
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development.

6. No

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
 8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
 9. FAA Sec. 612(b), 636(h); FY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.
7. Project activities include interventions to increase farm production that may eventually lead to increased exports. Emphasis is on promoting increased production, marketing and processing in private sector.
 8. U.S. technical assistance and equipment will be used in this project.
 9. See financial plan. Local currency generated through the Commodity Import Program will be used in lieu of U.S. dollars to finance local costs.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? 10. No
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? 11. Yes
12. FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? 12. Not applicable
13. FAA 118(c) and (d). Does the project take into account the impact on the environment and natural resources? If the project or program will significantly affect the global commons or the U.S. environment, has an environmental impact statement been prepared? If the project or program will significantly affect the environment of a foreign country, has an environmental assessment been prepared? Does the 13. Yes

project or program take into consideration the problem of the destruction of tropical forests?

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?

14. Not applicable

3. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward

a. The project will include components to increase the productivity of poor farmers. Roads will be constructed using labor intensive methods. Credit will be made available to promote rural enterprises. Local decision making will be supported by channeling some project activities through Area Councils.

better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?

b. Yes

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

c. Yes

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

d. Yes

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

e. No

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

f. Yes

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

g. Project encourages self-help and self-reliance; will work through area councils (local SRG administrative units); will improve budgeting and policy making process; training and effective utilization of SRG and private manpower is an integral component of project.

1. Development Assistance Project Criteria (Loans Only)

2. Not applicable

a. FAA Sec. 122(b).
 Information and conclusion on capacity of

the country to repay the loan, at a reasonable rate of interest.

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

b. Not applicable

c. ISDCA of 1981, Sec. 724 (c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?

c. Not applicable

3. Project Criteria Solely for Economic Support Fund

3. Not applicable

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

"

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?

"

c. FAA Sec. 534. Will ESP funds be used to finance the construction of the operation or maintenance

"

of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?

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

d. Not applicable

5C(3) - STANDARD ITEM CHECKLIST

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

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

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? 1. Yes

2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? 2. Yes

3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? 3. The cooperating country does not so discriminate.

4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be 4. Not Applicable

financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

5. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?

5. No

6. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

6. Yes

7. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? 7. Yes

8. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? 8. Yes

B. Construction

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

2. FAA Sec. 511(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? 2. Yes

3. FAA Sec. 820(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? 3. Not

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? 1. Not Applicable

2. FAA SEC. 301(d). If fund is established solely by U.S. contributions and administed by an international organization, does Comptroller General have audit rights? 2. Not Applicable

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? 3. Yes

4. Will arrangements preclude use of financing:

a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which a. (1) Yes
(2) Yes
(3) Yes

-5-

relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

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

b. Yes

c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

c. Yes

d. FAA Sec. 662. For CIA activities?

d. Yes

e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

e. Yes

f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel?

f. Yes

g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues?

g. Yes

h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to

h. Yes

multilateral
organizations for
lending)?

i. FY 1982 Appropriation
Act, Sec. 510. To
finance the export of
nuclear equipment, fuel,
or technology or to train
foreign nationals in
nuclear fields?

i. Yes

j. FY 1982 Appropriation
Act, Sec. 511. to Will
assistance be provided
for the purpose of aiding
the efforts of the
government of such
country to repress the
legitimate rights of the
population of such
country contrary to the
Universal Declaration of
Human Rights?

j. Yes

k. FY 1982 Appropriation
Act, Sec. 515. To be
used for publicity or
propaganda purposes
within U.S. not
authorized by Congress?

k. Yes

جمهورية السودان الديمقراطية
THE DEMOCRATIC REPUBLIC OF THE SUDAN

APPENDIX D.

وزارة المالية والتخطيط الاقتصادي
Ministry of Finance and Economic Planning

(التخطيط) (Planning)

P.O. Box 2092, KHARTOUM
(BIMAR)
x : 324

ن ب ٢٠٩٢ - الخرطوم
تلغرافيا : (اعمار)
تلكس : ٣٢٤

Khartoum: 10/8/1982.....

الخرطوم في

Ref.: TA/149 XR/120 A.....

النمرة

Mr. Arthur Mudge,
Director USAID
Khartoum.

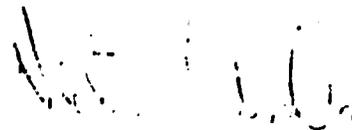
Dear Sir,

This is to inform you that we have received Official requests to have the following; two projects financed by USAID :-

1. Southern Region Agricultural Development.
2. Energy Management & planning.

We hereby do concur to these requests and ask you to start project implementation procedures.

Sincerely yours,



Victor Saba Wahba

For/Under Secretary of Planning
Ministry of Finance and Economic
Planning

Appendix E.

Acronyms

ACROSS	Multi-national Private Voluntary Organization working in the Southern Sudan
A/Comm.	Assistant Commissioner
ADB	Agricultural Development Bank
AID/AFR	Africa Bureau of AID/W
AID/W	U.S. Agency for International Development, Washington Office
ARC	Agricultural Research Corporation
ARMCO pipes	Brand name for corrugated metal road culverts
CGIAR	Consultative Group for International Agricultural Research
CIP	Commodity Import Program
CYMITT	International Maize and Wheat Improvement Center
EEC	European Economic Community
EOPS	End of Project Status
EPAPC	Equatoria Province Agricultural Production Corporation (Nzara)
FAO	Food and Agriculture Organization
FAR	Fixed Amount Reimbursement
FSR	Farming System Research
FY 82	Fiscal Year
GOS	Government of Sudan
GSO	Government Services Officer
IBRD	International Bank for Rural Development (World Bank)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDA	International Development Association (World Bank Affiliate for concessioners lending)
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture
ILACO	Dutch consulting firm implementing project at Bor
ODA	Overseas Development Administration (British)
PCVS	Peace Corps Volunteers

PDU	Project Development Unit
PFU	Project Formulation Unit
PID	Project Identification Document
PM	Person Months
PIO/C	Project Implementation Order/Commodities
PIO/T	Project Implementation Order/Technical Assistance
PP	Project Paper
PT	Participant Training
PVO	Private Voluntary Organization
RARTC	Regional Agri. Research Tech. Committee
RATC	Rumbek Agricultural Training Center
REDSO/EA	U.S. Agency for International Development Regional Support Office, Nairobi, Kenya
RFP	Request for Proposal
RMANR	Regional Ministry of Agricultural and Natatal Resources
SCC	Sudan Council of Churches
SMDP	Southern Manpower Development Project
SR	Southern Region
SRAD I	Southern Region Agricultural Development Phase I
SRG	Southern Region Government
SSU	Sudan Socialist Union
TA	Technical Assistance
USAID/S	U.S. Agency for International Development, Sudan Office
UNDP	United Nations Development Program
WHO	World Health Organization
YAC	Yambio Area Council
YIA	Yambio Institute of Agriculture
YRS	Yambio Research Station

SCOPE OF WORK FOR SRAD I MARKETING STUDY

Statement of Work

Title

A study of present constraints and necessary interventions to improve Small Farmer Marketing Systems in Southern Sudan.

Background

The overall effort of SRAD is to increase the productive capacity and income of large numbers of small farmers in Yambio District initially and over a larger geographic area during the life of the project (10 years).

The PP identifies five major constraints which inhibit the realization of this goal. Briefly stated these interrelated constraints fall within the following subsectors: research/technology, agricultural marketing, transportation, agricultural policy and institutional development.

The problem-solving orientation of the project requires that all these constraints be addressed during the first phase (4 years) of the project. The achievement of the project goal critically depends on an improved marketing system.

Purpose

The purpose of this study is to provide a diagnostic analysis of marketing systems at the local (Yambio District) level and on a regional basis in order to identify interventions (structural, organizational, policy, public and private investment) required to improve (1) small farmer access to rural markets and (2) technical and economic efficiency of the local and regional agricultural marketing systems.

Justification

In order to encourage farmers to innovate and increasingly produce a marketable surplus, the farming systems and producer incentives must be improved dramatically. Incentives can be communicated to farmers via more favorable price policies and improved commodity markets and input delivery systems. However, it is known that the present marketing system does not encourage farmers to increase production for the market. Village markets are poorly developed and physically isolated from larger markets in the region and these are not adequately linked to the major

markets or consuming centers where there is an effective demand for agricultural commodities. This is primarily due to an adequate physical and economic infrastructure (roads, rural market centers storage and processing facilities).

The structure, conduct and performance of agricultural marketing systems in the region need to be analyzed to identify and define appropriate policy reforms and investment needs in order to improve small farmer access to local markets and the overall efficiency of the regional marketing system. Transport constraints and constraints to private investment in the transport sector need to be better understood to identify cost-effective investments and transport policies which can improve the outreach and efficiency of the regional transportation network in both the short and longer term.

Timing and Level of Effort

The consulting team shall conduct their study over three months beginning in September 1982. It is anticipated that 9 pm will be required to carry out this study. The team will consist of an Agricultural Marketing Economist, a Transport Economist and a Transport Engineer. The three professional capabilities are necessary to adequately investigate the technical and economic constraints and inefficiencies in the present transport and marketing system. And it is equally important that the study be conducted as a team effort in order that transport constraints and policy/investment needs are not investigated or formulated in isolation of marketing constraints, issues and investment priorities. Two months will be required for in-depth field studies in the Southern Region and one month in Khartoum for analysis and preparation of the Consulting Report. Team members should have appropriate academic qualifications and extensive experience in studying and preparing agricultural marketing and transport strategies and plans in LDCs, preferably in Africa.

Scope of Services

1. Marketing Economist

- a) Study the structure, conduct and performance of village-level markets (Yambio District) and key regional agricultural markets (to be identified) linking production areas with major consuming centers.
- b) Identify priority public and private investments necessary to increase farmer access to rural markets and increase commodity trade within the region.
- c) Identify priority policy changes which would provide financial incentives for farmers to increasingly produce for the market.

- d) In collaboration with the engineers assess means to transfer commodities from village to terminal markets and ultimate consuming centers.
- e) Investigate the potential for primarily processing of agricultural commodities within the project area and the potential role of promoting a small-scale rural processing industry, including marketing needs and prospects for such private sector ventures; and
- f) Investigate the potential role of private sector participation in the development of an improved agricultural input delivery system in the project area.

2. Transport Engineer and Transport Economist

- a) Identify the technical and economic constraints inherent in the present transport system from the point of view of intra- and inter-regional commodity trade.
- b) Determine the relative importance and costs of alternative means of transport (road, rail and river) used for the marketing of agricultural commodities within the region and for trade with Northern Sudan.
- c) Determine road maintenance requirements; review Government and Other Donors plans and inputs; and recommend a system of developing and institutionalizing an effective program of road maintenance.
- d) On the basis of the above, define a cost-effective transport investment strategy to (1) reduce the major transport constraints and (2) increase the efficiency of the commodity distribution system.

3. Consulting Team

- a) On the basis of identified marketing and transport constraints and projected agricultural trade, develop an integrated marketing/transport strategy for a) SRAD and b) also taking into account supplementary USAID resources (CIP and PL 480, Title III local currency) which could be applied to further the objectives of SRAD.
- b) Translate the strategy into cost-effective investment (public and private) priorities and proposed policy reforms which could substantially improve the efficiency of the marketing systems in the project area in both the short and longer term (longer term here to within 10 years).

Reports

A draft report, acceptable to USAID/Sudan is to be submitted before the team departs Khartoum and 10 copies of the final report are to be sent to Khartoum within 30 days of the departure of the team.

LIBYA

RED SEA

Port Sudan

SUDAN

CHAD

416 mi.

Khartoum

ETHIOPIA

2,430 mi.

759 mi.

CENTRAL
AFRICAN
REPUBLIC

Wau

314 mi.

Rumbek

190 mi.

Juba

224 mi.

Yambio

90 mi.

Yei

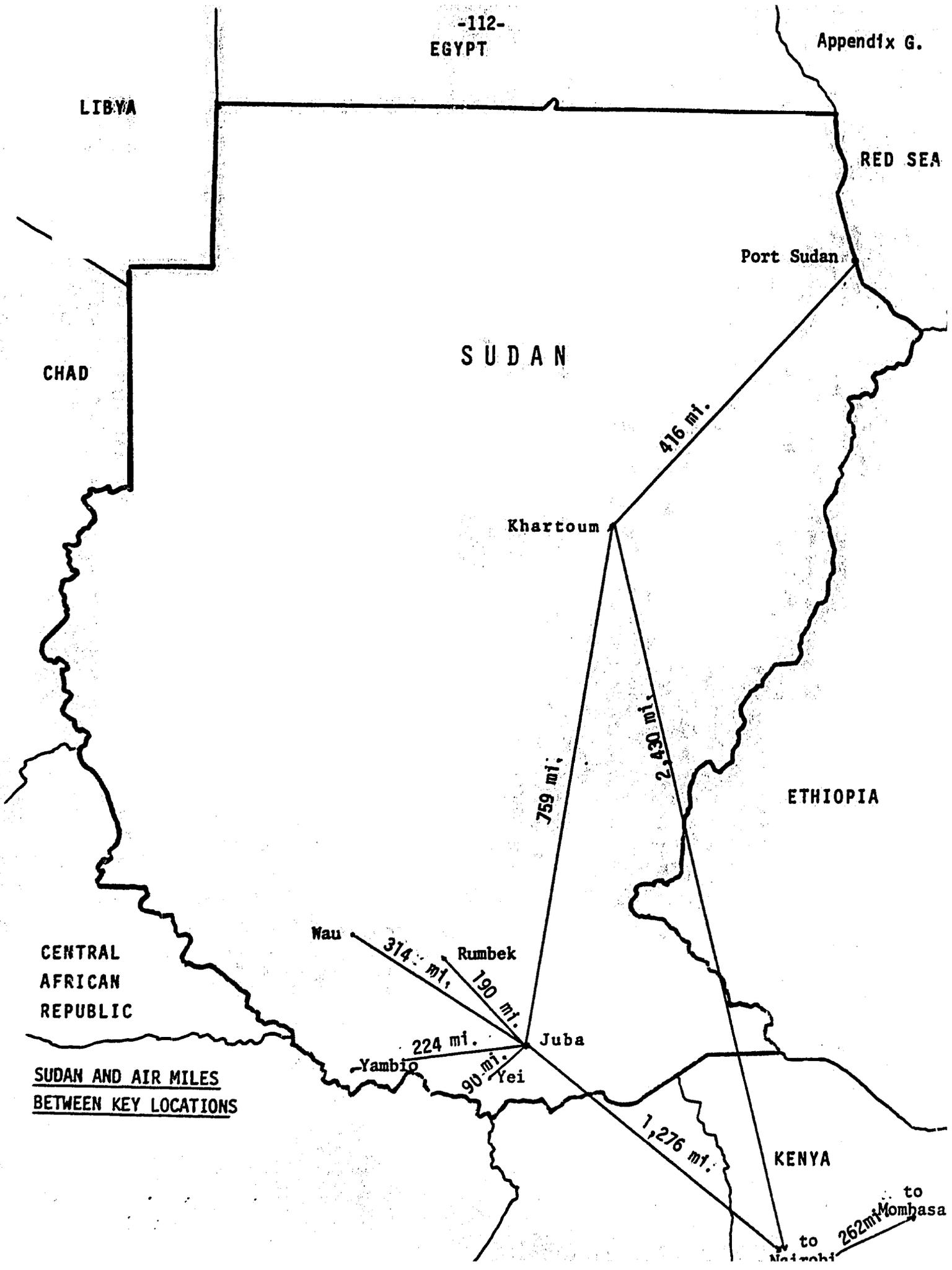
SUDAN AND AIR MILES
BETWEEN KEY LOCATIONS

1,276 mi.

