

ISN 150

AGENCY FOR INTERNATIONAL DEVELOPMENT  <b>PROJECT PAPER FACESHEET</b>		1. TRANSACTION CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">A</div> A ADD C CHANGE D DELETE		PP  2. DOCUMENT CODE <div style="text-align: center; border: 1px solid black; width: 20px; margin: 0 auto;">3</div>
3. COUNTRY ENTITY <div style="text-align: center; border: 1px solid black; padding: 2px;">SUDAN</div>		4. DOCUMENT REVISION NUMBER <div style="border: 1px solid black; width: 30px; height: 20px; margin: 0 auto;"></div>		
5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; padding: 2px; display: inline-block;">650-0031</div>	6. BUREAU/OFFICE A. SYMBOL <div style="border: 1px solid black; padding: 2px; display: inline-block;">AFR</div>	B. CODE <div style="border: 1px solid black; padding: 2px; display: inline-block;">6</div>	7. PROJECT TITLE (Maximum 40 characters) <div style="border: 1px solid black; padding: 2px; display: inline-block;">Southern Rural Infrastructure</div>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; padding: 2px; display: inline-block;">8</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">2</div>		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; padding: 2px; display: inline-block;">810</div> B. QUARTER <div style="border: 1px solid black; padding: 2px; display: inline-block;">3</div> C. FINAL FY <div style="border: 1px solid black; padding: 2px; display: inline-block;">810</div> (Enter 1, 2, 3, or 4)		

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	2639	89	2728	2639	89	2728
GRANT	2639	89	2728	2639	89	2728
LOAN						
OTHER						
U.S.						
HOST COUNTRY						
OTHER DONOR(S)						
TOTALS	2638	89	2728	2638	89	2728

11. PROPOSED BUDGET APPROPRIATED FUNCS (\$000)											
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE				E. 1ST FY <u>80</u>		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	GRANT	J. LOAN	L. GRANT	M. LOAN		
(1) FN	1038	821		2728							
(2)											
(3)											
(4)											
TOTALS											

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	C. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) FN					2728		<div style="border: 1px solid black; padding: 5px; display: inline-block;">           MM YY            04 81         </div>
(2)							
(3)							
(4)							
TOTALS							

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

2      1 = NO  
          2 = YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE:		15. DATE DOCUMENT RECEIVED IN AID/W OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION  <div style="border: 1px solid black; padding: 2px; display: inline-block;">           MM DD YY            04 23 80         </div>
TITLE: Gordon K. Pierson Mission Director	DATE SIGNED <div style="border: 1px solid black; padding: 2px; display: inline-block;">           MM DD YY            04 18 80         </div>	

## I. Summary and Recommendations

A. Face Sheet - See previous page

B. Recommendations:

1. Grant - a new AID obligation of \$2,727,550 is recommended for a road design project.

2. Waivers - Approval of two waivers is requested under this project:

(a) Waiver of FAA Section 110(a) requiring recipient countries to provide at least 25 percent of project costs is requested. Sudan has been determined by the United Nations and AID to be a "relatively least developed country" and thereby eligible for a waiver of Section 110(a).

(b) Waiver of FAA Section 636(i) to permit procurement of motor vehicles from Geographic Code 935.

Justification for the waivers is attached in the Annexes.

C. Description of the Project

1. Grantee and Executing Agency

The grantee will be the Government of Sudan (GOS) acting through the Ministry of National Planning. Execution of the project will be delegated to the Southern Regional Government (SRG) represented by the Southern Regional Ministry for Public Works, Transportation and Communications (SRMPWTC).

2. Project Summary

The primary purpose of this project is to prepare the final engineering design requirements for the construction of the Wau-Mundri Road in the Southern Sudan.

This project is divided into two tranches (see Chart following p. 48) which will result in a completed package of final engineering design and construction design and construction tender documentation. It should be clearly understood that the first tranche is specifically intended to provide sufficiently firm design factors and cost estimates to permit AID to determine that the requirements of 611(a) have been met. Upon completion of AID review, the A&E firm will continue its work in refining design elements cost calculations, and preparing tender documentation. These bid documents should refer to the following separate but inter-related components which may be undertaken if the Wau-Maudri road is ever constructed:

- the rehabilitation of the 400 kilometer Mundri-Rumbek-Wau road to MCA standards
- the construction and equipping of a provincial equipment maintenance center in Rumbek
- the rehabilitation of SRMPWTC's existing road maintenance fleet in Lakes Province and the purchase of new intermediate technology equipment
- the on-the-job training of SRMPWTC personnel

If a road improvement program were undertaken subsequent to this project, it would benefit about 450,000 people by facilitating the delivery of agricultural inputs and services and by stimulating increased agricultural production resulting from more dependable year-round access to the project area. The need for improving the network is immediate. No meaningful, lasting development will take place in the Southern Region without an all-weather road network.

The design work will be done on two important road segments. One segment stretches north 225 kilometers from the town of Mundri in Western Equatoria Province to Rumbek in Lakes Province. The other segment continues 215 kilometers northwestward from Rumbek to Wau, the capital of Bahr el Ghazal Province and the terminus of the Khartoum/Port Sudan railway.

If this road were ever constructed, it would join with the Juba-Mundri segment, now being upgraded with the assistance of the Federal Republic of West Germany, and a direct all-weather route would be provided from Juba on the Nile River, the regional capital and the largest city of the Southern Region, to Wau, the railhead and the second largest city of the region.

#### D. Primary Findings

This activity focuses extensively on the serious logistical, institutional, economical, and cultural obstacles that this and other AID projects must contend with in the Southern Region.

The Southern Region confronts a variety of formidable problems that the Southern Regional Government, established by the 1972 Addis Ababa Accord that officially terminated the seventeen year Sudanese Civil War, must try to resolve. During the course of the war, the basic physical and institutional infrastructure was virtually destroyed. Schools, hospitals, government offices, and roads suffered severe damage. All government services were greatly curtailed or ceased entirely because of the decimation of trained professionals, lack of financial resources, and a general deterioration of the transportation and communication network. The SRG is grappling with these problems but will need many years before it can restore the institutional capability that existed prior to the Civil War.

Despite its sizeable land area (it is larger than Kenya) and its potential to support a substantially larger population than at present, the Southern Region's food production is grossly deficient. The majority of the population is dependent on subsistence agriculture and has an estimated yearly per capita income of \$80 which is considerably less than the \$300 for Sudan as a whole. Unfortunately, frequent crop failures and inadequate production result almost annually in pockets of famine and near-famine conditions.

The import of necessary food stuffs by the deficit areas is obstructed by an unreliable supply and distribution system characterized by a seasonal road network and a rudimentary river transport system. The period of greatest needs is the rainy season, when the deficit areas are least accessible. Even if adequate materials and trained personnel were available to work toward a solution of the food problem, they would still be held back by inadequate roads.

There is a serious shortfall in trained personnel to fill the demands of re-establishing government services. The war resulted in an attrition of manpower, as many died in the fighting and others left the area to take up new lives; still others have not yet been accounted for. Very few people have been trained to fill these vacated positions, which cover the whole spectrum of government services from health to education to agriculture. As a consequence, shortages of trained personnel in all areas of

expertise block development and should be dealt with.

The scarcity of financial resources exacerbates this region-wide paucity of skilled manpower. The SRG presently has virtually no income-generating capacity and is totally dependent on the central government for the financing of its recurrent and development budgets. The present financial condition of Sudan has necessitated a cutback in budget outlays, especially for development. This response has seriously affected the government's ability, particularly in the Southern Region, to absorb donor-sponsored development projects that require increased recurrent cost contributions. Even development projects whose recurrent cost element is minimal usually require close to 100 percent funding of all foreign currency and local currency costs if the project is to be adequately implemented.

This project is under the jurisdiction of the SRMPWTC, the Ministry for all transport modes in the Southern Region. Like other ministries, it must come to grips with difficult problems. The Roads Department of the Ministry is responsible for the maintenance and rehabilitation of the Southern Region's road network. The Department has approximately 4,600 employees, of whom only 363 can be classified as skilled. Of this latter number, only 17 are engineers.