KENYA

to
262 mi. to
Mombasa

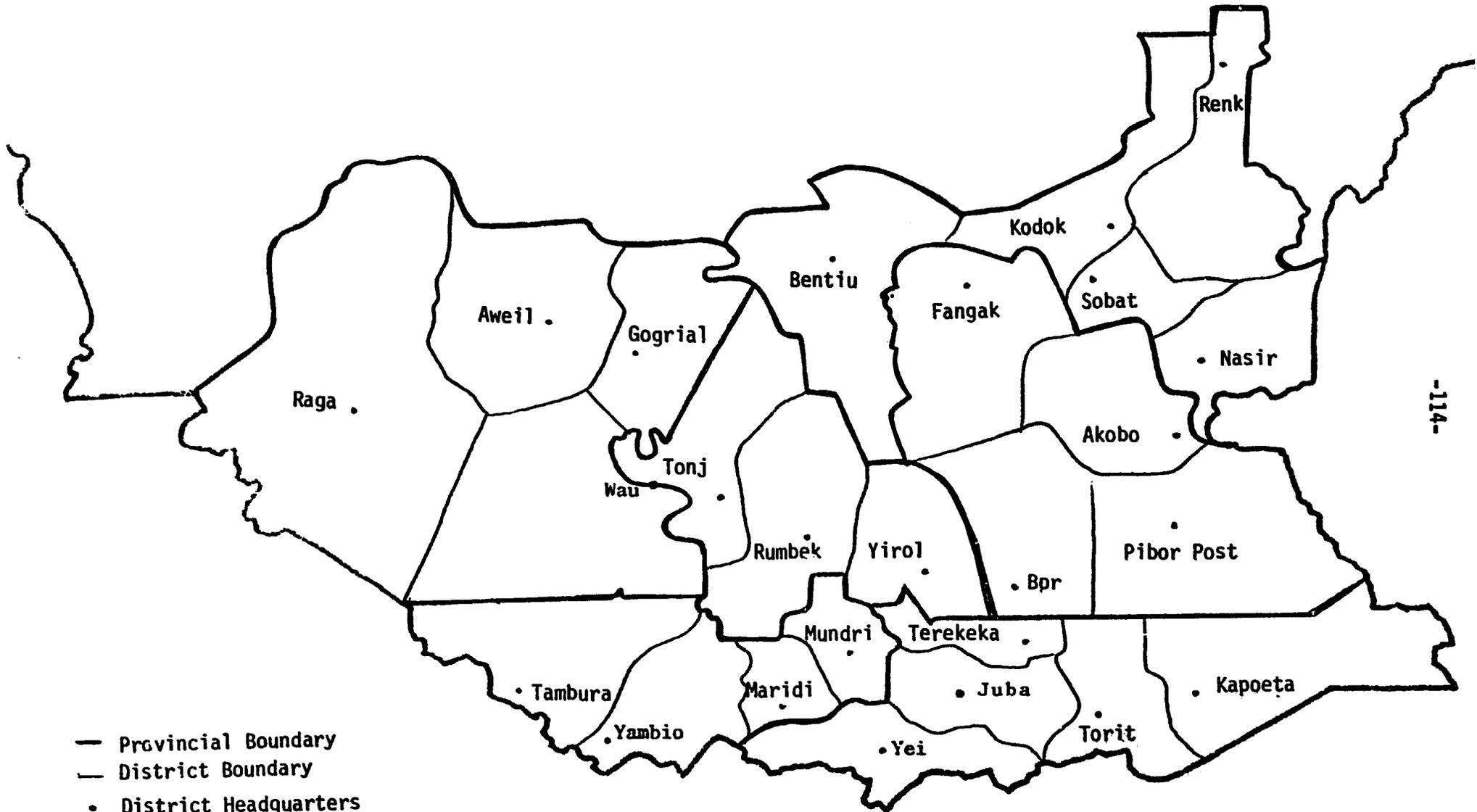
to Nairobi



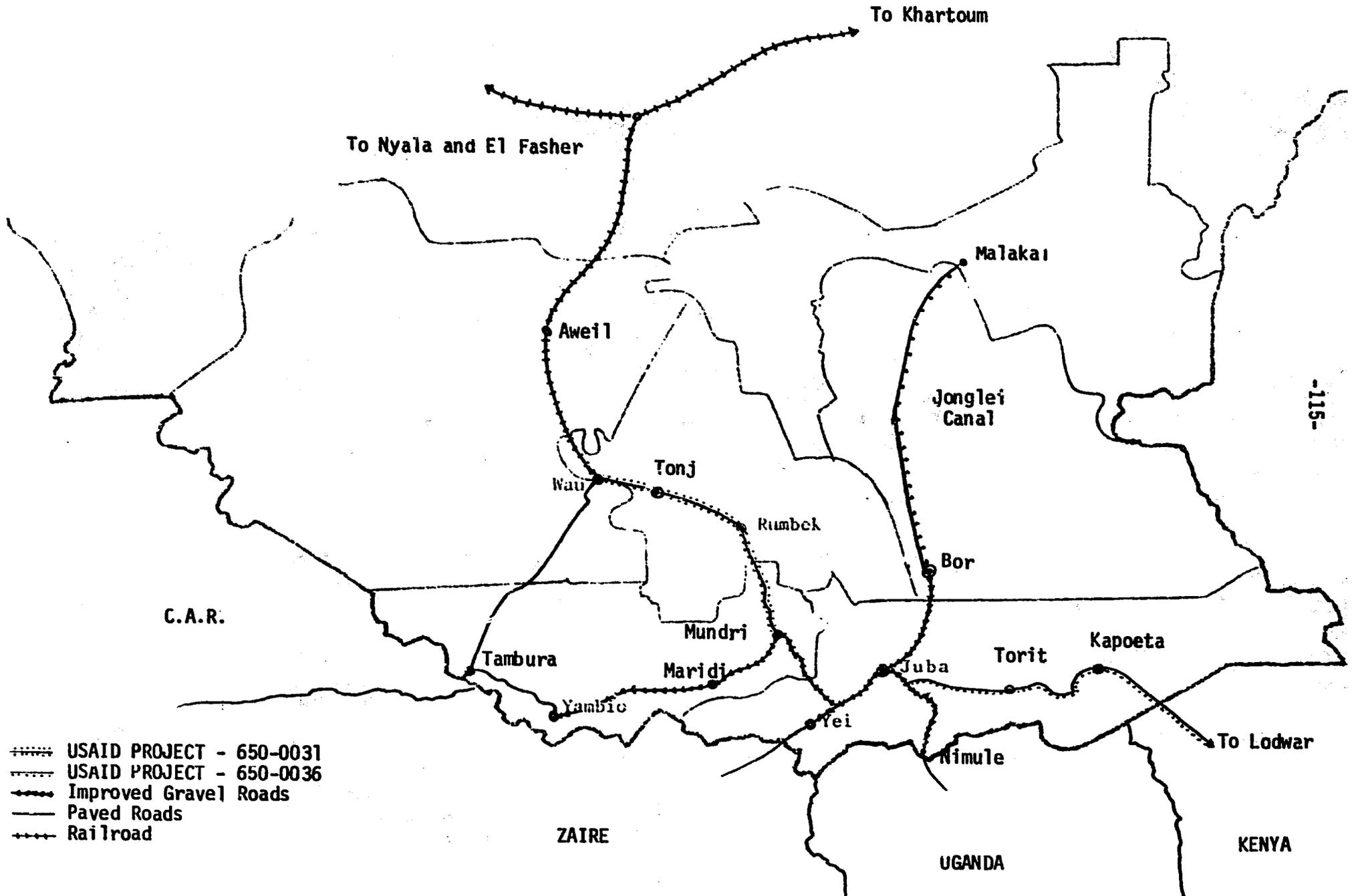


SOUTHERN REGION PROVINCES

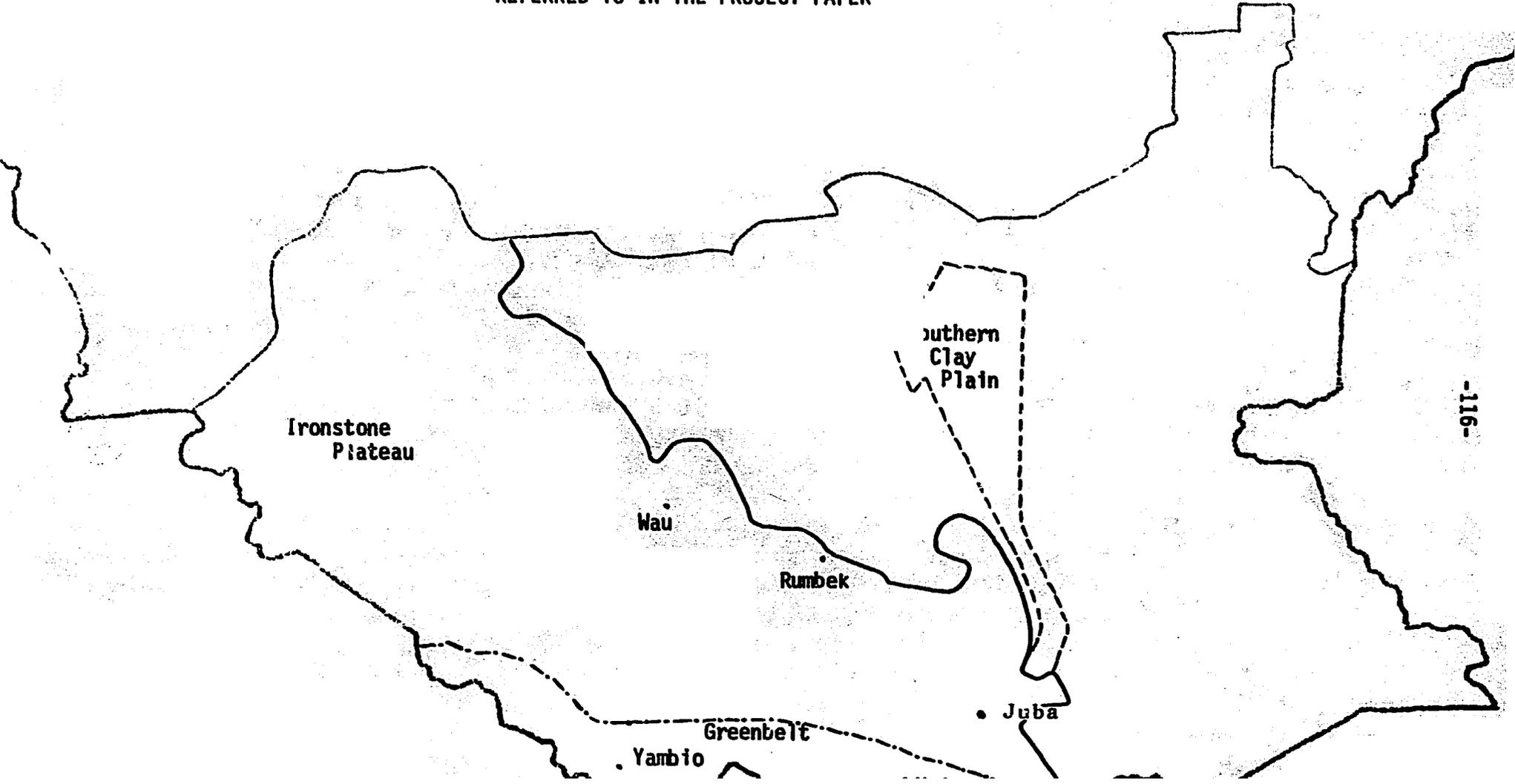
SOUTHERN REGION PROVINCIAL AND DISTRICT BOUNDARIES



SOUTHERN REGION TRANSPORTATION NETWORK



ECOLOGICAL ZONES OF THE SOUTHERN REGION
REFERRED TO IN THE PROJECT PAPER



SRAD I

ANNEXES

1. Sudan Agricultural Strategy Assessment: Excerpts from the Summary Report
2. Excerpts from the Southern Regional Government Policy Statement of July 19, 1982
3. Other Donor Activities
4. Economic Overview of the Southern Region
5. Social Soundness Analysis
6. Institutional Capabilities of the RMANR to implement SRAD I
7. Economic Analysis
8. Manpower Training
9. Credit for Private Enterprise Development
10. Marketing Systems Analysis
11. Farming Systems Approach to Research and the Yambio Agricultural Research Station
12. Regional Agricultural Research Technical Committee
13. The Feeder Roads Program
14. Logistics, Procurement and Administration
15. Decentralization and its effects on Agricultural Development
16. Initial Environmental Examination
17. Project Paper Development
18. Bibliography

Excerpts from the January 1982
Sudan Agricultural Strategy Assessment

Summary Report* Relevant to the Southern Region

A. Summary

Based on review of past development history in Sudan and the current state of the economy, institutions, and infrastructures, only policy and price changes are likely to have a significant, nationwide short-term impact on agricultural production. This requires a fundamental shift in how donors and lenders view project type development assistance in Sudan. Current donor emphasis should be on better management of their project portfolios while a vigorous effort is made to promote policy change and support it with new and reorganized medium and long-term development projects to protect and extend the improvements expected if policy changes are implemented.

Frank recognition of the policy and institutional problems by the Head of State in his courageous speech of November 9, 1981 may well be the turning point in the economy's downward drift of the past decade. If it is not, all the objectively valid advice from external consultants and institutions will not further Sudan's development. The policy changes on which the IMF and the World Bank have been insisting for some time were either implemented or announced for gradual introduction in the near future in the President's speech. They have to do with exchange rate, import and export taxation, subsidies on mass consumption commodities and the treatment of cotton growers. Remaining policy issues - mainly the internal tax structure - are discussed briefly in the report.

Sectorial and Regional Priorities

There is a natural temptation to assume that - if reliable comparative data were available - marginal return analysis may suggest that investment of project assistance in the irrigated subsector will produce the greatest impact, especially on the Sudanese balance of payments and in the comparatively short run. Unfortunately, comparative data are not available; the performance of the irrigated sector in the past decade has been discouraging and the imaginary marginal analysis probably does not account for external economies, social costs and returns and the special discount factor that - based on experience - must be applied to development projects in the Sudan to allow for extra-long gestation. Finally, one has the impression that current IBRD assistance to the subsector is about all the present institutions can profitably absorb.

On the other hand, the rapid response of the rainfed subsector to the appropriate policy incentives, and its relatively modest requirements for imported investment and operating capital, are being increasingly recognized by national and external officialdom, as illustrated in President Nimeiry's November speech.

* Prepared for USAID by Development Alternatives, Inc. and Research Triangle Institute.

It would appear that considerations of production diversification, regional socio-political equity (especially in view of recently begun political and administrative decentralization) and long-term environmental protection should suggest to external lenders/donors that development projects should be in support of rainfed agriculture in the West and in the South. While entrepreneurial schemes, such as the mechanized farming leases, will doubtless yield faster returns, the long-term rate of return is probably higher for investment in the simple, intermediate technology improvements in traditional rainfed agriculture. The latter concerns the vast majority of Sudan's rural population despite the enormous amount of seasonal wage labor demanded by the other sub-sectors.

The following is a summary of our recommendations for donor/lender strategy, with special reference to USAID, in the fields of institution building and reform, basic infrastructure, applied technology and research.

Institutions

Both ministerial and parastatal institutions have major organizational and management problems, compounded by inappropriate involvement in production, transportation, and processing. The creation of new regional ministries of agriculture has increased the need for institutional capacity building and human resource development. In the East and West organizational and management training is needed at all levels to ensure that development inputs are efficiently used. In the Southern region a massive long-term training program with a ten year time horizon and commitment is essential. Without such an effort tangible signs of development of the South will not be evident for at least another generation.

Medium-term returns can be expected from careful scrutiny of the parastatal institutions to determine which functions ought to be reallocated to the private sector. Management contracts with expatriate businesses, private voluntary organizations, and perhaps Sudanese enterprises will probably have to be employed as a stop-gap managerial measure until commercial feasibility can be determined and Sudanese managerial capacity is improved. Consideration will have to be given to con-coercive measures designed to stem the brain drain to the Arabian peninsula. "Devolution" of functions to the private sector may contribute importantly to this end as well.

Infrastructure

Sudan has greatly handicapped its agricultural sector by permitting its long-distance river and rail transport systems to deteriorate. Instead of concentrating on infrastructure building and maintenance and on regulation, the public sector has done a terrible job of trying to provide the transport services. Donors should support moves to reallocate transport service to the private sector (at the very least for the river transport system) and to shift state responsibility to better regulation and maintenance of the traffic arteries.

The importance of road transport for the agricultural markets and, thus, for production, is paramount in the West and South. While on-going construction will fill out main trunk routes and road-to-rail links, measures to institutionalize maintenance capacity have so far been ineffectual. For the foreseeable future, donor investment in roads should be designed first and foremost to develop regional maintenance capacity.

Lack of storage infrastructure has unfavorable price effects for producers and consumers and acts as a disincentive for market production throughout the nation. In the East, the biggest problem appears to be transport programming and intermediate storage of the cotton crop. In the West, low storage capacity and quality restricts both cereal and oilseed production and greatly increases vegetable oil costs. In the South, lack of adequate central and town stores has frustrated implementation of strategy for assuring adequate urban grain supplies.

It is recommended that donors study storage needs and then use a combination grant/loan program to build and manage adequate grain stores in the Southern Region. In the West, a loan program should be sufficient to spur storage construction if combined with private sector management contracts.

Macrotechnology

Current concerns about the short-term impact of desertification on production and land degradation cannot be effectively addressed by the localized scope of operations proposed by DECARP and UNSO, although the measures appear to be technically quite feasible. However, it is believed that both short-term productivity and long-term environmental protection can be positively affected by large scale phosphate applications on semi-arid areas. A pilot program is recommended for the near term.

Tsetse fly infestation restricts animal production and the range of application of animal traction technology. However, while control technologies are available, marketing problems limit the potential rational expansion of livestock production and animal traction. Surveys and control measures do not warrant major investment at this time.

Farm Technology

Farm technology development is constrained by the overall policy, institutional and infrastructure problems. As some of these constraints are relieved, a range of technologies may be introduced for increasing production, incomes and productivity.

- 0 Short-term effects may be obtained from takeover by private scale processing and specific pesticide applications.
- 0 Medium-term impact may be expected from takeover by private management contract of parastatal farming and machinery services, small holder herbicide measures, some localized sand dune stabilization techniques and private sector take over of seed production.
- 0 In the long-term, animal traction has an attractive payoff potential.

Research

Agricultural research in the rainfed subsectors has been weakly supported and has had of much of its technological scope determined by inappropriate transfer from the irrigated subsector.

- o In the near-term, rapid reconnaissance of farming systems to determine labor, practice and varietal potentials and problems is critical for orientation of research programs.
- o Agroclimatological analysis using available data is a quick way to prescreen technology for the semi-arid and sub-humid zones.
- o Herbicide use trials and economic analysis should lead to resolution of the seasonal labor constraint encountered in both mechanized and traditional systems.
- o Special emphasis should be placed on screening of delayed shattering and nonshattering sesame varieties.
- o Periodic range and livestock surveys are urgently needed to inform policymakers on the rapidly deteriorating range conditions in Kassala.
- o Medium-term impact can be expected from research on sesame harvesters, tall platform harvesters for sorghum, better organized and staffed variety trials, seed bulking, farm technology testing, and reclassification of agronomic potential zones according to more realistic development criteria.
- o Long-term impact may be expected from tsetse survey and field evaluation of control measures.

Perhaps the most valuable advice that can be given to external donor/lenders bent on helping Sudan is that - except in isolated cases - expectation of short-term payoff from development investments of any kind can only lead to continued national and international frustration. Agriculture anywhere in the developing world is not a quick payoff sector; in Sudan experience shows that returns can be expected only in the medium and long run. This calls for much donor patience and for long-term commitments of both funds and expatriate manpower.

B. Major Production Systems and Regions

1. Regions

c. The South

The South's main distinguishing ecological feature is the vast White Nile drainage system which creates the barrier marsh or Sudd, long the effective demarcation between northern, Arab cultures and southern, Black African ones. In general, the South's higher rainfall gives it a greater natural production potential than the East or West. However, seventeen years of civil disturbances destroyed the limited physical and social infrastructure that had been put in

place before independence. The Nilotic tribes form the major ethnic groups. Most are agropastoralists whose existence is finely tuned to subsistence needs and to the potential of the various environments in which they live. Their subsistence systems enable the South's people to support themselves with minimal material inputs.

Population distribution varies considerably. While overall population density is low, concentration occurs where road infrastructure has been developed, rainy season flooding can be avoided, tsetse exposure is reduced, and more fertile soils are found.

The South's comparatively high crop diversification at the farm level, combined with the high levels of consumption of milk products from cattle (among the Nilotes and other pastoral groups) and the consumption of game, appear to provide many rural inhabitants with diets relatively high in protein. The general picture of diversity of the farm production base does not translate into a picture of regional well-being because of the extreme fragmentation of the area, the tremendous difficulties in transportation and communication both within the Region and with the rest of the country, the rudimentary administrative structures (and their low operational capabilities), and the weak revenue base.

. CONSTRAINTS TO AGRICULTURAL DEVELOPMENT

1. ECOLOGICAL CONSTRAINTS

2. PHYSICAL INFRASTRUCTURE

c. South

Virtually all analysts and policymakers agree that the most fundamental constraint impeding the Region's development is the utterly inadequate transportation and communications network. True economic integration of the South with the rest of the country will remain a dream until an efficient, low-cost transport network is created. Until then, the South will remain much more dependent for its "external" trade on Uganda and Kenya (and to a lesser degree, Zaire) than on the northern Sudan, and it will not be able to exploit whatever latent comparative advantages it possesses in agriculture, mining and manufacturing.

For the traditional farmer, as well as any other economic operator, the primitive transport system means, above all, low prices for his output and higher prices for what he buys, both from inside and outside the Region. Indeed, in the southern Sudan, it means that during part of the year there is no market at all for surplus farm production.

The poor transport and telecommunications network in the South also represents a grave impediment to the political integration of the Region's tribal groups, to the effectiveness of the Region's civil government and administration in general, and to agricultural administration in particular.

The problems and potential of Nile river freight and passenger traffic have been analyzed and documented sufficiently. It is generally agreed that the barge service between Juba and Kosti is completely unreliable and inadequate.

The railway system has also been studied expertly and recommendations for its improvement have been made, not only with regard to communication with the South. Rehabilitation of the line between Khartoum and Wau, and establishment of faster and more frequent service, could materially improve the commercial links between the western portion of the Sudan and the rest of the country.

Intra-regional telecommunications are virtually non-existent. Although a number of the larger district seats are equipped with microwave transceivers, the station functions only in Juba. This makes efficient public administration and modern business communication virtually impossible. Non-government institutions are obliged to install and operate their own communications equipment if they want to maintain contact with the outside world and with outlying facilities in the Region.

Lack of properly designed and operated storage facilities at the regional, local and on-farm levels reduces the likelihood that surplus production can be stored and that foodstuffs can be successfully distributed to deficit areas. It also leads to substantial post-harvest losses.

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D. APPROACHES FOR OVERCOMING KEY CONSTRAINTS

The discussion that follows is organized in a sequence proceeding from the policy level to the farm level. We wish to make it clear that we consider it crucial that a development strategy approach the constraints in this order. Without policy reform the economic structure of Sudan will continue to maintain its disincentives for production and entrepreneurial activity. Without substantial institutional reform and strengthening, the national government, in all fairness, cannot be expected to implement either the proposed infrastructure improvement or the socio-economic and technological research and action programs that are suggested here. Finally, we wish to point out that we have purposely devoted a substantial portion of this section to a summary presentation of some of the most important technological issues and possibilities which were discussed in greater detail in the material that we delivered to USAID/Khartoum in October, 1981. We feel strongly that too much attention is paid to issues of development strategy, policy and priorities in a technological vacuum, and that too many policymakers dismiss technological alternatives and solutions as so much administrative detail.

1. OVERCOMING POLICY CONSTRAINTS

At the time of the team's visit to the Sudan in the early fall of 1981, there was considerable scepticism among external donor/lender agencies with regard to achievement of the overall policy changes that seemed to be required as a basis for a national development strategy. The picture has brightened considerably with President Nimeiry's sweeping and courageous policy announcements of November 9, 1981. Implementation of these policies will increase the confidence of external agencies in the viability of long-term development projects.

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2. OVERCOMING INSTITUTIONAL CONSTRAINTS

Development of traditional agriculture requires at least as much input from the public sector as that of irrigated farming. However, the quality of the input is quite different, at least insofar as public sector participation in irrigated farming has been -- and continues to be -- conceived in the Sudan. Whereas the irrigated schemes call for a combination of relatively sophisticated management and technical knowhow, the support of traditional agriculture requires more basic skills as regards both institutional management and technology. It also involves a much higher ratio of personnel to beneficiaries.

Because of the huge size of the country and the defective transport and communications infrastructure (see below) decentralized management of agricultural programs is perhaps more important than in some other countries. The Sudanese government's recent moves towards greater regional political and administrative autonomy appear to be a long-run step in the right direction. On the other hand, this multiplies the need for institution building and training assistance.

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c. South

The South's infrastructure is deplorable in two main senses. First, there is an absolute lack of roads, rails, river ports, and air strips and the accompanying transport equipment and POL. Second, the region has next to no capacity to maintain the existing facilities and those scheduled to be constructed. Roads, in particular, are deteriorating at rates equal to, or higher than, the progress of new construction. It is extremely important that support be given to develop the regional capacity to maintain the road network at minimum commercial access standards.

Since only a small portion of the national rail track is located in the Southern Region, there is little hope that improvements will occur here at the same rate as they are planned to take place in the East and West.

River transport is potentially the strongest economic link between the Southern Region and the Northern part of the country. From studies

carried out by the World Bank and other donors it is clear that the River Transport Corporation needs to get out of the business of trying to provide transport services in order to concentrate on the improvement of river channels and regulation and licensing of traffic and trade. All boat and barge operations should be turned over to the private sector which, to date, has been legally excluded.

In common with the West, there is the need to provide storage facilities at the major port and roadside towns in the region. Regional food commodity stores are most urgently needed. As in the West, a combination of public funding of construction and private sector operation is probably the best pattern to follow, although care must be taken in both areas that public design and construction respond to the needs of efficient private sector management.

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4. OVERCOMING FARM LEVEL CONSTRAINTS

Traditional agricultural production systems in Africa were generally well adapted to their environments. But recent growth in human and animal populations increased pressure on the accessible land resources, reducing their productivity potential through higher nutrient export rates and surface disturbance brought about by decreased fallow periods and overstocking. Urbanization and the growth of the public service sector have increased national food demand at the same time that they reduce the proportion of agriculturally productive labor in rural communities. In Sudan, there appears to be a general consensus that there is a growing seasonal labor shortage among rural households. This seems to constitute the key factor limiting the output of smallholders, because they cannot significantly expand the area under cultivation or intensify land use with present techniques. The implications of this consensus are that producers must move to, or create, more productive environments or that the technology must change to alleviate the labor constraints to permit more efficient use of the available environmental productivity potential.

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- a. Technologies that can alleviate labor constraints and increase efficiency of land use in the mechanized sub-sector.

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In the South, experience to date indicates that mechanized technology is not likely to play an important role in making up the region's food deficit for some time, especially if the environmental damage that may be caused by excessive tractor cultivation of some of the region's more fragile soils is considered.

- b. Technologies that can alleviate labor constraints and increase the efficiency of land use in the traditional rainfed sub-sector.

- i. Labor enhancing technologies.

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The case for using animal traction in the semi-arid zones is very strong where soil type and low or zero tsetse fly infestation permit cattle to tolerate the extra strain imposed by being worked without constant veterinary attention. Unlike a tractor, the draft animals continue to be part of the family herd and do not depreciate with time. On the contrary, in the case of oxen, their value continues to increase as they mature. The very simple backbone cultivators, which should be the first equipment purchased in most areas, are almost unbreakable in normal use and may be expected to last for 20 years if provision is made for the local manufacture of wearing parts (ideally by indigenous blacksmiths). An expansion of the cultivated area per family by as much as 75 percent is possible through the use of animal traction for weeding.

Experience in the Sudan to date has failed to generate much acceptance of animal traction by farmers. Besides some of the social problems involved (e.g. farmer reluctance to train their own animals), most of the programs have been attempting to introduce the wrong equipment packages and have been using substandard training approaches. The SATEC program at Kadugli is a notable exception to this general rule.

ii. Technologies for intensifying land productivity.

Nationwide efforts to introduce new, higher yielding varieties have only begun during the past decade. The South has depended almost entirely on this approach to increase yields. In all areas of the country there is a need more carefully to match the introduced or selected material with the environment and constraints encountered in the local farming systems. Manpower allocation to this effort has been woefully inadequate throughout the country.

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c. Overcoming on or near-farm storage constraints.

Lack or inadequacy of storage at the farm or village level entails three serious problems for the farm family and the farm economy.

- (i) many subsistence-level families are forced to sell part of their grain crop for a low price at harvest time and to buy grain at scarcity prices later in the year;
- (ii) spoilage is considerable, said to average around 25 percent nationally and to go much higher locally;
- (iii) traditional farmers have an added disincentive for not producing for the market.

In many cases, simple improvements to - and perhaps expansion of - the traditional storage facilities may be sufficient. The most common measure is the introduction of insecticides. This should be accompanied by appropriate training of a selected number of individuals in each community because most of the pesticides in use have high mammalian

toxicity. However, storage insect pests have a high ability to develop resistance to these insecticides. One of the best systems that can be recommended for use by the farmer is some method of sealed storage in airtight containers to reduce oxygen levels to the point where insects cannot survive.

A separate problem is the storage of crop seed from one season to the next. While the same method of sealed storage can be used, seed dressing or fumigation is also effective for seeds which are certain not to be consumed.

Centralized village stores may require an effective protection process that can be applied regularly. Calcium or aluminum phosphide is probably the easiest fumigant that can be used without extensive training of personnel and investment in special equipment.

d. Livestock Improvement.

As in the case of subsistence crop farming, it appears that higher cattle productivity can be achieved through well-proven technological and management practices, but that the basic incentive for the application must come from the creation of a market or the reform of the existing market. Unlike cropping practices, which are constrained by labor, cattle management practices need to be oriented towards increasing yield per animal, in view of the land pressures. Any measures of a veterinary or other nature that - advertently or not - result in larger herds must be absolutely avoided. It is most probable that if the technical improvements are to achieve the desired objective, they must be accompanied by appropriate market reforms conducive to maintaining the ecological balance by increasing the offtake.

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E. SUGGESTED PRIORITIES

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3. GEOGRAPHIC FOCUS

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In the almost completely undeveloped South, there is little or no potential for short or even medium-term payoff of development investments. Absolute priority must be given in this region simultaneously to transport and communications infrastructure and to institution building through training and advisory services, as outlined below.

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4. PRIORITY OF STRATEGY ELEMENTS

a. Policy

Donors should use every opportunity to initiate dialogue and devise support mechanisms for change in agriculture related policy. Greatest

short-term effort should be focused on price management of export crops and imported commodities to try to provide immediate incentives for an increase in rainfed cereal and oilseed production.

Second priority should be given to tax policy and its effect on revenue generation and production and investment incentives.

Third priority should be a concerted program to shift economic functions better performed by private enterprise out of the public sector and to restructure business investment codes and regulations so as to make long-term investment in Sudan more attractive.

Donors should be prepared to provide the funds and external expertise for policy studies to inform the dialogue.

b. Institutions

In the South a massive effort must be made jointly by the Regional government and the donors to design a medium-term training program with a minimum ten-year horizon and commitment. Such a program should be based on a rapid inventory of existing manpower and on a realistic projection of probable needs for the next generation, based on certain - equally realistic - assumptions, in the private as well as in the public sector. The training program should be conceived essentially as an effort to produce indigenous trainers who are capable of multiplying the benefit of their domestic and foreign education by imparting their newly acquired notions to ever-growing numbers of their compatriots, starting with the university and going all the way down to rural primary school teachers. A simultaneous track would be the continued formation of a qualified cadre of public administrators and development agents at various levels, who would gradually be replacing large numbers of expatriates who will be filling or advising key positions in the meantime.