The Department suffers from insufficient financial resources to fill key administrative and technical positions, and it is unable to adequately maintain its primary roads in an all-weather condition. For these reasons, the Ministry has undertaken no major government road projects in the region for many years. All on-going and proposed projects are rehabilitation works equipped, professionally staffed, supervised, and financed by international agencies, with only minimal financial SRMPWTC involvement but substantial labor support. The SRMPWTC confines its operations to necessary but routine maintenance functions.

SRMPWTC's technical and administrative capabilities are expected to improve substantially during the 1980s in view of the sizeable amounts of technical assistance the Ministry will receive from the project, the UNDP, and other donors (particularly the World Bank). Under the Second Highway Project, signed in February 1979, the World Bank will provide \$6.1 million in technical assistance and maintenance equipment. The project provides 12 expatriates (348 man-months) who will furnish the Ministry with a managerial and technical core of professionals to administer the Ministry's daily operations and establish an extensive training program.

Supplementing the World Bank assistance to the Ministry's central operations in Juba, four other donors are actively engaged in rehabilitation work and the construction of maintenance centers in their areas of activity. They are, in effect, assuming responsibility for rehabilitation with a specific province. Four of the six provinces in the Southern Region are developing maintenance capability by working side by side with the donor teams. A multi-donor effort will probably be the pattern in the Southern Region for some time to come in order to give the SRMPWTC the time it needs to strengthen its institutional capabilities. In the meantime, roads will be improved and maintained and the country will be gradually opened up for development.

## II. BACKGROUND AND DETAILED DESCRIPTION OF PROJECT

### A. Description of Project Area

#### 1. Physical Characteristics

The 440 kilometer project road from Mundri to Rumbek to Wau begins in Western Equatoria Province, passes through Lakes Province, and terminates in Bahr el Ghazal Province. However, Lakes Province, probably the poorest and most neglected province in Sudan, will be the major beneficiary. (See Figure II-1.)

The road crosses through an area commonly called the Ironstone Plateau, which slopes from an elevation of 1,000 meters to 500 meters, where it meets the clay floodplains of the Nile. The soils in this region are formed from ironstone deposits, are mainly lateritic, and are generally acidic. Rainfall in the region averages 900 to 1,300 millimeters, which falls primarily between July and September.

#### 2. Demographic Patterns

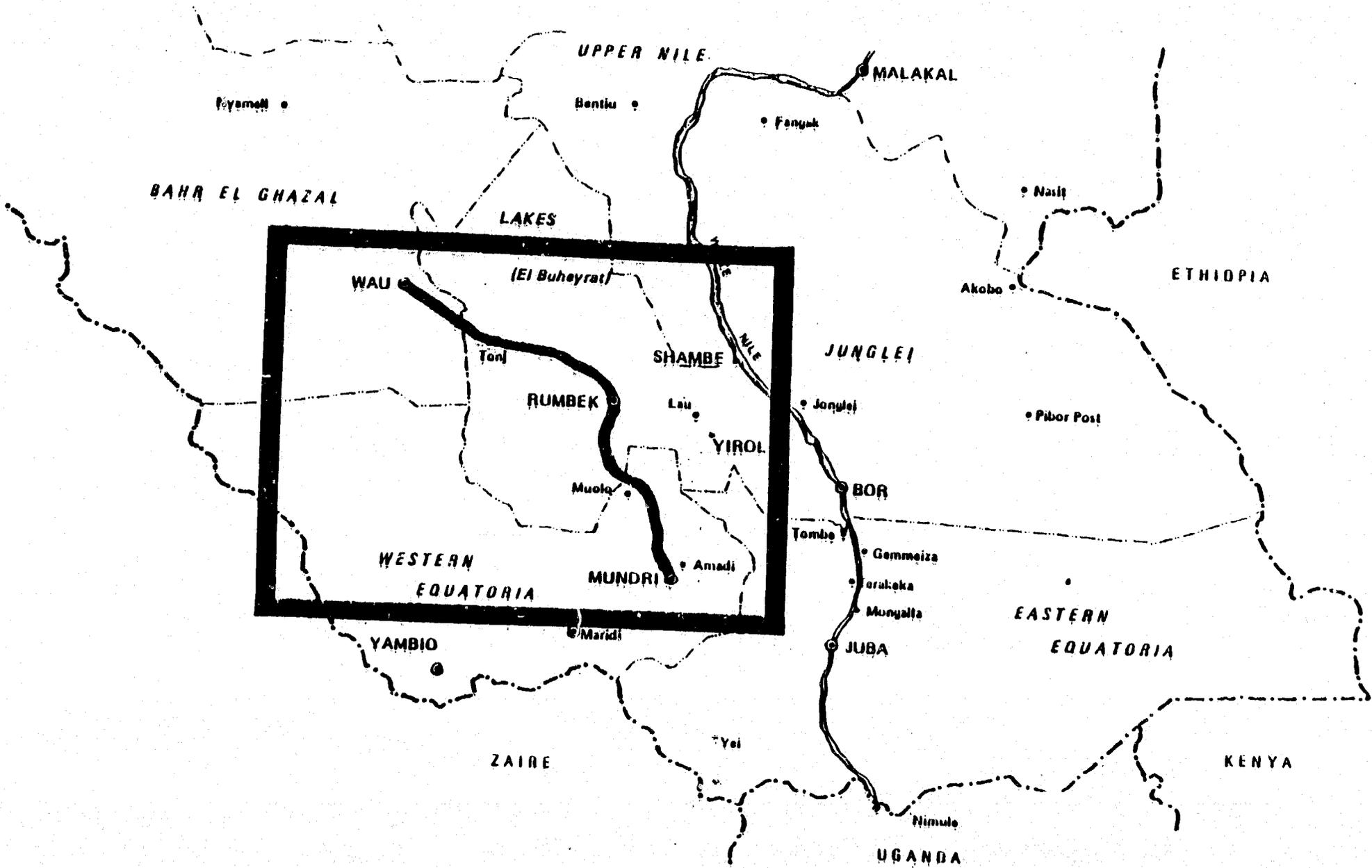
The project road from Rumbek to Wau passes through some of the most densely populated areas of the Southern Region, much of which has a density of more than 25 people per square kilometer. Except for the Mundri-Yeri section, the road segment from Rumbek to Mundri passes through land that is sparsely populated because of the infestation of the tsetse fly.

Of particular importance is that the road will directly serve two of the larger urban areas in the Southern Region, Wau and Rumbek, with 1973 populations of 53,400 and 18,100 respectively. By the year 2005, these cities are expected to have populations of 536,000 and 182,000 respectively. In addition, the project road will link these two urban areas to Juba (population 56,700), the regional capital, which is expected to have a population of 637,000 inhabitants by 2005, twenty years after completion of the project road (see Section III-B).

#### 3. Cultural Characteristics

There are numerous tribes and sub-tribes living along the project road. The sedentary Moru tribe lives in the area around Mundri and Yeri; the Bel tribe, which, like the Moru, primarily cultivates and has off-season bow and arrow hunting activities in the bush area, lives on the plateau around the town of Mvolo. The Dinka, a Nilotic tribe that raises cattle and cultivates some subsistence crops, inhabits the highlands section of the floodplains between Rumbek and Tonj.

FIGURE II-1  
PROJECT AREA MAP



The Dinka are the largest Nilotic group in southern Sudan and constitute approximately 40 percent of the population of the Southern Region. They are divided into twenty-five sub-tribes, three of which are located along the project road: Dinka Agar around Rumbek; Dinka Gok near Cuiebet; and Dinka Rek in the vicinity of Tonj. The Jur, who are primarily agriculturalists, inhabit the area between Tonj and Wau.

#### 4. Economic Activity

##### a. General

The economy of the Southern Region in general, and the project area in particular, is characterized by its weak productive structure, which is primarily of a subsistence nature and, to a large extent, does not have a monetary structure. The causes of this condition are varied and complex and include the physical environment, social conditions, traditional attitudes, and recent history, but from an economic perspective, two factors predominate: (1) the lack of capital accumulation and (2) the seriously deficient transport infrastructure. The first of these factors has resulted in an almost absolute dependence on the Central Government and international donor organizations for public investment. The second has prevented any appreciable interchange of goods and stymied most development efforts within the region. This has caused a state of immobility in the regional economy and continues to keep it at a subsistence level.