While a good deal of the training would need to be at foreign institutions because of the limited capacity and scope of the national ones, a good deal - perhaps the bulk - of the program would be devoted to building up, and even creating, regional institutions that will have to be staffed initially for the most part by expatriates.

Failure to mount such a massive training effort will delay the appearance of tangible signs of development of the South way beyond the life expectancy of anyone presently old enough to be concerned with the process.

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c. Infrastructure

Sudan has greatly handicapped its agricultural sector by permitting its river and rail transport systems to deteriorate gravely. This is

partly the result of the policy of allocating rail and river transport to the parastatal sector. Together with abominable sea and river port facilities and management procedures, the system has added immense risks and charges and permitted trucks to dominate the long distance hauling industry.

Rationalization of transport infrastructure and its management should be key elements on donor agendas.

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In the South AID should above all help promote (a) shifting the River Transport Corporation functions to navigation improvement and regulation, and (b) bringing the private sector in to furnish and operate the actual transport. AID is already investing in needed road construction along with other donors and the World Bank is attempting to introduce a maintenance system.

Nevertheless, the South's transport problem is so enormous that additional external resources could well be earmarked for this sector, provided the national or regional administrative capacity is not stretched too thin in the process. The most effective way, it is suggested, is for foreign contractors to build roads that require a minimum of maintenance in the short and medium term.

Storage infrastructure in the West and South is another priority item. Immediate survey of locations for structures should be made. In the South the needs for major river, railhead and, secondarily, provincial and district capital, storage facilities should be examined at once.

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e. Farm Technology

Near-Term Impact. Throughout the nation the most appealing short-term technology for increasing crop production and family welfare is on-farm storage. Use of the sealed container method would preserve crops that are now subject to high loss rates. Once delivered, the technology itself is relatively simple. While requiring some distribution and extension effort, it is a low-risk, low-capital technology with a multi-year impact.

Small scale groundnut and sesame seed processing units can be usefully installed in producing areas to help maintain production incentives by expanding the local market and to ensure local oil availability at reasonable prices. This is especially important in the West and South.

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f. Research

It is probably no exaggeration to state that the lack of data and information is one of the prime reasons why apparently pressing policy decisions were delayed for years, and also why so many development projects have failed to produce anything approaching the expected results. Reference has also been made repeatedly in this summary report to the difficulty of arriving at the appropriate analyses to support strategy options because of the almost complete absence of data and studies. Thus, in the face of the understandable eagerness of lender/donor officials to continue promoting action projects, we must suggest strongly that in many cases the first priority is the design and implementation of a series of applied research projects. Some of the projects can probably be undertaken by Sudanese personnel and institutions with only marginal expatriate advice; others may require almost entirely expatriate staffing. In many cases, equipment may have to be included. In all cases it will be important to assure long-term funding and continuity of expatriate personnel, in part to compensate for the manifold start-up and implementation problems that will no doubt be encountered.

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Near-Term Impact

A farming systems survey in selected high potential areas would lead to identification of the exact management and technological practices and their implications for factor productivity. Combination of this information with agroclimatological analysis and review of past research efforts will help avoid duplication of past effort and establish more farm-oriented research directions. Of particular interest would be the likely economic return to the farm enterprise and subsistence farm family from herbicide use. Rapid pre-screening of cereal varieties for use in short, medium and long maturity positions in the cropping cycle would also have a relatively quick payoff.

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**Summary of the Policy Statement of the Regional Government
Delivered by H.E. Mr. James Joseph Tumbura, President of
High Executive Council to the Regional People's Assembly on
19th July, 1982**

After the appropriate greeting, the statement began by reconfirming the new government's commitment to the May Revolution and to the implementation of decentralization. The statement criticized the former governments for administrative and political malpractices, tribalism and lawlessness which it claimed had stagnated the socio-economic development of the Region. The statement blamed these conditions for triggering the call for the redivision of the South by some parts of the Region. The new government, the statement stressed, would strive to establish, restore and rehabilitate the confidence of the people in the integrity of the government. It declared decentralization as the cornerstone of the government's policy and the tool for rapid development of the people. The government will, according to the statement, start the decentralization process by implementation of the People's Local Government Act 1981. The statement anticipated the creation of a Ministry of Decentralization that would replace the Ministry of Regional Administration, Police and Prisons. The following units and functions formerly under the Regional authority are to be transferred to Provincial authorities: police, hospitals, rural health units, primary and junior secondary schools, wildlife conservation, housing and land utilization, and responsibility for supply, weights and measures.

In the Regional Ministry of Agriculture and Natural Resources the services departments, including extension, horticulture, veterinary services and forest conservation are to be transferred to provincial authorities.

The statement placed high priority on: infrastructure, increasing the production of food and cash crops, protecting and utilizing the forestry resources, ensuring an efficient system of education, clean water, and improved health and sanitation services. The statement called for the creation of a public services commission and a Regional Planning Commission that answers directly to the President of High Executive Council. It also called for the establishment of a Department of Finance and Statistics in each province and charged the Ministry of Decentralization with planning and training to remedy the current inefficiency in both the public and civil services. The statement emphasized the need to respect and uphold the law so that the rights of citizens are not violated and public property is not abused.

The improvement and strengthening of the financial management and accountability and the endorsement of administrative disciplines in all levels of the civil service were identified as measures the Government intends to take in its efforts to maintain law and order.

The statement recognized the friendly relationship that exists between the North and the South, and went on to recommend the increased participation of Southerners in running the country's affairs at the National level.

Finally, the statement paid tribute to the friendly countries and international agencies which have been involved in the development of the region since the inception of the Addis Ababa Agreement.

OTHER DONOR ACTIVITIES

A. Multilateral Donors

1. The World Bank: In 1979 the World Bank (IBRD) through its soft loan affiliate IDA, financed a loan of 17 million dollars for the rehabilitation of Agriculture in Southern Sudan. The principal aim of this program was to increase smallholder production of foodcrops (primarily sorghum, maize, and groundnuts) and to improve nutrition and reduce food imports. Emphasis was also given to cash crops, such as cotton coffee and livestock production and disease control. The United Kingdom through its Overseas Development Administration (ODA) provided additional complementary funding for staff and feeder road construction equipment, and funds for a cattle vaccination campaign were contributed by the Federal Republic of Germany. A main crop station was established at Yei and sub-centers at Maridi, Yambio, Torit and Rumbek. The headquarters for the program was located in Juba, the implementation agency being the Project Development Unit (PDU), affiliated with the RMANR.

Based on the development of infrastructure and activities during the above project, in 1977 the IBRD and ODA provided funds for a \$56.0 million follow-on project to expand activities to all provinces, alleviate food shortage problems and to improve incomes and diets of small scale farmers and pastoralists. This approach was to be balanced with an effort to produce crops of high export value or which could assist in satisfying urban food demands. In addition to the previously developed physical and administrative infrastructure, a Project Formulation Unit (PFU) was to be established to advise the Ministry on project proposals and to prepare district development plans for future specific proposals for donor financing. Each of the 25 districts in the Southern Region would have a plan developed for a 5-8 year period during which an appropriate infrastructure for improved input supply and marketing would be developed. The RMANR was to continue the activities after completion of infrastructure in each district.

To date, the project has suffered from over-extension and criticism that the PDU is not sufficiently integrated into the RMANR. The PDU has completed one district planning report, another is under preparation, and most of the field work has been completed for a third. Two others are scheduled for completion in early 1983. Applied research and extension activities have been carried out in Wau, Yei, Rumbek, Torit, Mundri, and Maridi districts under the PDU.

The proposed USAID/GOS project activities would not conflict with current and planned PDU activities. In Yambio District, for instance, the PDU does not have any plans to initiate activities. In Rumbek District the PDU's current activities would be complementary to those anticipated under the USAID/GOS project.

2. UNDP/FAO: During the period 1976-1981 the UNDP/FAO program provided approximately 5.7 million dollars for a wide-range of activities in the rural sector. These include assistance to the Yambio Agriculture Training Institute; agricultural statistics and economic planning; poultry and dairy

development; horticulture development; the Aweil Rice Scheme; fisheries and boat building; and rural water supply. A joint UNDP/GOS program review was undertaken in early 1982 in preparation for a new 5-year (1982-1987) UNDP/FAO Country Program. In view of a 20 percent reduction in UNDP funds, the reviewers concluded that it would be necessary to curtail UNDP inputs into most ongoing projects, and, in general, more efficient use of funds would have to be made. In any event, no new projects will be undertaken prior to 1984 when funds become available for the new Country Program.

Other UN agencies have been involved in the Southern Region. WHO/UNICEF have contributed \$6.0 million for rural water development since 1976, and World Food Program has financed food for work activities in the amount of \$6.2 million for schools, rural development and afforestation activities.

3. European Economic Community (EEC): In 1978 the EEC took over the Aweil Rice Scheme from UNDP/FAO. The Upper Talanga Tea Project was begun in the same year. A total of \$9.0 million was contributed to these two projects. The EEC intends to continue the Upper Talanga Tea Project.

B. Bilateral Donors

1. The Netherlands: In 1976 the Dutch Government, assisted by a consulting firm, ILACO, began a pilot mechanized sorghum, maize and rice project in Bor to develop the nearby Pengkong Plains. The \$7.5 million project was terminated in 1981 when it was concluded that the terrain was too swampy for mechanization and that the project was uneconomical. However, agricultural research activities were continued.

A comprehensive agricultural/rural development program was begun in 1981. The Bor Area Development Authority was created to identify new projects in the Bor Area, incorporating a community development approach. Several projects have been initiated, including a feeder road component, using local contributions of money and hand labor; appropriate technology projects, including irrigation, bio-gas and low cost housing; reforestation; water projects, such as bore holes and drainage activities; primary health care centers; road maintenance; and small irrigated vegetable gardens.

In 1982 a new activity, the Bor Production Farm project was begun. Under this scheme, rice is grown by farmers under collective and individual tenant arrangements on a mechanized basis. Under a separate activity, sorghum is grown by part-time farmers in the town of Bor.

A rural livestock program, including veterinary services, grazing trials, dairy herd improvement, and other activities was initiated in 1981, and a new program is expected to begin in 1983 which will continue the above activities, as well as institute a slaughterhouse.

The RMANR and provincial officials have been involved in the development of these projects and have already begun to prepare to continue the various projects when they end.

The RMANR and provincial officials have been involved in the development of these projects and have already begun to prepare to continue the various projects when they end.

2. West Germany: In 1976 the Federal Republic of Germany provided \$3.4 million for a livestock disease survey and control project in the South and \$2.4 million for a forestry project. The livestock project has been terminated, and the forestry project will continue through 1984. No new projects are anticipated at this time.

3. The United Kingdom: The United Kingdom through the Overseas Development Administration (ODA) has provided technical assistance personnel under both of the IBRD projects. The ODA has also invested \$2.1 million in the Imatong Forestry Project which is expected to reach a commercial level this year.

4. Denmark: From 1978-1981 the Kingdom of Denmark has provided approximately \$237,000 for the development and operational costs of the Malakal Fisheries Training School. No new projects are contemplated at this time.

C. Voluntary Agencies

1. Norwegian Church Aid: This agency has provided a total of \$2.9 million to implement an integrated agricultural project through 5 rural development centers in Eastern Equatoria Province. The project includes extension, seed cooperative marketing, rural water development and feeder road construction activities. The project also includes the reconstruction and establishment of schools and dispensaries.

2. ACCROSS: ACCROSS has operated mainly in Western Equatoria and Lakes provinces. In the past ACCROSS has concentrated its activities in the area of primary health care. However, a three year, \$1.8 million agricultural program was begun in 1980 to expand activities begun in Mundri District and to initiate activities in the Tonj District (Lakes Province) which utilizes a community development approach closely coordinated with the RMANR. Emphasis is placed on basic infrastructure, with extension programs in poultry, small animals, orchards, farm crop management, grain storage and marketing activities.

3. Sudan Council of Churches (SCC): The SCC initiated its agricultural activities in 1975 in the Rumbek District with the creation of the Rumbek Ox-Plough Training Center which was later transformed by the RMANR into the Rumbek Training School. The SCC has been involved in animal husbandry activities in Raga District and veterinary services in Bentui District, as well as on integrated rural development project based in Yirol District.

The SCC has also been involved in water development. To date, the SCC has provided approximately \$954,000 to the above activities.

Annex 4

Economic Overview of the Southern Sudan

The Sudan's Economy

The Sudan, with an area of about one million square miles (one-third the size of continental U.S.A.), is the largest country in Africa. The country forms an immense basin, sloping gently down toward the north with highlands on the other three sides.

It is estimated that 79 percent of the country's population are engaged in agricultural and/or livestock activities. The Sudan has experienced a deficit in its balance of payment for the last decade. These recurrent deficits have eliminated its foreign exchange reserves and burdened it with heavy foreign debts, many of which have had to be re-scheduled.

The shortage of foreign exchange has seriously affected the economy leading to cut backs in essential imports of industrial raw material equipment, agricultural inputs, fuel and spare parts. This has contributed to the deterioration of power, transport and communications facilities and the curtailment of domestic production in industry and agriculture. The situation in agriculture is especially serious, since this sector accounts for 95 percent of the Sudan's exports. The declines in agricultural production have been a principal cause of the country's economic difficulties.

The origins of the Sudan's current economic crisis date back to the early 1970's when the Government of Sudan (GOS) embarked on a public sector program aimed at developing the country's agricultural potential. Key objectives of the program were the removal of infrastructural bottlenecks; the increased production of wheat, rice and sorghum to ensure domestic food self sufficiency; and broadening the agricultural export base through diversification into food crops and de-emphasizing production.

Failure of the program to achieve its objectives is usually blamed on rising import costs, especially for petroleum products, unexpected declines in export earnings, poor project planning, and the lack of adequate transport and communications. It has been argued that inept economic management combined with the governments increased involvement in virtually every phase of economic activity have contributed to the rapid and prolonged decline of the Sudan's economy.

Declining export earnings, and rising import costs, plus lack of foreign exchange for purchasing raw materials, replacement machinery and equipment spare parts became major impediments for the maintenance

of domestic production levels. In addition, the GOS failed to make timely exchange rate adjustments while it maintained a costly set of consumer price subsidies, thus causing serious distortions in the allocation of the country's scarce foreign exchange and budgetary resources. Efforts to maintain domestic production were also undercut by the lack of physical institutional infrastructure, and the failure to maintain existing transport and communication networks.

An especially serious and broad impact on the Sudanese economy has been the sustained exodus of trained Sudanese to the Middle Eastern oil countries for the past eight years. This "brain drain" has deprived both government agencies and private firms of needed talents. The GOS has yet to find effective ways to tap into the hard currency earnings being remitted by these emigrants.

The Southern Region's Economy

The Southern Region of Sudan includes one-fourth of the area and one-third of the population of the Sudan. The South is even more isolated than the North from external markets and sources of supply. Its higher rainfall substantially enhances its agricultural production potential. Before the mid nineteen fifties the South was largely self-sufficient in basic food commodities (sorghum, meat, millet, corn and vegetables), and exported sorghum to the North annually. Limited amounts of coffee, tea, fruits and livestock were exported to neighboring countries. Since then, exports have virtually disappeared and locales which once were food self-sufficient, now are either net importers or barely at a subsistence level. A regional population of which 95 percent are in agriculture can no longer feed itself.

The Southern Region compares very unfavorably with the rest of the Sudan as far as per capita income and stages of development are concerned. With a low population density of just over 5 persons per square kilometer, the majority of the people live at subsistence level with an annual income level roughly one-third of the national average of \$450 per capita. The Southern Region is more dependent on agriculture than the rest of the country, with very little industry and only a rudimentary commercial sector. About 75 percent of the region's population practice subsistence agriculture, and a major part of the rest depend on livestock for their livelihood. The public sector continues to offer the greatest opportunities for employment since the private sector is still poorly developed. Industrial activity contributes less than 5 percent to the regional economy. The level of capital accumulation is grossly insufficient to serve as a major stimulant to economical growth.

When Sudan became independent in 1956, the Southern Region produced both a net surplus of food and a variety of export commodities.

Commerce flowed smoothly along the Nile as well as several of its major tributaries, while most of the region south of the Sudd and west of the Nile was connected by an all-weather road network. Juba, Wau, Yambio, Malakal, Yei and Rumbek were import market centers harboring scores, in the case of Juba, hundreds of merchants, transporters, traders and other commercial entrepreneurs. Plantation and small scale commercial agriculture flourished in the Equatorias. Twenty-five years after independence, little of this physical and human infrastructure remains. A region which once was an exporter of food now must import basic foodstuffs such as sorghum from the north; districts which once exported food now suffer periodic shortages and, in some cases, severe deficiencies which reduce inhabitants to borderline malnutrition; areas which produced cotton and other cash crops have reverted to subsistence farming.

The principal cause of the decline of agriculture is the 17 year long civil war which ravished the Southern Region between 1955 and 1972. During this struggle, and especially after 1964, physical infrastructure was destroyed throughout the region. As many as 1.5 million southerners fled the conflict into neighboring countries, and most of the northern Sudanese and European traders, merchants and transporters who formed the bulk of the region's commercial sector left the south. Peace was restored and the semi-autonomous Southern Regional Government (SRG) was created in 1972. The physical and social dislocations occasioned during the fighting, however, were not so easily corrected. The sheer magnitude of destruction, especially of the road network, was beyond the financial capacity of the regional government to replace. At the same time, few of the entrepreneurs who had dominated the region's market system returned to the south. The national regime which assumed power in Khartoum in 1969 adopted a program of nationalization and confiscation of private property. In the agricultural sector the national government promoted large-scale public and parastatal corporations, price controls and parity support, and collectivization of farming. These public policies effectively discouraged large-scale private investment in the south. Thus at just the time when financing and human resources were critically needed to restore agriculture and commerce in the region, the government offered only a multitude of disincentives.

The newly established SRG found the 1970s a period of inadequate and even declining resources: revenues languished, infrastructure deteriorated, population increased. Regional ministries were unable to meet personnel budgets and development funds were almost non-existent; expanding organizations recruited fewer and fewer appropriately trained staff; out-reach programs, such as agricultural extension, were hamstrung by lack of spare parts and

motor fuel; scarce capital was invested in large mechanized agricultural schemes and in processing plants which almost uniformly failed to produce efficiently. The SRG was unable to secure financial relief from the national government whose treasury at the end of the decade had been emptied by the combination of its misguided development program, dysfunctional intervention in the economy, and a set of international economic fluctuations that resulted in increasing prices for imports and declining export earnings.

By the end of the 1970s, the national government had begun to take a series of steps to slow and reverse the nation's deteriorating economic condition. Notably, it began to return confiscated properties, to remove some of the disincentives to private enterprise and to reduce the public sector's role in agriculture. In the Southern Region, this new policy was reflected in efforts to encourage small-scale commercial private holdings while withdrawing from the large-scale mechanized projects previously favored.

While the SRG is firmly committed to reducing the role of the public sector in agriculture and to encouraging private enterprise, realization of the region's productive potential is still impeded by a web of policies and administrative procedures which stymie and confound private initiative.

Key features of the setting in which the SRAD I will operate include the following:

- * lack of trained human resources, particularly in agricultural extension, farm-systems research, and planning and financial management;
- * absence of adequate transport system, particularly farm-to-market roads, and road, rail and water vehicles.
- * regional and national public policies and administrative procedures which create disincentives to the production, processing and marketing of agricultural products;
- * lack of funds to support developmental programs such as training and research centers;
- * a nascent private commercial sector which relies on low volume/high unit price;
- * lack of foreign reserves to import improved inputs, spare parts and other essential capital items;

- * sociocultural diversity within the region which creates special needs and idiosyncratic development possibilities.
- * lack of overall strategy and a coordinating mechanism within the SRG and its Ministry of Agriculture (RMANR) for mobilizing and deploying domestic and donor resources.

Annex 5

Social Soundness Analysis

I. Background and Setting

The SRAD is designed to stimulate increased agricultural production in the Southern Region of Sudan. Its territory, comprising one-third of Sudan's total area and containing approximately 6 million of its 18 million people, is roughly equal in size to France. Within the Southern Region ecological systems range from near desert to tropical rain forest. The White Nile bisects the southern region south to north and draws most of its down stream volume from the Sudd, a vast low lying swampy area that is flooded for 6-8 months each year when it effectively cuts off land transport between the southern region and the northern two-thirds of the country.

The ecological heterogeneity of the southern region is matched by an equally diverse human population. While roughly 60 percent of the population combine agriculture with animal husbandry, the cultural practices and social institutions of this farmer/herder segment are sharply divided along tribal lines, their distinctive languages, social organizations and economic practices readily apparent. The remaining 40 percent of the region's population, who do not herd cattle, subsist mainly by agriculture; some tribes are almost entirely sedentary while others are semi-nomadic. Pastoralists are largely confined to the three northern provinces of the southern region where their societies are based on cattle and sorghum. The non-pastoralist communities, generally found in the Equatorias, produce a wide range of both food and cash crops. Notable among the former are corn, rice, cassava, fruits and garden vegetables, peanuts, millet, beans and sorghum. The latter include cotton, tobacco, oil nuts and sesame. Unlike the upper south where cattle and sorghum raising provide the common means for diverse communities, a much broader range of produce and agricultural practices is to be found in the lower south; this range extends from rudimentary subsistence farming east of the Nile to relatively complex farming systems which combine several food crops along with one, two or more cash crops.

II. Features of the Social Environment in Relation to Area Development Activities

The pilot area development activities, initially in Yambio and Rumbek, are intended to field-test approaches to stimulated production and increasing income by attacking what are believed to be the major constraints impeding the production/marketing system. These districts were chosen for attention because the farming systems of each are representative of prevailing systems throughout most of the region: at Yambio we find sedentary farmers with mixed food and cash crops; at Rumbek, semi-nomadic pastoralists whose production system is based on cattle and dura. The social environment of each site is distinctive and requires a close separate examination.

A. Yambio: The Azande People

Yambio, the administrative capital of Western Equatoria Province, is located in the far southwestern corner of the region. It is linked by all-weather road to Juba to the east and by a soon-to-be-completed all-weather road to Wau to the North. It is a major commercial and trading center. Under the Local Government Reorganization Act of 1981, Western Equatoria Province was divided into three Area Councils. The Yambio District Council, which includes Yambio town, plus three villages and two rural councils have been incorporated into the Yambio Area Council. It is within the rural reaches of this Area Council that the Project shall conduct its activities.

1. Agricultural Practices

The Yambio Area Council (YAC) is almost exclusively composed of members of the Azande tribe; estimates put the proportion of Azande at roughly 95 percent. The remainder are mostly Arab merchants living in Yambio town and Nzara with a scattering of other southerners who are government officials or petty traders. No accurate census data exists for the Yambio; local residents offer guesses ranging from 15 to 90 thousand, with 40 thousand the most commonly heard figure. Outside Yambio town the Azande are almost exclusively farmers. They live in individual homesteads along roads and trails and practice an elaborate form of shifting slash-and-burn cultivation. Major crops are cassava, sorghum, millet, maize, peanuts, sesame, pulses, tobacco, rice, coffee, mango, pineapple, tomato, banana, yam, sweet potato, and cotton.