As a result, the economy is very dependent on external sources for all modern materials, investment goods, and essential foods. Local production is based on (1) simple agricultural activity, with only minor attempts being made to increase production through mechanization, (2) low levels of commercial livestock offtake, and (3) some agro-processing industrial activity centered around the urban areas of Juba and Wau.

The economic analysis (Annex I) contains a detailed description of the project area and its economic activity.

#### 5. Development Activities

A description of the Southern Regional Government's overall road rehabilitation efforts and the specific development activities in the AID project area are contained in Annex I.

##### B. Background of Project

The Southern Regional Government first approached the AID Mission in Khartoum in February 1978 for assistance in upgrading important segments of its road network. The segment identified was located principally in Lakes Province. A request was also made for an improved maintenance center

and training facility at Rumbek, the provincial capital. Further discussions continued with the government and other donors engaged in similar projects, leading to the development of a Project Identification Document (PID) that was approved by AID/W in March 1979 (see Annex C). A design team consisting of AID/W personnel and Louis Berger International, Inc. was then formed to undertake an in-depth study of the project and to prepare this project paper.

The PID set out the general design parameters for the project and proposed the rehabilitation of approximately 620 kilometers of road, consisting of the segments Mundri-Rumbek-Wau and Rumbek-Yiroi-Shambe. The design team supports the rehabilitation of the 440 kilometer Mundri-Rumbek-Wau section but does not recommend, based on both economic and engineering considerations, that the Rumbek-Yiroi-Shambe road be financed at this time.

Economically, there is some doubt about the future status of Shambe as Lakes Province's principal port, particularly as the Jonglei Canal will terminate at Bor, more than 100 miles to the south of Shambe, and it is therefore quite likely that another river port (possibly Minkaman or Terakeka) will become more important for Lakes Province.

From an engineering point of view, substantially more construction work is required to improve the road to Shambe than is required for the Mundri-Rumbek-Wau road. Soils tests and surveys are needed to determine precisely the extent of construction work required.

Thus, higher construction costs and insufficient economic justification led to the decision to exclude the Rumbek-Shambe road.

### C. Project in Relationship to Development Strategy for Southern Region

#### 1. Southern Regional Government

The policy pronouncements of the Southern Region's Six-Year Plan (1977-1983) stress transport and communications as the "cornerstone" of economic and social development. The access of 450,000 rural people living in the AID project area to critical commodities, market centers, and basic social services depends on a road network that is now only seasonally passable. Even in the dry season, the 440 kilometers of road to be upgraded under this project are in poor condition. However, the link is so important that even under bad conditions ten to fifteen vehicles pass through its checkpoints each day. The inadequacy of this network results in shortages of food, medical supplies, and fuel, scant medical and educational assistance, and limited access for the marketing of surplus commodities such as fish and livestock products.

The Southern Regional Government recognizes the severe deprivation that this inadequate transportation infrastructure causes. For this and other reasons, the area through which the project road passes is referred to as a "Depressed Area." Discussions with government officials clearly indicate that this project responds most directly to the highest priority need of the Southern Region.

## 2. World Bank and Other Donors

All of Sudan has over 3,000 kilometers of gravel (laterite) roads.<sup>1</sup> Most of these are in the south and are badly in need of rehabilitation following two decades of neglect during and after the Civil War (1955-1972). The World Bank and five other donors (West Germany, the Netherlands, Norway, Canada, and the UNDP) currently are assisting the SRMPWTC in rehabilitating important segments of the region's primary road network. Specific projects identified to date for financing are recapped in Table II-1.

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<sup>1</sup> World Bank, Second Highway Project - Democratic Republic of Sudan, Staff Appraisal Report No. 18886-SU.