The Azande tribe moved into southwestern Sudan at the end of the 19th century. In the 1920s, the British colonial administration resettled most of the tribe along roads in an effort to combat sleeping sickness. In 1946, an experimental development scheme designed to convert primitive agriculturalists into commercial cotton growers was initiated at Nzara and brought about another dispersal of the Azande. Homesteads were sited on individual plots linked by bicycle paths and feeder roads. The cotton milling and spinning factories at Nzara languished during the 1955-72 disturbances and has yet to recover its former efficiency. The Zande Scheme, as it was called, had far-reaching ramifications for the people since it forced most of them into growing cotton and sharpened their interest in commercial as opposed to merely subsistence farming. While the cotton mill is currently unable to absorb the potential cotton production of the area, most Azande farmers raise some cotton and other cash crops such as coffee and tobacco. Of equal significance, as we shall see presently, the Zande Scheme introduced a physical and social structure to the Azande which laid a foundation for expanded commercial agriculture.

Owing to the combined impacts of resettlement and the introduction of cotton cultivation, the traditional sociocultural institutions and practices of the Azande have all but disappeared. Christianity has replaced traditional religion for most of the population, schools introduced

by the British spread the English language through the area, and entrepreneurial attitudes and values are widespread. The Azande came out of the colonial period with what has been described as a lively appreciation of the comparative value of monetary rewards and they give every evidence of positive response to reasonable price incentives and to greater independence and flexibility in choice of location of residence, cultivation plots and crop rotation patterns. They readily accept opportunities to increase their incomes, exemplified by the widespread planting of coffee trees over the past 3-4 years as the local market for coffee boomed and seedlings were made available through the PDU program in Yambio district. Rice and cassava become staple crops as their relatively favorable labor/production ratios grew apparent. Azande typically exchange traditional wooden digging sticks for steel implements as soon as they are able to afford them and they use improved seeds when made available.

2. Sociopolitical Organization

The physical resettlement of the Azande and the rapid evolution of the tribe's traditional social structure have opened the community to development agents. At the same time, the administrative structure of the SRG offers a complementary mechanism for working in the Yambio area. Since the prevailing social organization of the Azande and the local administrative/political structure merge, it is useful to see how this sociopolitical structure may be used to reach the average Zande farmer.

a. Geopolitical Organization:

The structure of administration in the southern region extends from the regional government in Juba to the provincial level to newly created area councils to village or rural councils. In Yambio there is another subordinate level of government which does not exist elsewhere: this is the quarter council below the village or rural council. (we shall see in a moment that the quarter council is based on the existing highly articulated tribal hierarchy of the Azande). There are two dimensions to this structure: the representative/legislative and the political. The former consists of elected councils while the latter is the single national political organization, the Sudanese Socialist Union (SSU). At the area and village/rural council levels are found committees for health, for agriculture, for rural development, for education and social services, and similar functional units. Parallel to this council committee structure is an SSU committee counterpart: for example, at the village level will be a development committee and an SSU "Basic Unit" (i.e. village/rural council level) development committee, often composed of the same individuals. The SSU is charged with organizing the population and "enlightening" them, that is, mobilizing them to carry out party doctrine. While in theory the SSU has a Basic Unit alongside every village/rural council, in fact few exist outside the larger villages. Since Azande live on separate widely scattered homesteads, this means that the SSU operates largely in Yambio town and Nzara. Its program

to organize Farmer Unions (cooperatives) has made little headway since the initiative was launched in 1978. To date, there is only one Union cooperative, located in Yambio town and recording a membership of less than one hundred. In large measure, the failure of the SSU to organize cooperatives reflects the Azande preference for private rather than collective enterprise.

The structure of the regional ministries reaches down to the area councils; however, not all bureaucracies found at the provincial level are represented on the 30 member Yambio Area Council. The A/Commissioner for Cooperatives, for example, is not represented on the council. Health, education and social services, agricultural extension and roads and bridges are.

b. Azande Social Structure:

The Azande represent a special variation of homestead social organization because of the existence of a distinct aristocratic clan, the Avingara, who traditionally furnish chiefs. Chiefs rise and fall depending on the personal following they are able to attract and maintain. In this regard, they are eager to secure resources and recognition for their constituents and so behave much like ward politicians in any large American city. The chiefs emerged from colonial rule with authority to collect taxes and, especially in the Lande Scheme, with responsibility for maintaining the roads. Each quarter council is chaired by a chief, a situation which gives de jure recognition to the de facto powers of the local notable.

Each chief has beneath him subordinate sub-chiefs, generally 3-5 and below the sub-chief a stratum of headmen. There is roughly one headman for each "line" of 20-25 homesteads. Among the Azande of the YAC, the tribal organization is well articulated and operational. Chiefs, such as James Dyko, require their subordinates to build and repair bridges and maintain roads, to collect social service and education taxes (approximately LS 5,000 per household), and to review and guarantee the authenticity of loan applications which individual farmers present to quarter councils.

3. Production/Marketing System:

The individual homestead is the basic unit of economic production for the Azande. Men and women share equally in land preparation, sowing, weeding, and harvesting. Food crops, such as cassava and rice, are grown by women; marketing of cash crops, such as cotton, tobacco or oil nuts, is largely although by no means exclusively, the responsibility of men. The typical farm contains two gardens or plots: one of the man's and the other the woman's. Since Azande homesteads tend to hold nuclear families rather than two or more generations, and since multiple wives are the exception rather than the rule, labor availability is the largest on-farm constraint

to production. Inter-cropping, which requires little additional labor or which yields produce at different times of the year, e.g. planting beans or squash with dura or maize, is increasingly practiced.

Yet for all the available rich, well watered land in the Yambio area, observation and interviews confirm that present production is well below potential levels. It appears that inability to market surpluses or cash crops is the chief contributing factor. Owing to the scattered; often isolated, population and the absence of settlements which could form primary market points, Yambio town is the major market center. During the 1950s, traders and merchants used the feeder roads then in existence to drive out from Yambio and buy and sell with farmers. The civil war ended this practice, and the general deterioration of the road network during and after the fighting has prevented any significant penetration of the hinterland. Currently, petty traders on bicycles visit some areas around Yambio town, and a few farmers own bicycles which they use to transport their commodities to Yambio or into Zaire where prices are said to be higher. Because of the inability to reach Yambio, food is scarce and expensive in the town while many farmers lack an incentive to grow surpluses. The Nzara cotton mill is unable to organize and operate an effective out-cropping program, and farmers are increasingly unwilling to plant cotton because all too often they can not sell it. Given the commercial orientation of the Azande farmer and the availability in Yambio of highly desirable consumer goods, the absence of an effective, reliable transport system seems to be a principle obstacle to increased production.

Whether or not local income will rise with increased production is another question. Azande spokesmen argue that all large traders and lorry owners in Yambio and Nzara are northern Sudanese. These "arabs", it is alleged, prefer to bring peanuts, sorghum and other food crops from Juba or Wau rather than to buy and market locally grown produce. In this way, the trade with other northerners and help each other to maintain their commercial monopoly. Because they effectively control the amount of capital available in the area, the "arabs" are able to keep Azande from becoming anything but petty traders relying on bicycles. This shortage of capital, in turn, keeps Azande from establishing small-scale industries or other forms of off-farm employment.

Whether or not the northern Sudanese traders exploit the Azande farmer, it is apparent that no Azande are found among the major traders in the area and that no lorries visit the outlying areas to buy surpluses. And it is true that credit, or rather the lack of it, seems a major constraint to the purchase of improved inputs, to setting up small-scale enterprises, or embarking on lucrative pineapple or coffee cultivation. Given the absence of markets for produce, it is extremely difficult to convert commodities into cash for the purchase of inputs or necessary consumer goods. Unlike other places in Sudan where merchants provide credit against crops, the Azande do not borrow from merchants. With the unavailability of credit from banks or cooperatives, few Azande borrow at all. Typically crop failures or social responsibilities arising from marriage, death, etc. are met by loans in kind from relatives.

4. Socioeconomic Role of Women:

Azande women, unlike those of other Sudanese communities, are thoroughly integrated into the prevailing cultivation system. They work side by side with men in the fields. They receive any income earned from their plots and typically they control the family cash. Introduction of labor-saving devices, such as improved hand tools or simple grinding and hulling mills, would directly benefit women by reducing their labor and making available to them increased income earning possibilities.

Perhaps because women play a major role in cultivation in addition to their food preparation and domestic responsibilities, Azande women seem to have few non-agricultural income earning functions. Azande men weave baskets, mats and ropes; young boys tend chickens and look after fish ponds. About the only traditional earning opportunity followed by Azande women is the making of beer and liquor. This is not to say that no non-traditional income generating opportunities exist for Azande women; rather, it is to caution that close attention must be paid to family labor allocation and prevailing customs and mores. Also, the general preference among the Azande for individual as contrasted with collective enterprise must be kept in mind. It might be more acceptable for each of three women to receive one small rice mill, for example, than to try to organize a cooperative of 30 women to receive a larger machine. Similarly, it would be more socially acceptable to sell a few chickens to individual women than to attempt a chicken-raising cooperative.

B. Rumbek: The Dinka

The project designates one area development site near Rumbek in Lakes Province. The majority of people of this area are members of the Dinka Tribe. Numerically, the Dinka form the largest tribe in the Southern Region, roughly 40 percent of its population. Their economy, like that of most inhabitants of the upper south, is based on cattle and sorghum.

1. Sociopolitical Organization:

While the Azande constitute basically a single socio-cultural unit, the Dinka are divided into sub-tribes, clans and extended families. There is no tribal-wide authority and even at subtribal and clan levels, the traditional hierarchies wield little organizational control. Primary loyalties are most commonly claimed by the extended family. Chiefs play a part in village/rural councils, but civil authority, as represented by elected or appointed officials, shares power with and generally takes precedence over traditional leaders.

Apart from tribal hierarchies, Dinka are nominally organized by age cohort, usually a 5-year span. These cohorts once formed the basic units of the tribe's paramilitary organization, but are now much less unified or disciplined. Cohorts, however, can be enlisted to work for communal projects; on one USAID-supported development project, teenaged cohorts played a central role in a school building activity.

At present, an area council for Rumbek has not been formalized. Government and SSU officials tend to work out of the town's provincial headquarters. The area council set-up is anticipated by the end of 1982.

2. Agricultural Practices:

The Dinka are not farmers; they are herders who also grow sorghum and a limited variety of minor food crops. Cattle stand at the center of the Dinka culture, religion and economy. Sacrificed, they are the medium through which the living confront God and ancestral spirits. In the form of bridewealth, cattle and to a lesser degree, goats and sheep are important to maintaining lineage and kinship bonds: in order to marry, a man must transfer an agreed number of animals to the bride's family. Cattle are also used as collateral for in-kind or cash loans. Healthy cattle are rarely slaughtered for home consumption.

As recently as a decade ago, a Dinka almost never sold an animal commercially; but this is changing. Today growing numbers of Dinka cattle appear in local markets, some for urban consumption, some to be trekked as far north as Omdurman. Although this commercial off-take is well below potential, its growth reflects an increased demand for cash caused by the lure of a widening variety of consumer goods, a desire for veterinary medicines to protect the herd and, perhaps, a necessity to buy sorghum in needy times.

During the dry season most herds accompanied by the men and some teenaged girls leave their homesteads for the wetlands. Only a few cows are left behind to provide milk to the women, children and elderly. Thus, for 3-5 months most able-bodied males are absent and can not be tapped for any contribution to developmental activities. At the onset of the rains, men and cattle return and the planting of sorghum begins.

Milk and sorghum are the staples of Dinka diet. Men and women collaborate in land preparation, planting, weeding and harvesting. Peanuts and sesame may also be raised. Virtually all of the harvest is for home use, although some portion might be given as gifts to relatives, neighbors, or friends, offered for a community feast or possibly bartered.

3. Production and Marketing System:

As mentioned above, a small but growing volume of Dinka cattle are sold at auction in Rumbek, Tonj and/or Wau or are driven to Yambio and even to Juba. Arab buyers come to Wau for livestock they will send north. Among Dinka themselves there is a lively market fueled by young men with cash earned from urban or other hire who buy to start herds of their own. While outright sales account for some exchanges, the transfer of livestock as collateral or as bride-price remains the predominant feature of Dinka "marketing".

Any surplus sorghum, peanuts or sesame is often sold or bartered at the end of the harvest for lack of storage facilities. But in the wet season before a new crop ripens many families are caught short of sorghum.

Unless kinsmen can help, they must buy sorghum back from the northern Sudan "arab" merchants at 3 to 4 times the price they themselves receive post harvest. Kinsmen will accept cattle on loan against sorghum, but merchants demand cash. Thus the family must sell some livestock when prices are lowest because the wet season renders inaccessible any but the local market. The absence of short-term credit has a powerful negative impact on the ability of most Dinka to accumulate capital.

a. Constraints to Sorghum Production:

Historically, the region between Rumbek and Wau produced a food surplus; it now yields insufficient sorghum to meet local demands. This state of affairs results from a combination of factors; the poor roads and inadequate transport which prevent potential buyers from reaching producers or vice versa, the absence of on-farm or local storage facilities, and the shortage of improved seeds, credit and extension services. The civil war caused great disruption as hundreds of thousands of Dinka families fled the fighting or lost cattle and sorghum to marauders. In the war's aftermath large mechanized farming schemes were introduced across the upper south and the Dinka were assured by government officials that these would not only satisfy local needs but generate surpluses for export. Without exception the schemes failed to meet expectations.

The casual observer travelling across the upper region of the south is struck by the vast expanse of apparently uninhabited territory and may well conclude that there exists an almost limitless possibility for expanding cultivation. In fact, however, much of the land is subject to waterlogging which precludes tillage. Additionally, the Dinka prefer to cluster in villages or closely spaced homesteads, in part because of the communal social activities they enjoy and in part for protection from often hostile neighboring tribes who move their herds through Dinka territory. As the population has grown over past decades new families have tended to join existing settlements. A result of these growing concentrations has been competition for nearby farm land and in some areas a concomitant reduction in the acreage which can be left fallow for the 5-6 years necessary to regenerate its nutritive capacity.

Studies have shown that the shortage of labor, especially for weeding, is the major on-farm constraint to sorghum production. Sorghum should be weeded thrice during its growth cycle and research reveals that yields are directly related to the timeliness and efficiency of this operation. Thus even where suitable land is available, it may not be cultivated because of the labor shortage.

b. Labor Constraints

Although the Dinka population has increased markedly over the past several decades, there has also been much urbanization and out-migration. Most trading centers of the upper south have doubled or tripled in size during the past 20 years, added to by Dinka abandoning the rural life for urban pursuits and thereby becoming consumers rather than agricultural producers. Young herdless males journey as far as Khartoum/Omdurman to earn cash for purchasing the cattle that will enable them to marry. Such outmigration provides an important source of labor to

national economy but deprives the region of an equally significant, and unreplaced, labor pool for agriculture.

For all the recent outmigration of young males, the Dinka's traditional way of life has only marginally been transformed. British colonial administration, based on indirect rule, left local administration in the hands of tribal chiefs. In contrast to the Equatorias where the British encouraged plantation agriculture, built roads, schools and generally opened the area to outside influences, the upper south remained largely untouched. A history of tribal warfare over range and water use also helped to reinforce Dinka tribal structure since they had constantly to be prepared to repel invaders. Thus the Dinka entered the 1980s retaining far more of their heritage and values than did the Azande.

One expression of this cultural continuity is the primacy given to livestock over farming, witness the abandonment of the farm for migration in search of cash to buy cattle. Prevailing values also dictate sharing crop surpluses with kin, either through loaning sorghum or brewing surplus into beer contributed to periodic feasts, instead of selling for cash. Among Dinka there is no equivalent of the Azande's commercial spirit. During the colonial period, the Dinka did indeed produce and sell surplus sorghum because they were compelled by the British to pay a cash hut tax collected by the chiefs whose position was at stake if he failed. Since independence no commensurate "incentive system" has appeared.

This does not mean the Dinka are immune to commercial interests; their search for cash to buy cattle, veterinary medicine, sorghum when short, and their growing desire for western clothes, radios, bicycles and the like, bespeak the inevitability of joining a market economy. What is needed is a market system that rewards them for producing and marketing sorghum and cattle. The prevailing system does not do this; the returns from marketing are, in their eyes, an inadequate tradeoff to the social rewards of holding herds and drinking convivially.

Efforts to stimulate production, extension and credit services, transport improvements, and so forth, combined with price policy incentives, could over a decade or two prove successful, but only if monetary returns are great enough to offset the social costs of modifying traditional practices. Small interventions or incremental reforms such as constructing a road or a storage center are not likely in the short run to provide incentives of sufficient scale to induce any marked increase in the commercial off-take of cattle or sorghum, particularly from the hinterland where tradition holds most firmly. Marginal increases are most likely to occur in areas adjacent to market centers such as Rumbek where practices and values may be in transition.

4. Socioeconomic Role of Dinka Women:

Dinka women participate in the cultivation of sorghum and to a lesser extent in animal husbandry. Improvements on traditional implements and grain mills would be of direct benefit to them as labor-saving, potentially income-earning, devices. Small sorghum mills would be especially useful since milled flour is preferred and milling is now done by merchants at relatively high unit cost. Given the communal tendencies of Dinka society, small-scale producer/consumer co-operatives could be organized among women: grain mills, poultry, weaving and /or other enterprises.

Water for human and animal consumption is a major problem during the dry season throughout the upper south. During this period, men and cattle move to the wetlands, but most women remain behind where, according to studies of Dinka communities, they often spend 5-6 hours a day on fetching water miles from their homes. In times of severe drought, women, children and the milk cows left for their sustenance must journey from home to far water holes. In general, not only must fees be paid for watering rights but homesteads deteriorate during their absence. Thus, provision of water points at settlements would have a major and beneficial impact on the health and labor demands of women and dependent children.

Improved on-farm grain storage would also affect women favorably by allowing the family to preserve food which now is often sold at a low post-harvest price only to be bought back later at a much higher rate. Furthermore present storage methods result in a 30 percent or greater loss from pests and weather damage. By custom women and children eat after the males have finished; therefore more food kept from premature sale or loss means better nutrition for the secondary feeders who are the most likely to suffer deprivation.

III. Spread Effect: Diffusion, Sustainability, Replicability:

Yambio and Rumbek were selected as sites for area development action because each, in many important ways, illustrates the sociocultural and agricultural systems found in much larger adjacent areas. For example, the Equatorias west of the Nile up to the Zaire border are inhabited by communities practicing the mixed farming found in Yambio district: cassava, corn, tobacco, rice, fruits, coffee, etc. The value systems of the Bari, Kakwa, Madi, and other tribes of the region are very similar to those of the Azande: High priority is given to commercial enterprise, capital accumulation and purchase of consumer goods. Although none of these tribes possesses the well-articulated hierarchy of the Azande, their societies respond favorably to cash incentives and can be expected to supply occasional labor for maintaining feeder roads. Village and rural councils are well established and include traditional leaders who have a record of cooperating well with development projects, exemplified by support given to PDU's agricultural extension training and demonstration trial programs in the Yei district.

This Dinka of the Rumbek district, though members of a specific subtribe, share the same attributes as their kin elsewhere who, in turn, have many features in common with the Nuer, Shilluk and other transhumant pastoralists. A scheme of road construction and maintenance, which has not been included under the present program for the Rumbek area development would face problems in recruiting occasional labor among the Dinka. In part this is because of the prevailing divisions of labor mentioned earlier. Another factor is the close association in the minds of many Dinka between road work and the colonial period. During the days of British administration, each chief and subchief was assigned a portion of road and held strictly accountable for its maintenance. This system hampered annual movements by interrupting and competing with the Dinka's major preoccupation of herding. As a result of the conflict of interests and British enforcement of theirs, the Dinka appear particularly reluctant to do any type of road work. One Dinka chief in Rumbek put the case succinctly: "We worked on the roads during the British time; now we are free."

From a sociocultural perspective, there is little reason to doubt that area development activities at Yambio can be sustained after the end of the project. There are no major institutions or practices at variance with the project's goals and means. Azande show signs of incipient commercialism, are open to innovation and willing to labor (they already work to maintain local roads), and should the Nzara Scheme increase its demand for cotton, the effect on the Yambio area should prove positive since there is ample land available for expanding cultivation of both food and cash crops.

Rumbek presents a less optimistic picture. If the preceding discussion of the major constraints to increased production and marketing is valid, the introduction of improved practices and implements, especially animal traction to alleviate labor shortages, may be less eagerly accepted. It will take a much longer time to produce significantly larger outputs around Rumbek than at Yambio.

The Dinka community is less open to change, harder to enlist in innovative efforts. The present project should introduce only carefully monitored limited activities while conducting detailed economic and sociocultural feasibility studies. The combined results of this research can, by the end of the project, provide an agenda of possible interventions to be undertaken in a subsequent Phase Two project. Overcoming constraints to raising productivity and incomes of the same farmer/herder of the upper south appears to be a complex long term proposition.

VI. Major Findings and Recommendations:

- * There exists among the Azande a significant propensity toward individual private enterprise which is unfulfilled largely because of an inability to market agricultural commodities.

- * The social organization of the Azande is conducive to development activities, such as road building and maintenance, use of formal credit, and introduction of improved agricultural inputs.
- * Azande women have traditionally engaged in a very limited range of economic activities. Care must be exercised in introducing non-traditional (i.e. non-farming activities.)
- * For both Azande men and women, collective enterprises, such as group farming or poultry projects, would find little support.
- * The prevailing sociocultural practices of the Dinka tend to minimize commercial marketing of cattle or agricultural commodities. Removing physical constraints and policy disincentives, although important for long term growth, will produce appreciable short term increases.
- * Sociocultural uses of resources among the Dinka, especially the herd-owning imperative, are major constraints to development. Consequently, higher production and commercial marketing will necessitate changes in abiding customs.
- ** Communal activities feature prominently in Dinka lives; therefore the group approach to development, cooperative farming, milling, or poultry raising, may be the most effective form for introducing innovation. Cohorts, as well as gender, can be enlisted in such endeavors.
- * Decentralization within the Southern Region has major implications for nearly all project activities. Given present severe budgetary and management limitations throughout the region, devolution of ROMA functions to provincial governments is likely to create massive recurring cost burdens as well as to have ramifications for all institution building attempts. In considering recommendations for a Phase Two, the present project must make assessments of the likely direction and effectiveness of decentralization.

INSTITUTIONAL CAPABILITIES OF THE RMANR TO IMPLEMENT

SRAD I

Ministry Organization

The RMANR is composed of four directorates: Agriculture, Veterinary Services and Livestock Development, Fisheries, and Forestry. Operationally, two other units operate as directorates: the Project Development Unit (PDU) and the Director General's office. Each of the four major directorates and the General Director's office contains several departments appropriate to that Directorate. The PDU contains six divisions which establish and manage the unit's work program. Directorate activities are managed by a Director who reports to the Director General. The Regional Minister of Agriculture represents the RMANR.

Impact of Decentralization

The Southern Region of Sudan was granted a substantial degree of autonomy by the Addis Ababa Accord of 1972. It has its own Assembly, elected by popular vote, its own Cabinet (Executive Council) and President, elected by the Assembly. Taxes and tax administration are controlled by the Regional government, but revenues are allocated by the Central Government in the North.

The trend in Sudan has been toward decentralization. The Central and Southern Region Governments have attempted to move functions to lower levels of government so as to lessen the high degree of centralization characteristic of the country in the past.

Manpower Status and Development

The RMANR draws its skilled manpower from several sources; universities, diploma-level agricultural institutes, and certificate-level agricultural training schools. The composition of the labor force and its financial implications have changed drastically in the last ten years. Since the Regional Ministry was established in 1972 the numbers of unskilled workers employed throughout the agricultural sector has increased tremendously. Nearly 14,000 unskilled staff impose a critical administrative burden upon the governmental, parastatal and private offices that supervise and support their activities. There are 200 university trained employees in the RMANR, 430 employees have diplomas and 364 employees have secondary school certificates. The majority of these skilled and trained employees are consigned to administrative work. Over the years the Regional Ministry has established in-service training for middle and lower level staff in an attempt to increase performance and insure manpower for the Ministry's field activities. However, the financial burden placed on the Ministry by the number of unskilled workers causes it to forego providing its highly trained staff the support necessary to make them effective - transportation, fuel, equipment, supplies, etc.

Experience with Donors

Donor assistance to the Southern Region has become very important, especially in the field of agriculture. Donor aid in agriculture is currently more than four times the sum of government expenditures for domestic agriculture, according to World Bank reports. Total donor aid in 1980/81 was equal to 69 percent of all Southern Region government recurrent expenditures.

The Southern Region relies heavily on grants and loans from multinational, bilateral, and voluntary groups. Despite the relatively large amount of assistance to the agricultural sector, very little assistance has been provided for strengthening the RMANR capabilities to manage and support agricultural development in the Region. The largest single program, the World Bank, ODA, IDA-PDU project has tended to work outside existing Ministry channels. It has only been within the last several years that the major bilateral and PVO donors working in Area Development Programs have attempted to involve the Ministry. The Ministry has had little or no influence over establishing priorities or directions for these programs, despite some of these programs working on the premise that they would set up services and programs, including employment of personnel, that at some point in the future would be assumed by the Ministry. USAID experience working with the RMANR during the implementation of SMDP suggests the Ministry will be able to implement SRAD I, though not without difficulty. SRAD I will continue the model used by SMDP of working with and through existing Ministry units, with long term technicians assigned as advisors to Ministry personnel. The same administrative structure, sometimes artificial division of responsibility and decentralization of authority and responsibility that presently hampers the efficiency of the Ministry will also effect the implementation of SRAD I. The major administrative problem to be faced by SRAD I will be defining relationships and lines of responsibility between the Ministry (and its personnel) and the Area Councils, Credit Institutions, other regional ministries and the Agricultural Research Corporation's Yambio Agricultural Research Station.

The proposed USAID project, SRAD I, is designed to relieve key constraints that inhibit agricultural development, including administrative constraints outlined above. The Ministry is linked to the project through the Yambio Agricultural Research Station where Farming Systems Research will be based, and through the Area Councils which will promote public sector resources that serve farmers. The manpower component of the project will draw upon the services which the Ministry delivers to the farmers, such as extension, and it will continue to provide manpower development for the Ministry's use, through continued support of Yambio and Rumbek agricultural institutes. SRAD I will assist the Ministry in improving its budget planning process so as to effectively allocate available financial and manpower resources including donor assistance.

The project will be executed through a newly created directorate charged with the coordination of donor assisted projects in the Region. The technical directorates of the Ministry and the long term advisors assigned to the Area Councils and the Yambio ARS will provide this coordination.

By integrating SRAD I into the existing framework of the Ministry, the project's concepts and direction will enhance the Ministry's capability to carry out projects once donor assistance ends.

The Ministry's limited capability to manage large scale production type projects as opposed to the type of project proposed by SRAD I is evident. Without a strong foundation of skilled workers, projects flounder when donor assistance ends. The Ministry does not have the institutional nor the financial capability to continue its projects. Salary commitments for unskilled labor constitute an estimated 79 percent of all salary commitments. Salaries make up approximately 95 percent of all recurrent costs. Salary commitment for unskilled labor alone amount to approximately 75 percent of all recurrent cost commitments.

The sector as a whole and the Ministry in particular finds itself in difficult financial position. The various agencies of the government are forced to spend very limited financial resources to maintain a very large unskilled work force. The effectiveness of the professionally trained staff is drastically reduced.

Integration of donor and Ministry activities, particularly in the area of agricultural extension, is important for continuous development. Donor-directed extension personnel should be seconded from the Ministry and returned after training and additional experience.

The Ministry must also recognize when projects become non-viable. Continuing to support failing projects waste valuable resources which would be recovered if directed towards projects that are economically viable.

Reports demonstrate that there is no possibility the Southern Region government and the provinces can absorb even a fraction of the continuing costs of donor agricultural development projects. Projects will cease without continuous donor financing. Because the region's economy is derived from subsistence agriculture, few manufacturing and organized commercial activities thrive. The sums of money needed to meet additional needs for continuing donor-financed projects are difficult to raise in such an environment.

Ministry's Role in Financial Control

As the primary implementing organization, the Ministry will be responsible for overall project coordination. The Director General,

as the Project Manager and the principal liaison official between the Directorate for Donor Programs and USAID, will be responsible for the administration of local currency generated by the PL 480 Title III. The Ministry will be responsible for the accounting and disbursing procedures under this program.

ECONOMIC ANALYSIS

Introduction

The goal of SRAD is to increase the production and income of large numbers of farmers and to encourage the target group to increase their marketable surplus.

Several key constraints prevent achievement of this goal and will need to be addressed by the project if the farmers are to respond. The major sub-sector constraints inhibiting agricultural development in the Southern Region and the project area are the following:

1. Grossly underdeveloped transportation network and insufficient means of haulage to increase regional trade and communications;
2. Low yielding farm technology limiting the ability of farmers to produce marketable surpluses;
3. Underdeveloped marketing systems which limit farmer access and do not provide incentives for farmers to produce for the market;
4. An economic policy environment not conducive to increases in farm output, or private investment in rural infrastructure and farm support services.
5. Inadequate capacity of principal Public Sector Institutions to plan, implement and manage an effective program of agricultural development at both the local and regional levels.

Project Activities

The above constraints define the scope of SRAD. All project activities are directed to minimizing these constraints and achieving the anticipated sub-project goals in a sectorally integrated project.

The sub-project goals for each major constraint area can be briefly stated as follows:

1. Technology

Generate cropping systems which are (1) within the technical, financial and managerial capacity of the majority of farmers, (2) output increasing and (3) financially attractive to large numbers of farmers.

2. Transportation

Improved transportation systems to provide (1) farmers with ready access to village and regional markets where there is an effective demand for agricultural commodities, and (2) lower the cost and time involved in intra- and inter-regional trade.

3. Marketing

Provide a large proportion of farmers with (1) physical access to village markets and (2) financial incentives to innovate improved cropping systems and increase production for the market; encourage private entrepreneurs to invest in commodity trade and other important farmer support services; and improve the technical and economic efficiency of regional commodity marketing systems.

4. Policy

Develop economic policies which encourage farmers to innovate and increase their marketable surplus and encourage the private sector to invest in commodity marketing, input trade and other appropriate farm support services.

5. Institutional Development

To increase the capacity of the RMOA and allied ministries to plan, coordinate and support agricultural development at both the Area Council and Regional levels.

Project Dynamics

SRAD is planned as a 10-year involvement in the Southern Region. During Phase I (first 4 years) the project will initiate activities to address the above defined constraints. However, project planning and implementation will be iterative to allow for greater study and specification of the (1) sectoral constraints and (2) appropriate project interventions to minimize these constraints and achieve the project goal.

The project strategy is comprehensive in that it is oriented to problem solving at the farm, market and policy levels. The sectoral constraints as well as the proposed interventions are defined within an overall framework which recognizes key complementarities at both the constraint and problem-solving levels.

Economic Analysis

SRAD I does not lend itself to conventional economic analysis because of various measurement problems, particularly on the benefit-side. In fact, the ex ante specification of actual benefits for a multi-objective project such as SRAD I are extremely speculative. This is so largely because of the following:

1. the realization and timing of the actual benefits generated by any single project component within a multi-objective project will depend upon the progress made in other complementary project activities;
2. the measurement of benefits occurring from reduction of sectoral constraints (as opposed to firm-level) are difficult to estimate because of the inability to project response time or quantify beforehand the size

of the target group that will respond to the new incentive environment.

3. for research it is difficult, if not impossible, to describe the characteristics, and/or the attractiveness of the products of research or when they are in fact likely to come on stream;

4. in the area of public sector institutional development it is virtually impossible to assign monetary values to an improved capacity to effectively plan and manage an agricultural development program.

Implications for Economic Analysis

The project budget specifies the financial costs or level of expenditures planned to be applied to each constraint area. For each project input the estimated cost is based upon what is considered necessary in order to achieve the planned output. That is, a "cost effective" or least cost framework was used to arrive at the level of project inputs and consequently estimated project costs. Because of the difficulty of estimating benefits for each component it was not possible to estimate optimum levels of investment.

In addition the design team took into account "opportunity cost" when determining the level of inputs to be applied to any given project component. This was particularly important given the multi-dimensional nature of the project or the number of sectoral constraints to be addressed in order to realize the project goal. Thus, during the project design, the team operated within a framework of trade-offs involving a \$16 million budget, five separate major sector constraints, and a potentially large geographic area and/or target group. The team was thus forced to adjust the level of activity (expenditures) against constraints and perceived levels of benefits as well as against the size and location of the target group.

Description of Benefits

If the project effectively minimizes the sectoral constraints defined above, financial incentives will be established to stimulate significant economic activity in the project area. The new structure of incentives will encompass the farm, market and rural transport sectors. During SRAD I economic policy formulation and project interventions will be directed or focused upon Yambio District. The initial focus will be expanded during SRAD II to (1) increase the productivity of the small farm sector and (2) decrease technical and economic inefficiencies in the agricultural marketing system over a much larger geographical area.

The increases in economic activity, to which SRAD is directed, will be in the private sector. The actors, or entrepreneurs, to whom project activities are directed include farmers (the majority of whom are small producers), commodity traders, transporters, small-scale rural industries or business firms providing key farm support services. Together the complementary interventions and the level of activity directed toward endogenous farm constraints will be to provide financial incentives to

(1) farmers to increase significantly their marketable surplus of crops over time, (2) private entrepreneurs to distribute the marketable surplus efficiently to larger markets and major consuming areas and (3) private entrepreneurs who can provide cost-effective farm support services in major small producing areas.

The anticipated primary benefits to be generated by SRAD I are enumerated below for each project component:

1. Technology

- Financially and technically attractive output-increasing technology which potentially permits small farmers to satisfy both production and consumption goals within an acceptable level of risk.
- Dissemination of such technology to increasingly larger numbers of farmers within Yambio District.
- Greater market orientation in small farm decision-making leading to increasing marketable surpluses among the target group.
- Lower unit cost of production at higher levels of farm output permitting increased total farm income and lower supply prices in local markets.
- Development of a sub-regional capacity to identify and solve continually small farmer production constraints and disseminate the results to large numbers of farmers.

2. Marketing

- Increased small farmer physical access to commodity and input markets.
- Increased local effective demand and competition among commodity traders for the marketable surplus of the small farmer majority.
- Improved local farm support services in the form of readily available production inputs, farm to market transport services, consumer goods and needs and other market services including local primary processing.
- Provision of financial incentives to area farmers to increase production for the market.
- Improved structure, conduct and performance of village level markets in Yambio District via investment in physical facilities, market rules and regulations and appropriate policy reform.

- Improved regional marketing strategies and policies leading to improved marketing efficiencies and intra-and inter-regional trade during SRAD II.

3. Transportation

- Improved feeder roads within Yambio district leading to
 - . improved small farmer physical access to local markets.
 - . lower cost of transport per ton/km.
 - . savings in form of fuel, maintenance, depreciation and foreign exchange requirements.
 - . reduction in crop losses due to spoilage and time required to transport perishable commodities.
- Financial incentives for transporters and rural businessmen to provide rural and farm support services.
- Greater regional economic integration and communications leading to growth of the private sector agricultural trade.

4. Policy

- Regional marketing strategies which capture the potential productive capacity of the large number of small producers.
- Marketing policies which provide financial incentives for small farmers to produce greater marketable surpluses.
- Marketing and transport policies which provide incentives for private entrepreneurs to invest and engage increasingly in key farm support services.
- Price policies and market infrastructure which begins to encompass greater and more efficient intra- and inter-regional trade.
- An overall agricultural strategy and policy for increasing the production and income of the majority of farmers and rural based agri-business.

5. Institutional Development

- Improved capacity of the RMANR to plan, direct and coordinate agencies involved in agricultural development.

- Improved budget planning process which allocates funds and other resources effectively to carry out the Ministry's agricultural strategy and development program.
- Improved capacity to identify marketing constraints and formulate appropriate policy to minimize such constraints and increase private sector marketing activity in the region.
- Improved capacity to identify key sectoral constraints and design intervention and/or formulate policies to implement coordinated investments and programs to increase farmer production and commodity trade.

Estimates for Economic Pay-Off

As explained above it would be highly speculative to estimate quantitatively on a component-by-component basis the benefits generated by project investments and activities. Thus, it is not practical to undertake a cost-benefit analysis or calculate an internal rate of return for SRAD I.

However, it is possible to estimate a project pay-back period, if one is willing to aggregate project benefits into estimated incremental income streams for primary project beneficiaries.

A project pay-back period has been calculated under four alternative scenarios under alternative net income generations. The calculations which follow assume that project costs and activities will develop production techniques, economic infrastructure and agricultural policies will provide sufficient incentives for the private sector to maintain levels of operating expenditure necessary to maintain the net estimated benefits over the stipulated pay-back period. The investment, incentives and resulting increased benefit streams to be generated by SRAD II are explicitly excluded in the analysis. This approach to assessing cost-benefits further assumes that the GRG will allocate public resources at a level sufficient to maintain the public sector activities sponsored by the project. It is assumed that this public sector support will be internally financed through government revenue allocations.

Scenario I

Assumptions:

1. All project costs(\$16.3 million) should be assigned to the 9000 small farm households in the Yambio Area Council;
2. Incremental benefits will accrue in the form of real income to these small farm households;

3. The income stream will start in year 4 at an average annual rate of \$200 per household, continuing indefinitely; and
4. No other incremental incomes are realized by traders, transporters or other rural entrepreneurs and there are no net additions to rural employment as a result of project activities.

Calculation of Pay-Back Period:

1. Project cost per household

$$\text{\$16.3 million} \div 9000 \text{ HH} = \text{\$1811}$$

2. Payback period

$$\text{\$1811} \div \text{\$200/year /HH} = 9 \text{ years}$$

$$9 \text{ yrs.} + 4 \text{ yrs (gestation period)} = 13 \text{ years}$$

Scenario II

Assumptions

1. Benefits in the form of an average incremental income stream will accrue to small farmers as above:
2. Starting in year 4 and continuing indefinitely, increased cash income will accrue to 100 traders within Yambio Area Council at the average rate of \$1500 per annum.
3. Starting in year 4 and continuing indefinitely, an incremental income stream will accrue to 50 transporters operating to and from the Area Council at the average rate of \$5000 per annum.
4. Private sector employment will be created within the Yambio Area Council among 1000 persons generating average annual incomes of \$700.

Calculation of Pay-back Period:

1. Aggregate annual real income streams starting in year 4

Small Farm HHs
 $\text{\$200/yr} \times 9000 \text{ HHs} = \text{\$1.8 million}$

Traders
 $\text{\$1500/yr} \times 100 \text{ traders} = 0.15 \text{ million}$

Transporters
 $\text{\$5000/yr} \times 50 \text{ firms} = 0.25 \text{ million}$

Employment Generation

$\$700/\text{yr} \times 1000 \text{ persons} = \underline{0.7 \text{ million}}$

Total(from page 7) **\$2.9 million**

2. Pay-back Period

$\$16.3 \text{ million} \div \$2.9 \text{ million} = 5.6 \text{ years}$

$5.6 \text{ years} + 4 \text{ yrs gestation period} = 9.6 \text{ yrs.}$

Scenario III

Assumptions

Starting in year four-----

1. Incremental real incomes will accrue to 9000 small farm households at the average rate of \$300 per annum;
2. Incremental cash incomes will accrue to 150 traders at an average rate of \$1500 per annum;
3. Incremental net cash income will accrue to 60 transporters at an average rate of \$6000 per annum;
4. Private sector employment will be generated among 1500 persons generating average annual incomes of \$950;
5. Underemployment will be reduced for 1000 people creating average incremental incomes of \$200 per annum.
6. Reduced commodity prices and/or greater availability of food items (through greater marketable surpluses of food crops and/or reduced crop spoilage) will increase the real incomes of 20,000 urban consumers at the average annual rate of \$50 per year.

Calculation of Pay-back Period:

1. Aggregate annual cash income streams starting in year 4.

Small Farm HHs

$\$300/\text{yr} \times 9000 \text{ HHs} = \2.7 million

Traders

$\$1500/\text{yr} \times 150 \text{ traders} = 0.22 \text{ million}$

Transporters

\$6000/yr x 60 firms = 0.45 million

Employment Generation

\$950/yr x 1500 persons = 1.42 million

Reduced Underemployment

\$200/yr x 1000 persons = 0.20 million

Consumer Real Incomes

\$50 x 20,000 persons = 1.0 million

Total (From page 8)

\$ 6.0 million

2. Pay-back Period:

$\$16.3 \text{ million} \div \$6.0 \text{ million} = 2.7 \text{ years}$

$2.7 \text{ yrs} + 4 \text{ yrs gestation period} = 6.7 \text{ years}$

Scenario IV

One might argue that it is inappropriate to assign all project costs to the primary project beneficiaries. For example, long-term technical assistance and training costs are investments in Sudanese human capital which are likely to pay for themselves over the professional life of the beneficiaries. Also, the project funds for contractor support are extraordinary costs associated with external assistance which the GOS would not have to bear if locally trained expertise were available to implement the project.

Thus, the project costs for this scenario would be reduced in the following manner:

- 50% of long-term TA: \$2.17 million
- 100% of training: 0.28 million
- 50% of Contractor Support 0.52 million

Applying these assumptions project cost associated with direct incremental income streams to primary beneficiaries is reduced from 16.3 million to 13.3 million.

The estimated project pay-back period for each scenario described above would be:

Scenario I:	11.4 yrs
Scenario II:	8.6 yrs
Scenario III:	6.2 yrs

Conclusion:

It is a widely held view that a long-term donor commitment is necessary in order to stimulate economic development in the Southern Region of Sudan. This is largely due to the deplorable state of the regional economic infrastructure and the magnitude of the sectoral constraints which must be redressed.

Given the estimated project benefits, the distribution of these benefits, the anticipated contribution of the project toward an improved economic incentive structure for the private sector to be an engine of economic growth in the South and the reasonable estimated economic pay-back periods (Scenarios II-IV), SRAD I is considered to be economically viable and potentially attractive to the major project beneficiaries as well as the GOS.

ANNEX 8.

Manpower Training

Manpower Development in the Southern Region has been the focus of donor assistance for several years. One of the most important constraints to improving the overall effectiveness of the RMANR has been a lack of skilled personnel coupled with a large proportion of unskilled laborers.

Through the efforts of international donors, this situation is improving. Three agricultural institutions now provide training for Ministry staff and for agricultural extension workers. The World Bank - PDU project has established a training facility at Yei for junior secondary school graduates.

The Yambio Institute of Agriculture is a two-year diploma program for senior secondary school graduates and provides students with basic knowledge and skills in crop production, livestock management, and improve agricultural technology. Students are required to participate in a field training program that enables them to gain practical experience in practicing extension techniques among farmers in their home districts. Institute instructors have been given in-service training at Yambio by SMDP Project Consultants and at Egerton College in Kenya.

Rumbek Agricultural Training Center is the second institution in the Southern Region which has been provided financial and technical assistance by the USAID-funded SMDP. First established in 1975 by the Sudan Council of Churches, the Center has shifted its emphasis from training farmers in ox-plow techniques to training junior secondary school graduates as village level agricultural extension agents. The one year certificate level program incorporates agricultural extension, field and garden crop production, animal care and animal traction courses. Short courses in soil conservation, nutrition, cooperatives and government supplement the curriculum. This practically-oriented curriculum requires student to cultivate their own vegetable gardens and field crops, to work in the Center's field plots, and to conduct extension activities as part of their course work. Cooperating farmers have responded enthusiastically to the efforts of the Center's staff in establishing a close working relationship between the students and the farmers.

Both agricultural institutions have provided trained personnel for the RMANR. The Ministry have benefitted from the in-service training of its staff at Egerton College. A manpower survey conducted by USAID's Project Contractors has categorized the areas in which trained and untrained personnel are found in the Ministry. The results show a critical shortage of qualified staff and disproportionate amount of unskilled laborers. The manpower status indicates that persons with skills in planning, management, and program implementation need to be identified and trained to strengthen the Ministry's present structure.

Donor assistance to Yambio and Rumbek have abetted agricultural training but constraints still remain. It is clear that the RMANR cannot actively support these institutions at their present level of operation. Donor assistance is necessary to continue the programs. Cost-reducing mechanisms need to be proposed such as the establishment of a fee system or a collective work-study program which would encourage students to support themselves. If responsibility for student subsistence could be shifted to the students, most of whom are already receiving a government salary, this would free up resources which could then be used to purchase much needed books and supplies.

The University of Juba is a fourth source of trained manpower in the Region. B.Sc. degrees are offered in animal science, crop science, forestry, wildlife, and fisheries. Because the University is relatively new (opened in 1977), it has not yet established research facilities of its own. In their final year students are required to participate in 6-month field study for practical experience. Though cooperative agreements between the RMANR and the University have been conducted for students' use of Ministry facilities, these stations are infrequently available due to their distance from the University and the general shortage of fuel for transportation. Furthermore, research arrangements between the University and the RMANR are informal. So far the University has tended to pursue objectives unrelated to the Ministry's strategy of developing the traditional agricultural sector.

Inadequate resources from the Central government has restricted the ability of the University to employ adequate and necessary numbers of professionals to teach, and to purchase scientific books and laboratory materials.

Future donor assistance to the University of Juba might focus on the development of a Research Demonstration Farm for use by staff to provide for research activities relevant to traditional agriculture in the Southern Region and for use by students of all levels to provide them with practical experience.

The institutional capacity of the College of Natural Resources of the University of Juba to play a lead role in the development of the traditional agricultural sector could be strengthened by establishing a "sister university" relationship with one or more U.S. institutions. Such an arrangement might provide for an exchange of students and faculty members and could expose the University to models with very close relationship between University and government programs for increasing agricultural productivity.

ANNEX 9.

Credit for Private Enterprise Development

There is little capital available to indigenous small scale entrepreneurs in the South. Most of the commercial activities in the agricultural sector are dominated by a relatively small number of traders who serve as middlemen and who are rarely involved in the processing of foodstuffs.

While many Southern agricultural activities are still of a subsistence nature, due to the lack of infrastructure and market development, it is expected that some of these basic constraints will be removed through several key activities of the project, i.e. policy initiatives, feeder road construction and marketing. The volume of agriculture products and livestock marketed is expected to rise steadily over the next few years in the two key project districts of Yambio and Rumbek. This situation should provide new opportunities for small entrepreneurs engaged in the agricultural sector.

Under the project a fund will be created to provide credit at a reasonable rate of interest to the private sector for small-scale activities, such as the sale of seeds and other inputs, improved hand tools, sorghum and sesame grinding mills, rice hullers and other such activities contributing to production and marketing.

The Agricultural Development Bank (ADB) initiated supervised production credit activities in the Southern Region in late 1981. Two branch offices have been established, one in Juba, the other in Wau, with a sub-branch in Aweil administered by the Wau branch. The ADB intends to establish other branches in the South in the future but will proceed cautiously, based on initial experience. The Juba branch will administer activities in the Yambio area for the foreseeable future, while the Rumbek area will be supervised by the Wau branch. The credit fund under the project will be administered by these branch offices which have full approval authority. While exact procedures have not yet been established it is likely that applications for funds will be submitted to the appropriate ADB branch by individuals after applications have been reviewed and approved by the Area Council in which the applicant intends to do business. The Area Council will consider the application with regards to the needs of the area, the appropriateness of the activity in question, the integrity of the individual and other such criteria. In some instances the Area Council will need to assist the individual to prepare the application to the ADB. The ADB, in turn, will review the application, and, given a favorable ruling, will disburse funds to the applicant, based on an agreed-upon time-phased schedule. Technical assistance will be provided to the ADB by the Marketing Advisor, when necessary, both in the review of applications and during the lifetime of the loans.

The ADB will provide credit to entrepreneurs at its usual service charge, currently 14 percent per annum.^{1/} The term of the loan will likely be from 1 to 5 years, depending on the nature of the activity.

^{1/} Under Islamic Law interest as such is prohibited. Accordingly, the ADB charges a "service charge"

ANNEX 10.

Marketing Systems Analysis

The current marketing systems within the project area do not provide the financial incentives for farmers to expand output, or produce a marketable surplus. This situation results in an inadequate supply, in different parts of the region, of food items for which there is both nutritional need and effective demand.

The marketing component of this project is central to the success of the project. The goal of the research component is to minimize production constraints and increase the productive capacity of the farmer and this increased farm production is expected to lead to greater marketable surpluses. Market interventions in the form of policy changes and improved infrastructure are expected to lead to increases in intra and inter-regional trade. Improved small farmer access to village markets and pricing policies can provide financial incentives to farmers to innovate and increase production for the market. Improved economic infrastructure is expected to foster the development of various farmer support services originating in the private sector (e.g., provision of farm inputs and consumer goods, implement repair and fabrication, crop storage facilities, and not least of all farm to village transport services).

Current constraints to increased commodity marketing in the project area include both technical and economic constraints. Among the major economic constraints are (1) the structure of farm production (largely small farmers producing mainly for home consumption), (2) pricing policies, (3) high transport costs, and (4) a poorly developed market information system. Among the major technical constraints are (1) the poor condition of the road network (from feeder roads to major roads connecting towns and markets), (2) inaccessible and inadequate village level market facilities, and (3) limited on- and off-farm storage facilities.

Rationale for Project Assistance

In the project area there are large numbers of small farmers who produce mainly for home consumption. A large share of these producers sell a small proportion of their output at nearby village markets during good production years.

For planning purposes it is important to recognize that small producers will not decline in numbers in the foreseeable future. It is also important to realize that small farmers control a sizeable proportion of the arable land in the project area. Consequently increasing the small farmers' marketable surplus and farm input and commodity trade provides an important mechanism for economic growth in the project area.

An efficient marketing system can contribute significantly to economic growth. By providing financial incentives to farmers to increase production and income and by increasing the quantity and variety of food

available in both rural and urban markets an improved marketing system can stimulate both rural employment and income. An efficient market system can also provide an important economic benefit to customers by lowering urban food costs.

Marketing not only links production and consumption but is also the key link between improve production technology and the farm level capacity to produce more output. The marketing component of SRAD I will encompass the entire commodity marketing chain, however, the major thrust will be upon improving small farmer access to village markets and encouraging private entrepreneurs to invest in local farm support services. This is justified on assumption that in order to encourage farmers to innovate, and produce more, they must have physical access to the market for inputs and outputs as well as financial incentives to increasingly produce a marketable surplus. To achieve these outcomes will require not only a more developed network of small rural markets, thereby improving farmer access, but also the development of both production and consumption oriented services not to mention employment opportunities for farmers and their families.

An improved marketing strategy serving the needs of small farmers must take account of the problem posed by a small farmer production strategy. This is due in part to the number of crops small farmers produce in order to satisfy their primary production goal - consumption. Only when consumption objectives have been met will a marketable surplus be available for market sale. Such a production strategy also limits the quantity of marketable commodities available in any one village (place), consequently commodities must be handled in relatively small quantities over a wide area. This scattered organization of production in turn potentially keeps returns to farmers low which may reduce the financial incentive to increasingly produce for the market. However, this potential constraint may be overcome with improved transportation, more efficient buying procedures, market information, better farmer support services and more efficient linkages and improvements along the marketing chain. Thus, the importance and rationale for designing and implementing marketing interventions (both policy and structural) that increase both the technical and economic efficiencies within both small farmer production and marketing systems.

Potentially there are several important primary and secondary beneficiaries of improvements in the marketing system. The primary beneficiaries of this component of the project will be the small farmer producing for the market and the private entrepreneurs in the rural areas who increase their business in the market place. Such improvements are expected to give small farmers the necessary financial incentives to increasingly produce for the market and at the same time give entrepreneurs access and incentives to take advantage of free market opportunities.

The second major beneficiaries will be the entrepreneurs who are the intermediaries in the market chain linking the small producer with the ultimate consumer. Improvement in the efficiency of the marketing system will increase their volume of business, should permit new entrants in the field and should generate capital for investment into expanded business activities.

The purpose of this T.A. will be to (1) formulate a regional crop marketing strategy and (2) develop a subsector marketing program based upon policy reform, and improved marketing arrangements. The strategy shall be directed to the special circumstances of the small farmer. Market policies are to be formulated and give greater physical access to local markets, provide financial incentives for small farmers to produce for the market, provide financial incentives and opportunities for private entrepreneurs to expand trade and engage in rural farmer support services, and to improve the flow of commodities from production center to major consuming areas.

Regional marketing policy shall focus on price policies, market information, improved market structures and trade regulations. The regional marketing policy shall take account of the major ecological zones in the region and account for consequent comparative advantages in production at the sub-regional level. These advantages and the location of the major consuming centers will influence the basic trading patterns and market developments.

In addition to formulating an appropriate regional marketing strategy the marketing specialist shall work with the Area Development Advisor in Yambio to develop a market development plan for Yambio District. Project funds and technical assistance will be used to implement this plan, in the third year of the project. It is envisioned that several improved marketing centers will be constructed and new marketing arrangements, services and policies, will be introduced at these centers on a pilot basis. The production and trade impact of these trade markets will be monitored to determine the extent to which technical and economic efficiency have been improved, what new marketing constraints develop and what policy/structural changes are required to improve the performance of the small farmer oriented marketing system. The ultimate purpose of this pilot market development phase is to determine if the new local marketing system adequately serves the needs of a commercially oriented small farm sector and the high level marketing system. If the pilot phase is successful it will form the basis for a phased regional strategy of village level market development to be carried out under SRAD II.

In order to adequately monitor and evaluate the pilot village markets and the overall crop marketing system, commodity flows and technical/economic constraints along the marketing chain from producer to consumer must be periodically investigated. Consequently, the marketing specialist will establish a viable, low-cost system of market reconnaissance/surveillance in order to (1) identify constraints in the crop marketing chain, (2) measure changes in commodity trade and (3) monitor commodity prices.

The monitoring exercise will be an important basis upon which to plan future interventions in the marketing system during SRAD II.

Project Activities

During SRAD I three major inputs for marketing are envisioned. First, short-term technical assistance will be provided for a major marketing/transport study; second, long-term technical assistance in the area of agricultural commodity marketing will be provided; and third, funds will be made available to develop pilot small farmer market centers in the Yambio District.

1. Markey/Transport Study

The purpose of this major study will be to provide a diagnostic analysis of the commodity marketing systems and to identify interventions (structural, policy, investment) required to improve (1) small farmer access to rural markets and (2) technical and economic efficiency of the agricultural marketing systems.

The study will (1) investigate the present constraints, inefficiencies and key development needs of the major intra- and inter-regional transportation network in the southern region, and (2) study the structure, conduct and performance of local, terminal and major consumer markets. This two-pronged approach to the overall study is necessary if both small farmer access to rural markets is to be achieved and if technical and economic efficiencies within the agricultural marketing chain are to be significantly increased.

The structure, conduct and performance of the agricultural marketing and distribution systems in the region need to be analyzed and identified and appropriate policy reforms, structural changes and investment needs in order to provide production incentives to small farmer and the overall efficiency of the marketing system. Transport constraints and constraints to private investment in the transport sector need to be better understood to identify cost-effective investment and transport policies which can improve the outreach and efficiency of the district-level and required transportation network in both the short and longer term.

The study shall be undertaken over three months beginning in September/October 1982 and shall provide the basis for the project's continued involvement in agricultural market development. The study shall provide a conceptual framework and a planning and operational input for the long term marketing analyst/advisor to be provided under the project.

The scope of work and level of effort for this study are provided in Appendix H.

2. Long-term Technical Assistance

The project shall provide the RMANR with 36 pm of the services of a highly experienced agricultural marketing specialist. The advisor shall function as a crop marketing policy analyst and planner.

It is envisaged that this activity will complement other key activities of the area development component of the project and will create "spin-off" benefits which could result in lower input prices due to increased competition, and local processing and marketing of foodstuffs, reducing reliance upon outside suppliers. Moreover, a number of the activities considered for funding under the project, such as grain mills, are often exclusively administered by women. Therefore, this activity should benefit women specifically, as well as in the general context of making credit funds available to the general populace, be they male or female.

ANNEX 11

Farming System Approach to Research and the Yambio Agricultural Research Station

In the project area agriculture is predominantly based upon large numbers of small farmers, producing a variety of crops on relatively small parcels of land mainly for home consumption. The production techniques are based upon a system of low-input, shifting cultivation and the cropping system largely reflects the production possibilities of the ecological zone and the primary production goal, household consumption.

The project will encourage small farmers to move from a largely subsistence agriculture to a more commercially oriented market agriculture. This will be by way of (1) research to improve the small farmer's productive capacity and (2) market development to provide the financial incentives to innovate the products of research and increasingly produce for the market.

During SRAD I, the project will design and simultaneously implement a farming systems approach to research (FSR). The research activity will be designed and initiated at the Yambio Research Station.

Production Environment

The Yambio District is in the Green Belt which is the home of 450,000 people or about 12 percent of the Southern Region's population. Rainfall is about 1400mm/year which is well distributed over 9 months starting in March. The soils are lateritic, red in color, acid in reaction and vary between deep loams with good water holding capacity to light shallow soils with high iron content and poor water holding capacity.

The Azande, the major ethnic group in the Green Belt close to Yambio, are mainly agriculturalists. They do not raise cattle because of the prevalence of the tsetse fly. Shifting cultivation is the dominant production system although there are small farms producing cash crops such as coffee, pineapples, citrus, and cotton.

The cultivation season usually starts at the onset of the March rains. The usual cropping sequence is based upon the following rotation system. After clearing a parcel of land of trees and bush, they are burnt in situ, and then peanuts and corn are sown in March. On or before the harvest of these crops in July finger millet is broadcast and harvested in November/December. During the second cropping season, sesame, peanuts, sorghum and corn are grown followed by cassava. During the third season, while the cassava is maturing, a mixture of the second season crops are typically broadcast under the growing cassava. During the fourth year before reverting to a 5-10 year fallow only cassava is planted. In addition to these field crops the Azande produce small quantities of other crops which include sorghum, upland rice, sesame, bambara, peanuts, cowpea, mungbean, cassava, sweet potato, yam, okra, pigweed, pumpkin, cucumber, banana, pineapple, papaya, citrus and oil palm.

Vegetables and fruits are usually grown in small plots near the house and tended by women. The products of these plots are the property of the women and produced mainly for home consumption, although a small portion may be sold in the nearby market.

The farm tools of the Azande are few and simple and include axes to cut trees, circular hoes for weeding, slashing knives and flat iron rings for harvesting. Post planting operations are done by women and children. Farm labor supply limits the area cultivated by the household to usually 3-4 acres.

The population in the Green Belt is generally well nourished with the exception of the period immediately prior to the rainy season (April-May) when there is a shortage of energy and protein sources and the period from January to March when the diet is deficient in Vitamin A and Riboflavin.

Physical Production Constraints

The climatic and soil conditions in the Green Belt favor the growth of a wide range of plants. Crop production is however limited to small scattered plots where the dense natural growth of trees and bush has been cleared. Land clearing and field practices are based upon traditional hand tools which limit the area to be cleared and planted. Other production constraints include poor soil fertility, poor seed quality, crop rotations exhaustive of soil nutrients, susceptibility of cultivars to insect pests and plant diseases and infestation of vigorous and rapidly growing weeds. Given prevailing low yielding production technology and the reliance on manual labor to carry out field activities, the availability of household labor severely limits the output of the small farmer.

As labor supply is not a production factor which can be altered in the short or intermediate term the productive capacity of the small farm can only be increased by the adoption of output increasing technology which is within the technical (including resource endowment), financial and managerial capacity of the small farm household.

Yambio Research Station (YRS)

History

Yambio Research Station is a regional station of the Sudan Agricultural Research Corporation (ARC). It was established in 1948 and was previously known as the Yambio Experimental Farm. The original mandate of the station was to carry out adaptive and applied research for the agricultural development of the Azande lands through the Zande-Nzara Agro-industry Complex (Zande Scheme), which was established in 1947. For this reason, cotton was the major crop of study, however, food crop and long-term soil fertility trials were carried out during the 1950s and early 1960s.

Current Status

During the civil disturbances from 1964 to 1972 the YRS was closed. It did not start functioning again until 1981, with the rehabilitation of the station's physical plant by a USAID grant to the International Voluntary Service (IVS). The current staffing and physical infrastructure of the station are illustrated in Table "1". It will be noted that professional research and support staff of the station consists of only 2 scientists and 9 technical assistants.

In 1981, trials were conducted on 16 acres, including perennial crops (4 acres), annual crops (9 acres), vegetables (2 acres) and roots and tubers (1 acres). About 30 acres of the 450 acres set aside for the research station were cleared for experimental use during the 1982 cropping season.

However, the present station resources and experimental program are not adequate to conduct a viable applied research program or solve the production constraints of greenbelt.

Proposed Research Approach

An applied, problem-solving farming systems approach to agricultural research is planned for the Yambio Research Station. At the present time the research station does not have either the necessary physical facilities, equipment, supplies, operating budget, or critical mass of research and extension personnel to conduct such a program. The project will provide both technical assistance and funds to implement a viable farming systems research program.

Rationale for FSR

The purpose of Farming Systems Research (FSR) is to generate appropriate technologies for farmers and where possible improve policies and support services to increase farm production and income. FSR aims at increasing the productivity of farming systems by generating technologies which are appropriate for the farmers circumstances and which solve existing production constraints.

The farming systems approach to research has particular merit for small farmers, who produce a wide range of commodities, face both risk and uncertainty and have very limited resources. The approach is very unlike conventional, empirical crop-specific agricultural research which through trial and error arrives at suitable technologies for the conditions of specific farms and/or are judged by disciplinary standards. FSR on the other hand aims at increasing the productivity of overall farming systems by generating technologies for particular groups of farmers and by developing greater insight into technologies which are within the technical, financial and management capacities of the farmer target group.

The FSR approach views the whole farm as a system and focuses on the interdependencies among production components under the control of the household and how such components interact with physical, biological and socioeconomic factors not under the household's control. Farming systems are thus defined by exogenous (physical, biological and socio-economic) factors and by endogenous factors (goals, access to resources, production choices and management practices).

Thus, the approach to applied on-farm research requires (1) studying the many facets of the farm household through close and frequent contact with household members on their farms (2) considering problems and opportunities as they influence the whole farm (3) setting research priorities accordingly (4) recognizing the linkages among enterprises and activities within the farm system and (5) evaluating research results in terms of the whole farm situation.

The FRS process follow the following sequence of activities:

1. selecting locations and groups of farmers with reasonably similar characteristics.
2. identifying and ranking production constraints and opportunities and defining hypothesis for alternative solutions.
3. planning experiments/trials, studies and procedures for information gathering.

4. undertaking trials on farmers' fields to identify improved technologies suitable for farmers' conditions.
5. integrating or coordinating on-farm trials and studies with crop or disciplinary-oriented research on the experiment station.
6. evaluating in collaboration with target farmers the requirements performance of trials.
7. extending the production practices widely among area farmers.
8. focusing attention on ways to improve public policy and farmer support services to assist the adoption and impact of generated technologies.

In summary, FSR is oriented toward farmers and their production/consumption problems. The approach explicitly takes account of farmers' constraints in both the research design and evaluation stages in order to increase the short term utility of the products of research and the probability of their attractiveness for widespread adoption. The FSR team starts with farmers and learns about the environment, resources, methods of production, constraints, and research and adoption opportunities for a particular group (sub-population) of farmers. The team operates in a multi-disciplinary framework and designs research trials based upon these parameters. A large part of the applied research is carried out on farmers' fields and the results are judged not by disciplinary standards but rather against farmers' standards and their capacity to innovate.

Project Activities

1. Research Program

The FSR Program shall consist of three functionally integrated programs.

a. Adaptive Research

The adaptive research program will consist of two major activities, diagnostic surveys and on-farm trials.

The initial task will be to conduct the surveys. The principle objectives will be to:

- i. Study the entire farming system including production/consumption goals, resources, enterprise combinations and farmers decision making process.
- . Study the traditional farming practices and the farmers rationale for using them.
- . Understand the bio-physical environment in which the farmer operates including soil-plant relationships, climate, weeds, pests and pathogens limiting crop production.
- . Identify production constraints and nutritional deficiencies limiting land and human productivity.
- . Identify better farmers and their resources and practices which lead to higher and output and system-wide performance.

- . Report upon the study results and recommend a program strategy for applied on-station research and on-farm trials on farmers' fields.

It is envisioned that diagnostic surveys will be undertaken by a multi-disciplinary team operating within an inter-disciplinary farming systems framework. The disciplinary expertise shall consist of a minimum of soil science, agronomy, and agricultural economics and horticulture.

A program of on-farm trials will be conducted throughout the LOP and will initially include trials of planting materials and production practices which (1) involve a minimum of risk (drawn from research and experience of others) and (2) are from the diagnostic surveys judged to potentially minimize identified on-farm production constraints.

On-farm trials will provide the setting to (1) demonstrate improved cropping systems, (2) incorporate the farmers views into research design and evaluation, (3) assess the appropriateness of on-station applied research and (4) assist in the transfer of dissemination of proven technology.

After the initial 2-3 years of the research program trials on farmers fields will be designed on the basis of continued dialogue with farmers and the results of the on-station applied research program.

b. Applied Research

On-station applied research will be designed initially on the basis of the multi-disciplinary diagnostic surveys and later on the basis of continued diagnostic surveys and feedback from the program of trials on farmers fields.

The principle objectives of the applied research program will be:

- . Determine means to eliminate or reduce the severity of major on-farm production constraints as identified by surveys and trials on farmers fields.
- . Analyze small farm bio-physical and resource characteristics to identify potential opportunities for intensified crop production and increased productivity of the farming system, using improved cultivars, cultivars with differing maturity, new cultural practices better rotations, relay and inter-cropping, etc.
- . Evaluate cultural practices of superior farmers in order to understand how they contribute to higher yields; and determine their potential and range of applicability.
- . Evaluate technology which has proven successful under similar environmental condition;
- . In cooperation with the adaptive research program design on-farm trials of promising technology.
- . Develop a germplasm collection by gathering a wide range of appropriate cultivars or lines of plant species from local farms, and international, national regional research centers.

- . Evaluate the germplasm collection at the research station using farmers' standard cultural practice and on soils representative of the greenbelt.
- . Recommend promising lines for inclusion in the program of trials on farmers fields.
- . Multiply and package superior lines for distribution with appropriate cultural practices to cooperating farmers and regional institutions involved in technology transfer.

2. Staff

To undertake a functionally integrated FSR program as described above will require a critical mass of scientist who are committed to the FSR approach. The inter-disciplinary approach, directed to solving real production problems of farmers and maintaining communication with farmers and their environment throughout the research process will be a new strategy and operational mode for Sudanese researchers. Consequently some professional leadership and a program of both on-th-job and external training will be important project activities.

While a critical mass of six researchers for the Yambio Research Program have been identified only two of these scientists will be directly provided by the project. The ARC is expected to identify and post to Yambio most of the required resident scientific talent.

The staffing pattern and requirements are premised in part on the view that there will be a significant role of short-term scientific input into the research program. It is planned that short term expertise will come from the ARC and from International Agricultural Research Centers (IITA and CYMITT).

For SRAF I resident research staff requirements at YRS are considered to be the following:

Applied Research (on-station orientation)

Agronomist (Provided by Project)
Plant Breeder (Needed by September 1984)
Horticulturist (on-Station)

Adaptive Research (on-farm orientation)

Agricultural Economist (Provided by Project)
Soil Scientist (Needed by September 1983)
Extension Specialist (Local hire provided by project)
Pest Control Specialist (on-station)

ARC will have to provide a senior soil scientist and counterparts for project provided personnel the first year as well as a plant breeder the second year.

While each scientist is "assigned" to either the applied or adaptive research program it does not imply rigid compartmentalization since the programs are to be functionally integrated. And further since the multidisciplinary expertise is to function in an inter-disciplinary manner, scientists will be expected to contribute to both research programs as their expertise and experience is required.

Research Support

In addition to the above scientific staff other principle research support staff will be required. The following professional skills have been identified:

- (1) Information/Communication Specialist
- (2) Seed Technologist
- (3) Physical Plant Superintendent
- (4) Farm/Grounds Manager

3. Training

The project research component shall have a major training input, in terms of degree training, short-term training courses and on-the-job training provided by the two long-term researchers provided by the project.

Degree training will be oriented toward disciplinary expertise in agronomy and agricultural economics and will be geared to tropical agriculture and disciplinary issued and the functional requirements of a farming systems research program.

Short-term training will be largely centered around short-to-medium training offered by International Research Centers, particularly those with on-going farming systems program. It is envisioned that courses in seed technology, crop production, tropical agronomy and horticulture, small-farm crop storage and agricultural engineering will be training sponsored by the project.

4. Role of CGIR

The Consultative Group for International Agricultural Research (the International Agricultural Research Center Network) will be drawn upon to provide the YRS with important short-term experts for the design of the research program or for specific areas of reserach. The back-stopping facilities of the International Centers in the form of germplasm collections, workshops, training courses, research experience, etc. can provide important inputs into the development and evaluation of the FSR program.

ANNEX 12

Regional Agricultural Research Technical Committee (RARTC)

The RARTC, was created in 1979, based on the need for coordinating the myriad number of research programs carried out by the RMOA and foreign donor institutions. The organization, while not an official GOS entity, is composed of a Chairman, treasurer, secretary and members from the RMOA, Juda University, Regional Ministry of Finance and Economic Planning and the Agricultural Research Corporation. Other "at large" members from the RMOA and foreign donor agencies conducting research in the region are affiliated. Several committees have been created to carry out the various functions of the RARTC.

The RARTC is charged with two main responsibilities: (1) supervision of agricultural development research in the Southern Region; and (2) planning of medium and long-term agricultural research programs. Information collected by the RARTC from the various agencies provides the basis for disseminating findings to those engaged in development efforts and within the research community; coordinating research efforts of the member groups; assessing whether research priorities for the region are being adequately addressed and formulating future research policy and strategies for the region in close coordination with the Director General of the RMOA.

The RARTC is responsible for conducting an annual conference at which various research papers are presented and resolutions passed. To date, conferences were held in 1980 and 1982. A two volume proceedings of the first conference was published, and it is planned to publish the papers presented in 1982. The RARTC is also supposed to publish a newsletter and a journal to disseminate findings.

Due to the lack of funds neither has been published.

To date, funds for operating the RARTC have originated from various member organizations. The RMOA has assisted in providing an office, and the RMOA Director of Research has served as Secretary and part-time office manager. For the GOS fiscal year 1982 - 1983, the RMOA has provided the RARTC with its own budget which would include funding for an office manager and secretary. Member organizations will also continue to contribute a limited amount of funds. However, even with the above resources, the RARTC still lacks sufficient funds to function at an effective level.

The RARTC is an indigenous organization which was created to meet research needs in the Southern Region. While tempting, it would be irresponsible for the project to contribute large amounts of resources which would create a requirement for funds which the RARTC might not be able to sustain after the project is terminated. Therefore, the project will assist the RARTC by providing office equipment, paper and other materials needed for publications, per diem and POL for three years.

The RMOA will provide personnel, office facilities and the use of a vehicle. The estimated budget for this activity is as follows:

	<u>US\$</u>	<u>LS</u>
1. Office equipment - typewriter duplicating equipment, calculators, etc.	\$5,000	
2. Material for publications, office supplies	5,000	2,000
3. POL, repairs - 3 years	6,000	
4. Personnel - secretary, office manager - 4 years		40,000
	<hr/>	<hr/>
Total	<u>\$16,000</u>	<u>42,000</u>

ANNEX 13

The Feeder Roads Program

The Feeder Roads Program under SRAD I will consist of the rehabilitation of existing roads in the Yambio District. The road base already exists for these roads together with drainage infrastructure. Population centers and agriculture have also developed along these existing roads. The deterioration of the existing roads resulting in inaccessibility to markets has caused agriculture production to decrease. The improvement of the existing roads will improve market access and increase the potential for production up to and beyond the agricultural production achieved before the civil war. The rationale for developing new roads is to open up new agricultural areas and in Yambio greater return can be expected from an intensification of agriculture in existing agriculture areas and opposed to developing new areas.

The labor intensive method of construction will provide direct benefits to the District of Yambio. Since the communities will be providing laborers they will directly benefit from the continued development of roads in the area. Capital intensive methods will not be used in Phase I of this project but may be applicable for some Phase II work where existing roads need reshaping and fill materials are a long distance away.

The road section to be constructed will be a 3.5 meter laterite pavement 15 cm thick laid on a 6 meter road formation with trapezoidal ditches on each side. No earth shoulders are proposed.

The basic construction method is the use of village labor supplemented by equipment. Generally, alignment of the existing 3 meter road and grade can be used as basis for the proposed feed road.

The grass and vegetation in and at the side of the existing road is to be stripped off to the lowest level of the vegetable crop, and placed as continuous mounds along the outer slopes of the ditches. The road formation is then constructed by fill and/or excavation and then rolled by a compactor or wheeled vehicle. Laterite is obtained from ditch excavation where possible with ditch width to vary accordingly. Fill is placed in the center of the road formation to a width of 3.5 meters and depth 15 cm. It should be formed to 4 percent side slope then compacted. Edges of the laterite pavement will be tapered off to the formation course at 4:1. Earth shoulders will not be constructed since grass covered shoulders besides needing maintenance tend to mound upwards causing water to concentrate in and erode the road edges instead of draining to the side ditches. Without shoulders, the pavement will stand out from the formation, defining the area for heavy vehicles and leaving the remainder of the road on each side of the pavement for pedestrians and bicyclists.

At approximately every 500 meters where visibility is obtained from both directions, the road is to be paved across the full formation width for a length of 50 meters to permit vehicles passing each other.

Hand tools will be supplied under the project from host country or US Code 941 and will include spades, shovels, wheel barrows, rakes, tree saws, crow bars, machetes and concrete mixers. The actual purchase depends on the length of the road, number of villagers available for road work and tools required for road maintenance.

Only a minimum of equipment will be provided SRMRTC. This will consist of two water drum rollers for road compaction and four trucks for transportation of supplies, labor, and/or laterite as needed. This equipment will also be used for road maintenance at a later date. One option to be considered will be to have the village retain control of the truck when not in use for road service.

Drainage requirements vary from road to road but generally will be controlled by side ditches outletting where possible, and the use of squashed ARMC0 pipes to give maximum volume at minimum height for small crossings, and single or multiple ARMC0 pipes for major crossings. Pipes where possible will be obtained in half sections for ease of transportation. Where multiple pipes are used rock slope headwalls will be constructed to avoid washouts. Bridges where needed will be limited to slab bridges on slab or structural beams. Reconstruction of existing bridges will normally be reinforced concrete slabs on top of existing steel plate and supporting beams.

Simple lockable storage huts will be provided from host or US Code 941 countries for storage of materials and tools along the road. Fuel will be stored at a secure central facility.

Force account workers will not be used except initially on specialized work such as pipe laying or bridge work, when used it should include on-the-job training of village people. The main labor force will be from the villages as recruited by the village chief of village council and directly responsible to them. This makes the roads a community effort with work and money directly attributable to the village. Village people recognize that failure will be much more than the failure to complete the road; it will mean continued isolation from markets and opportunities for village agricultural development.

Where the local community is not capable of administering wages, book-keeping, the labor force will be administered by the Yambio Area Council or by the Assistant Commissioner responsible for roads at the provincial level, depending upon who is given responsibility for feeder roads under the decentralization program of the SRG.

No special design by consultants is needed for this type of road as it follows the general alignment and grade of the existing road buth with improvements to grade in long vertical lines. Only major filling at drainage crossings will require more specific design. Initial training in design or construction is limited and will be provide by short-term TA under the project and local SRG engineers.

One alternative to be considered is to have a contract drawn up between the Yambio Area Council and the village chief of council. The village chief or council is then responsible for constructing the feeder road to fixed criteria and they are paid for completed lenght of road to the nearest tenth of a kilometer in monthly payments plus amounts for completed culverts. This would be equivalent to the FAR system. Care will have to be taken to work out fixed amount prices which are realistic, bearing in minf that road construction will be seasonal depending on village agricultural acitivities, weather conditions and the availability of training and supervision. The contract should lay out the minimum number of workers required, minimum number of months per year, and what will be given to the village for their use in construction. Initial estimates of payment will need adjustments based on actual experience.

Another option to be considered is to have community work directly administered by the Area Council with a timekeeper and supervised by a foreman, and overseers. In either case, a mason and/or pipe layer would be needed on all of the roads.

Road maintenance on labor intensive roads would be by the villagers at the rate of 1 villager per kilometer with an overseer for every ten men. Maintenance will use road construction hand tools.

With this type of activity which is on-the-job training in construction and methods of practical engineering design, monitoring will be frequent at the beginning of the road project and lengthen out as the work proceeds. Monitoring is proposed at monthly intervals by Area Council and bi-monthly by the AID Mission or REDSO/EA in the forst year and quartely thereafter.

Evaluation will coincide with the Project Evaluation.

Priority 1: Yambio/Gongura - 29 kilometers using tree cutting crew from village, allowing road to dry out, then labor intensive road construction. Culverts will be installed by skilled labor. Supervision will be the responsibility of either the Area Council or the Assistant Commissioner for Roads at the Provincial Level. One of these units will provide foreman and timekeeper. Director labor will be paid through the local currency project account. Foreign exchange will be required for 1 truck, 1 roller, tree saws, handtools and culvert pipes.

Priority 2: Yambio/Sakure Intersection/Nzara - 20 kilometers using labor intensive construction methods and unskilled labor. Supervision to be provided, plus a foreman and timekeeper. Labor payment same as priority 1. The last 9 kilometers will be cleared and graded prior to construction. Foreign exchange will be required for 1 truck, 1 roller, 1 cement mixer and handtools.

Priority 3: James Dyko Road - 30 kilometers using labor intensive construction methods and unskilled labor. Supervision will be provided plus a foreman and timekeeper. Labor payment same as above. Foreign exchange will be required for 1 truck, 1 roller, 1 cement mixer, handtools and ARMCO culverts.

Priority 4: Yambio/Bangazgini Road - 123 kilometers no actual road construction but activities to improve the surface and drainage. The road will be allowed to dry out by cutting all trees 5 meters on centerline for the first 70 kilometers using workers from the community. Drainage will be improved by installing small culverts at kilometers 8, 56, 68, 72, 80 and 113 plus a concrete slab to replace the logs on the 8 meter bridge at kilometer 4. At kilometer 56.6 a 4x1200 mm pipe culvert will be installed to replace the bridge and 2x1200 mm pipe culverts will be installed to replace the bridge at kilometer 56.7. The main bridge of three 10 meter spans will be reconstructed by installing a reinforced concrete slab.

Priority 5: Yambio/Sakure - The first 8 kilometers will be reconstructed using labor intensive methods with labor and supervision handles the same as Priority 1, 2, and 3. Foreign exchange will be required for 1 truck, 1 roller, plus handtools.

Identification and Description of Roads

1. Yambio/Gongura Road

This is a 3 meter existing road leading from the cathedral in Yambio to the Zaire border, a distance of 29 kilometers. Soils are laterite. The existing road is deteriorated by truck traffic from Zaire, local traffic and overhanging trees which prevent quick drying out of the road pavement. The resulting effect is deep ruts and water ponding. No ditches or culverts except for an 8 meter bridge over the Uzey river at kilometer 8 and a 3 meter bridge at kilometer 17. It is proposed to rehabilitate the road in its entire length. A market exists at kilometer 18. At kilometer 19 is the junction with James Dyko Road. The road is cultivated throughout its length by sorghum, coffee, beans, cassava, and sesame with a major coffee plantation at kilometer 27.5.

a. A Windshiled Survey

0	At cathedral/Yambio		
0.7	Swamp area.	Existing None.	Required 2x600mm
4.9		Existing none.	" "
5.9		Existing none.	" "
7.9	River Uzey	8 m bridge	Required/Reconstruct Deck
10.0		Existing none	Required 600 mm
10.1		Existing none.	" "
11.0		" "	" "
11.8		" "	" "
16.0		" "	" "
17.3		3m bridge	Required/Reconstruct Deck
17.7		Market	
19.1	Police Post,	Junction James Dyko Road	
24.8		Existing none.	Required 600mm
27.8	Coffee Plantation		
29.0	Zaire border		

b. Cost Estimates

Proposed: to reconstruct on existing road deformed by vehicular traffic and erosion.

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
1. Cut trees and clear 10 m r/w	12 km	1000.	-	12000	-
2. Reform existing road	18000 cbm	2.	-	36000	-
3. Strip top soil and place on side	14500 cbm	1.	-	14500	-
4. Excavate side ditches and place laterite	17400	1.50	-	26100	-
5. Form roll road formation	174000 cbm	0.10	-	17400	-
6. Excavate and place laterite part	16000 cbm	2.	-	32000	-
7. Culverts ARMCO 18"x11"	150 1m	15.	80	2250	12000
8. Culverts 600 mm	70 1m	20.	120	1400	8400
9. Culverts 900 mm	20 1m		160	500	3200
10. Culverts 1200 mm	20 1m	30.	200	600	4000
11. Reconstruct 10m bridge 3m wide	1 ea	4500	8000	4500	8000
12. Handtools and concrete mixers			25000		25000
13. Tipper trucks and spare parts (village)	1 ea	1250	56000	1250	56000

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
14. Tipper trucks and spare parts	0.25 ea	1250	56000	1250	56000
15. Water drum roller	0.60 ea		10000		5000
16. Timekeeper	12 mm	70		840	-
17. Roads Supervisor	12 mm	100	-	1200	-
18. Overseer	24 mm	75	-	1800	-
19. Technician	8 mm	150	-	1200	-
20. Engineer	1 mm	500	-	500	-
21. Motorcycles	9 mm	-	250	-	2250
22. Mason/Pipe layer	6 mm	100	-	600	-
23. Food Allowance Force Acct./road	1 ea	6000	-	6000	-
Sub-total				161 800	137 850

c. Commodity List

Based on 120 laborers: mason/1 Pipe layer;
 Construction period 2 years continuous, 3 years seasonal;
 Salaries A/Roads and food allowance;
 Unskilled labor LS.30/month;
 1 tipper truck/roller part-time/tipper truck part-time;
 Handtools: 100 spades, 50 picks, 40 hoes, 40 rakes, 40 sickles,
 40 machets, 20 heavy hammers, 20 crowbars, 40 wheel barrows,
 40 axes for cutting trees, concrete mixer, 20 gravel container/
 5 storage huts.

2. Yambio/Sakure Intersection to Nzara Road

This begins is a 2.5 meter wide with overhanging trees for the first 9 kilometers by a 5 to 7 meter wide road from kilometer 9 to kilometer 20 for a total length of 20 kilometers before reaching the Yambio/Nzara Road at Nzara. Cultivation to a major extent exists in the last 11 kilometers. No ditches or culverts exists except for bridges with a six meter span at kilometer 14, a 7 meter span at kilometer 15 and a 7 meter span at kilometer 18. Some reconstruction of the bridge superstructure will be necessary. It is proposed to upgrade the road in its entire length however the last 11 kilometers require only partial rehabilitation.

a. Windshield Survey

- 0 Sakure Road Intersection
- 5.7 Village
- 6.6 Existing None. Required 600mm
- 11.1 " "
- 11.2 Village Existing Road 5.0m
- 13.8 6m bridge Reconstruct deck Slab
- 15.2 7m bridge " "
- 18.2 7m bridge Raise I beams 30 cm. Construct deck slab
- 19.0 Village
- 19.4 Nzara/Yambio Road
- 20.0 Nzara market

b. Cost Estimates

Proposed: To open up the road from the intersection up to km.11, and to reconstruct the road as necessary from km 11 to km 20.

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
1. Cut trees and clear 10m r/w	11km	1500	-	16500	-
2. Form and exist road	16000 cbm	2.	-	32000	-
3. Strip and replace on side of road	10000 cbm	1.	-	10000	-
4. Excavate side ditches place laterite	15000 cbm	1.50	-	22500	-
5. Form and roll road formation	120000 sqm	0.10	-	12000	-
6. Excavate and place laterite/part	10500 cbm	2.	-	21000	-
7. Culverts ARMCO 18"x11"	120 1m	15.	80	1800	9600
8. Culverts 600 mm	20 1m	20.	120	400	2400
9. Culverts 900mm	20 1m	25.	160	500	3200
10. Reconstruct 6m bridge 3m wide	1 ea	2500	5000	2500	5000
11. Reconstruct 7m bridge 3m wide	2 ea	3000	5500	6000	11000
12. Handtools and concrete mixers			25000	-	25000
13. Tipper truck and spare parts (village)	1 ea	1250	56000	1250	56000
14. Tipper truck and spare parts	0.25 ea	1350	56000	300	14000
15. Water drum roller	0.50 ea		10000		5000
16. Timekeeper	24 mm	70	-	1680	-
17. Roads Supervisor	12 mm	100	-	1200	-
18. Overseer	24 mm	75	-	1800	-
19. Technician	8 mm	150	-	1200	-

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
20. Engineer	1mm	500	-	500	-
21. Motorcycles	9mm		250		
22. Mason/pipe layer	6mm	100	-	600	2250
23. Food Allowance Force Acct./road	1ea.	6000	-	6000	-
Subtotal				139,700	133,450

c. Commodity List

Based on 120 laborers; 1 pipe payer/mason; construction period 2 years continuous; 3 years seasonal; salaries A/Road and food allowance. Unskilled labor LS 30/month. 1 tipper truck, 1 roller part time. 1 tipper truck part time, handtools 100 spades, 50 picks, 40 hoes, 40 rakes, 40 sickles, 40 machets, 20 heavy hammers, 20 crowbars, 40 wheel barrows, 40 axes for tree cutting; concrete mixer; 20 gravel containers; 5 storage huts.

3. James Dyko Road

This is a 2.5 meter existing road 30 kilometers in beginning at the Yambio/Mundri Road 22.5 kilometers east of Yambio and ending at the Yambio/Gongura Road. Cultivation is sorghum, beans, cassava, sesame, and citrus fruits. Main areas of cultivation are from kilometers 8 to 24 with potential agricultural areas along its total length. The main village is between 12 and kilometer 22. The existing road has little vehicular traffic and is mainly used by the local villagers. A bridge at kilometer 28 is impossible and prevents connection to the Gongura road, either by vehicular traffic or bicycles. No ditches or culverts exist except for the bridge at kilometer 28. It is proposed to rehabilitate the road in its entire length. Soils are laterite.

a. Windshield Survey

Existing road 2.5m wide

0	Intersection with Yambio/Mundri Road	
2.9	Existing None.	Required 600mm
11.3	Swamp	Existing log bridge. Required 3x1200 mm. Raise road 60cm
12.4	Village	
21.2	Existing log bridge.	Required 2x900. Raise road 60 cm.
21.5	Chief's House	
28.0	10m bridge (non-functional)	Required deck slab.
30.0	Intersection Yambio/Gungura Road.	

b. Cost Estimates

Proposed: To reconstruct the existing road as necessary:

	Unit Cost			Total Cost	
	(LS)	(US\$)		(LS)	(US\$)
1. Cut trees and clear 10m r/w	12km	750	-	9000	-
2. Reform existing road	10000	2.	-	20000	-
3. Strip topsoil and place at side	15000cbm	1.	-	15000	-
4. Excavate side ditches and place laterite	15000cbm	1.50	-	22500	-
5. Form and roll road formation	180000sqm	0.10	-	18000	-
6. Excavate and place laterite part	16500cbm	2.	-	33000	-
7. Culverts ARMC0 18"x11"	150 1m	15	80	2250	12000
8. Culverts 600 mm	140 1m	20	120	2800	16800
9. Culverts 900 mm	40 1m	25	160	1000	6400
10. Culverts 1200 mm	70 1m	30	200	2100	14000
11. Earthwork for fill embankment	700cbm	4	-	2800	-
12. Reconstruct 10m bridge	1 ea	4500	8000	4500	8000
13. Handtools and concrete mixer		-	25000	-	25000
14. Tipper truck and spare parts (village)	1 ea	1250	56000	1250	56000
15. Tipper truck and spare parts (roads)	0.25 ea	1200	56000	300	14000
16. Water drum roller	0.60 ea		10000		6000
17. Timekeeper	12 mm	70	-	840	-
18. Road Supervisor	12 mm	100	-	1200	-
19. Overseer	24 mm	75	-	1800	-
20. Technician	8 mm	150	-	1200	-
21. Engineer	1 mm	500	-	500	-
22. Motorcycles	9 mm	-	250	-	2250
23. Mason/pipe layer	6 mm	100	-	600	-
24. Food Allowance Force Acct./road	1 ea	5600	-	5600	-
Subtotal				146,240	160,450

c. Commodity List

Based on 120 laborers, construction period 2 years continuous; 3 years seasonal; Road salaries and food allowance; unskilled labor LS 30/month. Handtools 100 spades, 50 picks, 40 hoes, 40 rakes, 40 sickles, 20 heavy hammers, 40 wheel-barrows, 20 gravel containers, 20 axes for tree cutting, 1 concrete mixer, 5 storage huts.

4. Yambio/Bangazagini Road

This begins from a point east of Yambio on the Nzara Road with a 3 meter wide road up to kilometer 6 (junction to hospital) then continues as a 2.5 meter road to Bangazagini. The total road is 125 kilometers long. An agricultural extension demonstration plant is at kilometer 2, some 0.6 kilometers off the road. No ditches or culverts exist except for a 6 meter bridge at kilometer 4, an 8 meter long bridge at kilometer 27, a 3 span bridge with each span for 10 meters at kilometer 57 and an unusable 5 meter bridge at kilometer 57. Cultivation is found in the first eight kilometers of the road and at dispersed intervals throughout the remainder. A dispensary exists at kilometer 79. Between kilometers 8 and 70 the overhanging trees prevent the road from drying out. It is proposed to clear trees and vegetation up to kilometer 70 in a 10 meter wide right of way and to install drainage including reconstruction of bridges so as to allow an all-weather road to be open to traffic at all times.

a. Windshield Survey

Existing road 3.0 m wide

0	Intersection with Yambio/Nzara Road	
1.7	Agriculture Extension Demonstration Plot	
3.9	6 bridges.	Reconstruct deck.
5.8	Junction to hospital	
5.8	Exist road 2.5 m	
8.4	Existing none.	Required 450 m.
55.8	Existing none.	Required 600m.
56.6	8m log bridge.	Replace with 4x1200 mm
56.7	3 span bridge 30 m long.	Reconstruct deck.
56.8	3m broken log bridge.	Replace with 4x1200 mm
67.7	Existing none.	Required 600 mm
71.6	Existing none.	Required 600 mm
71.7	Swamp	Existing none. Required 600 mm
79.0	Dispensary	
85.7	Existing none.	Required 600mm
113.2	Existing none.	Required 900mm
125	Njanga	
130	Bridge log on log.	Replace with new bridge.
152	End of road.	

b. Cost Estimate

Proposed: To insure an all-weather dry road by cutting down trees and high undergrowth in the first 70 kilometers and to construct or reconstruct culverts.

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
1. Cut trees and high undegrowth	60 km	1000	-	60000	-
2. Culverts 600 mm	30 1m	20	120	535	3600
3. Culverts 900 mm	8 1m	25	160	200	1350
4. Culverts 1200 mm	60 1m	30	200	1800	12000
5. Handtools and concrete mixer			13500		13500
6. Reconstruct bridge 6m span	1 ea	2500	5000	2500	5000
7. Reconstruct bridge 3x10m spans	1 ea	12500	20000	12500	20000
8. Tipper truck and spare parts	0.05 ea	1250	56000	65	2800
9. Mason/pipe layer	4 mm	100	-	400	-
10. Food Allowance Force Acct./road		500	-	500	-
Sub-total				78,500	58,250

c. Commodity List

Based on 100 laborers, 1 mason/pipe layer; construction period 2 years, unskilled labor LS 30/month, one tipper truck part-time for concrete supplies; handtools: 50 spades, 50 picks, 30 hoes, 30 rakes, 10 heavy hammers, 30 sickles, 30 machetes, 30 axes for tree cutting, 10 gravel containers, concrete mixers, 20 wheel-barrows, 4 storage huts.

5. Yambio/Sakure Road

This is a 2.5 meter existing road which is used mainly between kilometers 0 to 8 and 20 to 46. It is proposed to rehabilitate only the first 8 kilometers of the road. PDU has a coffee area at kilometer 1. No ditches or culverts exist except for major bridges of an 8 meter span at kilometer 1.4 and 18 and a 5m bridge at kilometer 13. The intervening section is undeveloped and possesses trees and wildlife. The road is choked with hanging trees and has some unusable log bridges. Cultivation efforts to kilometer 8 mainly produces coffee. The road to Gongura and Yambio is at kilometer 23 and to Nzara at kilometer 28.

a. Windshield Survey

Existing Road 2.5 m.

0	At cathedral Yambio		
1.3	PDU coffee		
1.4	River	9m bridge. Reconstruct deck.	
1.4		Existing none.	Required 2x900
2.6		" "	" 600mm
6.0	School		
8.8		" "	" "
10.5		" "	" "
12.9		5m log bridge, replace.	Add 2x900mm
		Raise road 50 cm.	
14.5		4m log bridge, replace with 3x1200 mm	
17.8		4m log bridge (broken), replace with 3x1200 mm	
23.0	Junction Gongura Road		
27.9	Junction Nzara Road		
31.0	Village		
33.6		Existing none.	Required 2x900 mm
34.4		" "	" 2x900 mm
41.2	Sakure Village		
41.7	Police Post		

b. Cost Estimates

Proposed: To open up the road from the church in Yambio to km 8

		Unit Cost		Total Cost	
		(LS)	(US\$)	(LS)	(US\$)
1. Cut trees and clear to 10 r/w	8km	1000	-	8000	-
2. Reform exist road	400 cbm	2.	-	8000	-
3. Strip and place on side of road	3500 cbm	1.	-	3500	-
4. Excavate side ditches and replace	4000 cbm	1.50	-	6000	-
5. Form and roll road formation	48000 sqm	0.10	-	4800	-
6. Excavate and place laterite part	4500 cbm	2.	-	9000	-
7. Culverts ARMC0 18"x11"	50 1m	15	80	750	4000
8. Culverts 600 mm	15 1m	20	120	300	1800
9. Culverts 900 mm	15 1m	25	160	360	2500
10. Reconstruct 9 m bridge	1 ea	4000	7500	4000	7500
11. Handtools and concrete mixer		-	8000	-	8000
12. Tipper truck and spare parts (Roads)	0.20 ea	1250	56000	250	11200
13. Water Drum Roller	0.30 ea		10000		3000
14. Timekeeper	3 mm	70		210	-
15. Roads Supervisor	3 mm	100	-	300	-
16. Overseer	6 mm	75	-	450	-
17. Technician	2 mm	150	-	300	-
18. Engineer	0.50 mm	500	-	250	-
19. Mason/pipe layer	2 mm	100		200	-
20. Food Allowance Force Acct./road	1 ea	2000		2000	-
Subtotal				48,670	38,000

c. Commodity List

Based on 120 laborers from other roads; construction period 6 months continuous/road salaries and LS 2000 food allowance; unskilled labor LS 30/month.

Some handtools from other roads if available, 3 storage huts/concrete mixer.

Summary. Technical Specifications

The road sections to be constructed will be 3.5 meter laterite surface 15 cm thick on a 6 meter road formation with trapesoidal ditches on each side. The principle of construction is to use the existing laterite soils from the ditch excavation for the road formation and laterite pavements.

Summary. Construction Process and Implementation Schedule

Construction Process

This shall be labor-intensive with equipment support. Topsoil shall be stripped off the road formation and ditch areas and mounded outside the ditch line to prevent adjacent land area waters from reaching the road ditches in large quantities. The exposed laterite will then be used for the road formation. After consolidation, laterite excavation from the ditches will be used for the road pavement. Long, continuous road grades will be used as much as practical. Care shall be taken with ditch grades. Variable quantities of material excavation from the ditches shall be done through widening of the ditches, not by deeping which affects ditch grades.

Ditch drainage equalization and outletting will be with 18"x11" ARMCO pipes and culverts by 600, 900, 1200 mm ARMCO in single to multiple length. Bridges will generally be reconstructed through removal of existing superstructure and construction of a reinforced concrete slab on the top of the steel plates and/or structural steel beams.

A detailed Implementation Schedule is to be worked out by the short-term road advisor during his first visit.

Summary. Equipment Needs

Basic equipment needs are handtools, concrete mixers, tipper trucks with source origin host country US Code 941 countries for all items except tipper trucks. Preference would be Kenya because of its being adjacent country and the presence of successful labor intensive feeder road program.

Procurement Plan would be ordering of handtools, and concrete mixers, motorcycles and trucks in month 2 with general delivery in month 8 and vehicles in month 12. Based on some 120 laborers

for each of the 3 rehabilitated roads plus additional tree cutting on another, concrete mixing for bridge slabs and later use of tools for maintenance purposes, approximate ordering would be 350 spades, 200 pikes, 150 hoes, 150 rakes, 150 sickles, 150 machetes, 70 heavy hammers, 40 crowbars, 140 wheel-barrows, 70 gravel containers, 130 axes for tree cutting, 6 concrete mixers, 2 water drum rollers, and replacement parts for all. Equipment would be 4 tipper trucks, one for three villages and one for the Area Council plus 3 motorcycles. Procurement of cement, reinforcing steel will be on an as needed basis.

ARMCO pipes would be ordered in month 2.

Summary. Cost Estimates

a. AID (U.S.\$)

(i) Equipment and Vehicles	\$335,750
(ii) Commodities and Supplies	<u>171,325</u>
	\$528,000

b. GOS (Sudanese Pounds - LS)

(i) Construction	LS 575,000
(ii) Maintenance	<u>60,000</u>
	LS 635,000

Financing Procedures

Foreign exchange will be made available for purchasing equipment and commodities. The necessary technical assistance will be funded under the project contract for technical support. All other costs associated with the road rehabilitation will be payable in local currency. These expenses will be mostly for local labor, but some funds will be set aside for contingencies.

The Administrative/Logistics Specialist will assist the Area Council and the short-term road engineer in establishing an account at a local bank and developing local currency payment provision.

The reconstruction of the feeder roads will be probably through contracts between the Area Council and the village council or chiefs.

The Area Council will appoint a foreman and a timekeeper for each road to supervise the villagers. Before commencing the first road, the road engineer will visit other road projects in the South and calculate rates for payment to the village workers for each tenth of a kilometer of road reconstructed. Conceivably, the costs for the labor-intensive roads can be paid under a mechanism similar to the Fixed Amount Reimbursement (FAR) Systems. Three months after construction has started on the prototype road, the road engineer will evaluate the cost per tenth of a kilometer. If price adjustment is necessary it will be made. Then after the road has been under construction at six months, nine months and one year (if necessary) intervals it will be re-evaluated to more actually reflect actual costs. The Yambio/Sakure Intersection/Nzara Road of twenty kilometers will be used as the prototype. When the results of the first cost evaluation after three months of construction are known, the second road to be constructed will commence.

There will be some outside labor brought in to do speciality items such as culverts and bridges until such time that the villages have effectively mastered the required skills.

Maintenance

Maintenance of the road rehabilitated under Phase I will be supported with local currency until the end of Phase I. During Phase I the road engineer will assist the Area Council in devising a maintenance plan to ensure that a recurrent maintenance budget will be created to provide for continued upkeep of the rehabilitated roads. Under Phase II, if necessary, AID will provide some assistance toward the maintenance of Phase I roads at a diminished level of local currency funding.

The maintenance will be carried out using the same labor intensive methods used during reconstruction.

On-the-job training may be necessary for the villagers that will actually maintain the roads. Given the sizeable population located along the feeder roads, it is logical to provide one villager per kilometer for maintenance with one foreman for every ten maintenance persons. It is preferable that the village maintenance person live along the kilometer he maintains. Local currency will fund village labor, supervision and operation and maintenance of a minimal amount of equipments. This activity is not supported with foreign exchange in an effort to minimize the dependence of the district on outside funding sources.

The equipment necessary for road maintenance is shown under the road rehabilitation component. The commodities required to support the labor force will be supplied for Phase I in local currency.

Cost Estimate for Maintenance.

1. AID	No requirements
2. GOS	
a. Supervision	5,000
b. Village labor	35,000
c. POL	10,000
d. Equipment Maintenance	<u>10,000</u>
	Total <u>LS60,000</u>

Logistics, Procurement and Project Administration

A. Forward planning:

The essence of logistical success in the Southern Region is the need to plan procurement far enough in advance to allow for the lengthy delivery times. To the extent possible, those responsible for implementation of the project should be responsible for procurement and logistical planning of goods purchased from abroad and Khartoum. Much delay can be avoided if contractors are required to lay out in their bids a basic plan for procurement of vehicles, generators or whatever large items (bulldozers and other road equipment) are required. Contract signature is not the time to begin logistical planning, especially for a project like the SRAD I which will be at the mercy of the transportation system of the region. The contractor should be required to prove to the contract officer its ability to run a USAID-approved logistical operation.

B. Complexity:

The Region is situated in such a way that the supply system for projects is far from straight-forward. The telephone and telex can straighten out many logistical difficulties - this is not so in Southern Sudan. Added to the communications difficulties and the illegality of radio links to suppliers outside Sudan is the fact that the SRAD I has to deal with the currencies and customs regulations not just of Sudan and the supplier country (say the United States), but also with the regulations and systems of Kenya and Uganda. Supply for the South should be handled for the project by people who know the systems and how it works at different times of the year (dry and rainy) and with several national governments.

C. Tracking:

Orders once placed have to be pursued with procurement agents, suppliers, haulers, customs. No assumption can be made that the supply system to Juba is so well developed so as not to need constant tracking by the interested party. The project has to have this capability.

D. Scale of Operation:

The Juba operation must be built up to handle money, inventories, personnel, issues, shipments, orders and the inevitable paperwork.

It may be that the field staff in places such as Yambio and Rumbek should also be given the capability of maintaining its own supply, inventory and tracking system. Staff in field posts tend to be swamped by the sheer physical supply and maintenance problems which they face.

Getting it to Juba

Much of what a project needs is not available in the Region, at least not a regular basis. There are a number of ways to get things to the South and their feasibility depends upon the nature of the thing and the lead time which be allowed.

A. Khartoum Airport: So long as items are known to be coming from abroad and an agent is so informed, airfreight through Khartoum is feasible. A good agent is vital to any project in the South, however, since once something arrives in Khartoum no one in Juba is likely to hear about it.

The problem which arises in using this form of entry of goods is that there is then no scheduled way to ship commodities to Juba.

B. Port Sudan: If items are shipped to Port Sudan in containers and a forwarding agent meets the container and gets it through the port, this system of supply might be quite effective. Again, the problem is getting things to the South.

In the case of both Khartoum Airport and Port Sudan delivered commodities, travel to the South is problematic. The river transport service is irregular, the railroad to Wau is given to delays and damage to goods, and there is no regular airfreight to Juba.

C. Airfreight Dusseldorf to Entebbe, truck to Juba: This is a new system established by Interfreight and Site Supplies. It is expensive and not completely proven although commodities could be delivered in one to two weeks from receipt of order.

D. Supply from Kenya: The Kenyans have developed a labyrinth of customs regulations which frequently change. Despite major problems, Kenya continues to be the direction from which virtually all projects in the South are supplied and will continue to be supplied for the next few years. Items procured within Kenya are often expensive and of low quality. Transportation through Kenya is characterized by many regulations, delays and charges.

Airfreight: In general, airfreight to Kenya as far as Nairobi is regular and reasonably efficient, provided that there is a good freight forwarder handling commodities in Nairobi. Unfortunately, there is no scheduled airfreight service out of Jomo Kenyatta airport for Juba. All items which are flown to Juba must come on an aircharter basis. Airfreight rates for items flown in range from a high of \$4/kilo for small, light aircraft to \$2.07/kilo for one fully utilized DC-3 (C-47). The degree to which airfreight costs can be cut is dependent on the charterer's capability in finding full loads for the aircraft in both directions - something difficult to do. Container shipments are much more secure and should be utilized to the maximum.

The northern Kenya road route is used for freight of high value and easy disposability: e.g. vehicles. Most bulk items of fuel and cement seem to be transiting Uganda with no difficulties, but high value items can still be lost easily. Insurance for either route is expensive and discourages the purchase of this kind of protection. Almost all items shipped by surface are sent without insurance which run as high as 10 percent of the value of goods.

Inventory Control After Arrival in Juba: Goods which enter the Sudan from outside are of value and they need to be securely stored. Sea vans make excellent storage units and little other storage is available in Juba, Yambio and Rumbek.

Transportation of goods throughout the South is by truck. Roads in the region are bad. SRAD I should contract with a private sub-contractor for its hauling needs, and stay out of the vehicle maintenance and repair business.

Facilities for large vehicle repair are available in Juba and in Nzara near Yambio, but not in Rumbek. Existing facilities could be assisted by the project with special tools and equipment for project specific repair, but with most replacement parts for equipment kept in central project storage in Juba.

PROCUREMENT

The major issue in procurement for the Southern Region is how to get the right item for the purpose. The problem in doing this resides in the difficulties of finding out what is available, defining the needs of the situations and purchasing according to United States Government Regulations.

The project should identify in general the kinds of equipment which will be required for project start-up and initial implementation.

Vehicles

Vehicles in the South suffer from tire deterioration and destruction of the suspension system. Lesser damage attend the drive train and electrical system. For the South, the simpler the vehicle, the better. If an adequate store of parts is available, there is some reason to believe that American vehicles could function in Juba but not elsewhere.

Since vehicles must be selected with awareness of the needs for which they are purchased, the following should be considered:

A. Vehicles should be carefully selected and set up for conditions in Sudan. Many four wheel drive vehicles in the United States are apparently not designed, nor able to work in consistently harsh off-road conditions. There are extra parts which may be added by parts suppliers (e.g. extra shock absorbers) on which would greatly improve the survivability of American vehicles in the Sudan. Diesel engines should be specified because of their relative fuel consumption advantages and lack of emission controls.

B. Air conditioners, automatic transmissions and anything which draws extra power or needs special repair should be left off.

C. The suspension should be that of a truck, not upgraded sedan, with good sized, truck tires with tubes. The body should accommodate five or six people, their luggage and at least one drum of fuel.

The suspension systems should be easily repaired and able to withstand great stress.

D. Vehicles should be written off after 60,000 kilometers. Projects in the South have had some success with a control of procurement held by the Chief of Party working through various suppliers. It is further argued that this is the only viable way in which projects can react rapidly to changing project environment, Ministry policy and USAID requirements.

The procurement system requires careful set-up. The contractor should be responsible for his own logistics and procurement system. The contractor should provide written justification for his selection of major procurement items in terms of Southern Region conditions.

Administration and Management Administrative Officer:

With the employment of qualified local administrative staff in Juba, the routine activities of the project can go along very easily. There is evidence to indicate that with experienced Sudanese leadership, quite adequate local staff can be developed. It is vital that the person in charge of overall administration be capable of handling broad issues including:

A. Accounting: With book-keeping assistance, the administrative officer is going to have to handle the oversight for the expenditure of several millions of dollars. Familiarity with accounting procedure and experience in keeping inventories and records and balancing a set of books is important for this position; the plethora of exchange rates and currencies, the use of PL 480 generated local currency, the need to stay on top of orders from suppliers demands that good records be kept by a professional.

B. Support: The administrative officer needs to be able to leave the office and visit the field sites frequently in support of project activities. The performance of this job is crucial for team cohesion, morale and smooth functioning; the individual selected for the position should be oriented toward field support and not just Juba-centered activities. A lot of energy will be required.

C. Maintenance: Vehicles, generators and house are always coming apart. The administrative officer has to be able to set up a system capable of responding to the need to fix what is broken when it needs fixing.

D. Procurement and Logistics: The administrative officer must have the main responsibility for placing and tracking orders and ensuring that the best possible transportation system is functioning.

The extent that the administrative officer does his work well, the Chief of Party will be free to do other managerial tasks and maintain close contacts with senior Ministry personnel. The position is a key one in the Region and must be filled by an experienced person. A degree in accounting would help as well as experience in establishing an administrative system and conducting a job training program for local staff.

Organization Development:

There is no substitute for constant and patient effort on the part of the Team Leader to lead and to support his team. A conscious team building approach is well worth the cost and is vital in the context of the Southern Region. It would be useful if the USAID project monitors were to take part in some of the sessions in the United States, before departure of the team for the Sudan.

Decentralization and its Effects on Agricultural Development in the Southern Region

Prior to the Regional Government Act of 1980 the Sudan had a central government for most of the country and a semi-autonomous Southern Regional Government based on power granted under the Self-Government Act of 1972. The 1980 Regional Act divided Northern Sudan into five Regions, (Darfur, Kordofan, Northern, Eastern and Central Regions) and defines the power of these Regions and those reserved for the Central Government. This act transferred the responsibility for agriculture pastures and animal wealth from the Central Government to the Regional Government.

The Peoples Local Government Act was enacted in 1981 to effect decentralization within the Regions. The Act, transfers the powers of the provincial authority's newly created area councils. The provincial authorities continues to exercise considerable influence but with contracted powers limited to security, secondment or personnel to the councils and overall administrative supervision.

The annex to the Peoples Local Government Act specifies the powers of the area council as including the following:

1. Storage of necessary water for agriculture and taking precautions to prevent danger of floods and rains.
2. Promotion of agricultural loans and agricultural cooperation.
3. Provision of farming implements and equipment and establishment of agricultural shows.
4. Spreading agricultural culture.
5. Establishment of public parks, open spaces and nurseries.
6. Administration and promotion of forests.
7. Protection of plantations and participation in maintenance, of environment.
8. Conservation of animal wealth and combating of animal and poultry diseases.
9. Establishment, maintenance and improvement of pastures; specification of animal trails and creation of necessary fire lines.
10. Encouragement and establishment of farms for animal and poultry breeding.
11. Establishment of veterinary shows.
12. Inspection of animals used for commercial and domestic purposes.
13. Controlling and licensing ownership of dogs and destruction of harmful animals.
14. Establishment and administration of veterinary dispensaries and dressing stations.

The exact administrative organization of the Area Councils is yet to be fully defined. It is envisioned that a "delegated committee" under the direction of a chairman will be the highest policy making body. Under the delegated committee are six specialized sub-committees, among them agriculture, while the sub-committees are expected to have influence on the operations of the technical departments they will not have direct control over them.

The councils delegated committee has direct control over a chief executive officer, who in turn is responsible for the administration of technical departments and is directly in charge of planning, labor and miscellaneous affairs. The chief executive officer is also the chairman of a sub-committee composed of the heads of the various technical departments and this sub-committee will be responsible for coordinating inter-departmental functions. The Agricultural Department is headed by a chief agricultural officer.

On July 1 1982, a new regional government took office in Juba. This government marks a milestone in the political life of the region because it is the first not dominated by the Dinka-Nuer-Shilluk coalition which ruled in Juba since 1972. The new administration came to office on a platform of accelerating decentralization and devolution of decision-making and resources to provincial and area council governments. The government has the solid support of the major communities of the Equatorias and contains representatives of upper south communities. Yet there are basic tensions within the coalition derived especially from Equatorian demands for redress of the disproportionately small allocation of public resources they feel they suffered under previous regional governments, which may well create political instability. Given the region's very limited resources, it is difficult to see how the new government can meet the demands of its main supporters in the lower south while allocating enough goods and services to retain the adherence of those Dinka, Nuer and Skilluk representatives who voted in its favor. The major policy changes likely to emerge from the project's studies will require for their adoption a strong political base in the regional assembly. It is problematical at this point whether or not the current government will enjoy such a position one or two years into the project should this and policy and institutional reforms envisaged in the project may not be possible.

The recently elected Southern Regional Government has issued a policy statement (see annex i) declaring its commitment to decentralization in accordance with the Local Government Act of 1981. According to this statement a number of responsibilities will be transferred from the RMANR to the area councils, including responsibility for extension, horticulture, veterinary services and forest conservation. The residual role of the RMOA in planning, implementing and managing agricultural development activities is unclear. Decentralization may create a demand for far more technical assistance and administrative and management training than the current project can provide. Given the limited staff, communications and decision-making delays, and the inadequate operating budget of the RMANR currently decentralization may result in major, albeit temporary, dislocations in the present structure and functions of the Ministry.

In May and June of 1982, the provisional government conducted elections for most the area councils and the Southern Regional Government and issued the area councils warrants to operate.

It will however, take some time for the area councils to begin functioning on a effective basis in all districts. The questions of obtaining a sufficient number of qualified staff and the need to raise local sources of revenue on an equitable basis will be major problems.

Initial Environmental Examination

Reference: State 209040 Consisting of Draft IEE by Deputy Bureau
Environmental Officer.
Khartoum 6809

1. Project Description

The purpose of this project is to relieve key policy, production, marketing, institutional and infrastructural constraints to increasing private sector agricultural production, processing and marketing in the Southern Region of Sudan.

Southern Region Agricultural Development Phase I (SRAD I) is the first phase of a proposed 10 year effort on the part of the Southern Regional Ministry of Agricultural (RMANR), with AID assistance, to promote increased small farmer agricultural production and incomes. SRAD I establishes an iterative process of addressing already identified key constraints to the development of the private sector, and key public sector institutional constraints to the effective utilization and management of resources in the public sector; learning from these efforts; continuing to identify specific constraints; and developing additional interventions. The project consists of five related components: (1) Marketing, (2) Farming Systems Research, (3) Budget and Financial Planning, (4) Manpower Development and Utilization, and (5) Area Development. Impact on the private agricultural sector depends upon removing technician production constraints while providing incentives for increased production. The Farming Systems Research component of the project deals with the farm constraints while a Marketing component addresses some of the constraints to ensuring adequate incentives such as policy, physical markets and credit. This component also deals with planning for transportation while a program for the construction of feeder roads is implemented. The SRG's ability to plan and manage the changes required both for dealing with technical production constraints ensuring incentives for increased production and depends upon its ability to utilize the financial and human resources at its disposal. Budget and Financial Planning and Manpower Development and Utilization components are included in the project to address these problems and support the production components. The Budget and Financial Planning component will also play a key part in ensuring that the collection of revenues needed for the public sector does not create disincentives for the private sector. Finally, an Area Development component brings elements of these different components together in two geographic areas in order to determine the extent to which interventions are effective and to identify implications for the design of SRAD II.

2. Major outputs include:

- Development of a Marketing Strategy

- Improvement of the Region's Market System
- Recommendations for agriculture policy reforms
- Improved agricultural budget planning process
- Improved program for training and utilization manpower
- Implementation of Farming Systems Approach to Research
- Feeder Roads Rehabilitation in one district

3. Description of Project Area:

The project area's main distinguishing ecological feature is the vast White Nile drainage system which creates the barrier marsh or sudd, along the effective demarcation between Northern, Arab cultures and Southern, black African ones. In general, the South's higher rainfall gives it a greater natural production potential than the east or west. However, seventeen years of civil disturbances destroyed the limited physical and social infrastructure that had been put in place before independence. The Nilotic tribes or the major ethnic groups, are agro-pastoralists whose existence is finely tuned to subsistence needs and to the potential of the various environments in which they live. Their subsistence systems enable the South's people to support themselves with minimal material inputs. Population distribution varies considerably. While overall population density is low, concentration occurs where road infrastructure has been developed, rain season flooding can be avoided, tsetse exposure is reduced, and more fertile soils are found. The project area's comparatively high crop diversification at the farm level, combined with the high levels of consumption of milk products from cattle (among the Nilotes and other pastoral groups) and the consumption of game, appear to provide many rural inhabitants with diets relatively high in protein. The general picture of diversity of the farm production base does not translate into a picture of regional well-being because of the extreme fragmentation of the area. The tremendous difficulties in transportation and communication both within the region and with the rest of the country, the rudimentary administrative structures (and their low operations capabilities), and the weak revenue base.

4. Justification of Environmental Recommendations

- A. Negative determination for road recommendation/rehabilitation.
Khartoum 5696 constitutes the IEE for the road component of Phase I.
- B. Categorical exclusion meeting the criteria as a class of action not subject to environmental review as per 216.2 (c)(2)(I) and (III) for studies and Technical Assistance. In fact, to the extent appropriate,

studies and Technical Assistance will make use of information being collected in the country environmental profile and preassessment, and existing draft environmentally sound guidelines. To examine environmental effects of future project options to make environmentally sound recommendations.

5. Condition Precedent

The grant agreement includes the following condition precedent covering activities which were not defined early enough to allow review before the obligation of project funds.

1. No funds shall be disbursed under the Grant for project activities other than
 - a. short and long term technical assistance advisors and support thereto (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - b. participant training and support of training institutions (except to the extent such support includes activities directly affecting the environment such as construction of facilities);
 - c. preparation of studies, analyses, plans and reports; and
 - d. feeder road rehabilitation and reconstruction, until the environmental review and analysis of such activities required by AID Regulation 16 have been completed, reviewed by the Regional Legal and Environmental officers and approved by the Mission Director.

6. Use of the IEE

The IEE, as well as supportive documents such as that called for under the condition precedent are intended to provide guidance for incorporating environmental review into design and implementation. It is required that all project personnel become familiar with it as well as other guides which may be provided by the Project Officer.

Annex 17

Project Design

USAID/Sudan

Project Design Team

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Dr. Fred Winch, Agricultural Economist and Farming Systems Research Advisor

Dr. Thomas Ivers, Agricultural Economist

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Mr. Eugene Morris, Project Design

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Mr. Dennis Light, Engineer, REDSO/EA

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Juba : Individuals and Organization contacted.

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Abraham Bandere	Sudan Council of Churches
John Bussman	Sudan Council of Churches
Kosti Maibe	Sudan Council of Churches
Tony Land	AGROSS
Traders	Various

YAMBIO

Cito Hassan	Acting Co-missioner Western Equatorial Province
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Rubena Lumaya Wani	Director YRS
Dr. Kwadwo D. Opare	FAO Advisor YIA
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James Dyko	Village Chief
Thomas	Village Chief
Traders	Various
Grinding Mill Operators	Various
Field Extension Staff	Various

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Enoch Machuock

Anthony Akol Ngot

Jacob Lubai

Traders

Field Extension Staff

Rural Water Supply Unit

Commissioner Lakes Province

Asst. Commissioner - Area Council
Lakes Province

Asst. Commissioner for Agriculture
Lakes Province

Principal Rumbek Agr. Training Center

Various

Various

UNICEF Funded Project

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