Table II-1

Road Projects in the Southern Region

<u>Ongoing Projects</u>	<u>Length (kms)</u>	<u>Donor</u>	<u>Status</u>
Juba-Mundri-Maridi- Yambio-Tambura-Wau	1,054	West Germany	Work under way
Juba-Nimule	175	Netherlands	Completed
Juba-Bor-Koigor	300	Netherlands	Work under way
Juba-Torit	135	UNDP/CIDA	Work under way
Mundri-Rumbek-Wau	440	AID	Rehabilitation under review
Renk-Malakal	300	Netherlands	Feasibility study under way
Juba-Torit-Kapoeta- Lokichokio	582	Feasibility study financed by Norway	EDC has made \$10 million commitment; England, Norway, West Germany, Netherlands, and AID are consider- ing financing

The World Bank for many years has played a major role in Sudanese highway construction. Its First Highway Project in 1972, which provided the SRMPWTC with consulting services, technical assistance, equipment, and spares, was the first such assistance for road improvement in the Southern Region. Under the Second Highway Project, signed in February 1979, an important and timely \$6.1 million program will provide the SRMPWTC with the following: 348 man-months (12 individuals) of technical assistance to fill key positions in the Road Department (ranging from senior engineers to plant operators) for three years and to train local counterparts; about 1,300 square meters of workshops, stores, and associated office space and workshop equipment, tools, and office equipment; maintenance equipment including, among other items, mobile workshops and caravans for expatriate staff in the field; and spares and fuel.

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The new World Bank program bodes well for improved maintenance performance of the SRMPWTC in the future, and the sizable amount of multi-donor funding committed to improving the road network is clear proof that transport is in fact the "cornerstone" of development for the Southern Region of Sudan.

### 3. USAID - CDSS

With a per capita GNP of about \$300, Sudan ranks among the twenty-five least developed countries in the world. The six provinces of the Southern Region, with approximately 5 million people, are the poorest of the country. Average income in these provinces may be only two-thirds of that of the rural areas as a whole and one-fourth that of urban areas. It is abundantly clear, therefore, that the people living in the area of this project are among the poorest of the poor. The Southern Region, as the USAID CDSS points out, probably comes closer to a truly subsistence economy than any other region in Africa.

The problems of the Southern Region are staggering. Deprivation of facilities, distance and isolation, and the extent of poverty are enormous. Nearly twenty years of civil war destroyed buildings and the road network, left a generation of people with no formal education, and resulted in a loss of life (such that male twenty to thirty year olds now number only 7 percent of the female age group).

The CDSS gives the highest priority to transportation and manpower, both paramount foci in this project. It states that "without significant improvement in the transportation system, Sudan's entire development program, particularly in the West and South, will grind to a halt." This AID project, the Mundri-Rumbek-Wau road, is specifically mentioned for FY 1979 as part of a multi-donor effort to improve the region's road network. The CDSS continues by saying that "experts and observers without exception agree that transportation is the single most important constraint to development. Repairing the all-weather laterite roads is essential to tying the Region together and linking its population, at least minimally, to non-local markets and government services."

The AID program in the south will expand in the 1980s. The development of new projects in the agricultural and health sectors and the implementation of on-going projects, such as the Southern Manpower Development Project, will definitely be facilitated by this program, not to mention the very extensive efforts of public and private donors in the region.

Development will not come quickly or automatically, because of the skilled manpower and financial constraints found in the regional government. However, improvement of the road system is seen by the government, other donors, and AID as the first step in the development process.

#### D. Detailed Project Description

##### 1. Goal

The goal, to which this and other AID programs are being directed, is

to assist the rural poor in attaining increased levels of rural income and improved general welfare. The project will contribute toward the accomplishment of this goal by addressing one set of interlocking constraints to improving the quality of life in selected areas of the Southern Region, namely the lack of all-weather access between farm communities and market centers.

## 2. Purpose

This project will provide for the final engineering design of a road construction activity which, if undertaken, would provide isolated rural areas with improved access to public and private factors of production and social services.

## 3. Activity Elements

This PP will fund the following scope of work for a two tranche engineering design of the Wau-Mundri road. This engineering design effort will be executed under contract with an A&E firm to be selected following normal agency procedures. The first tranche of this engineering design effort will consist of preliminary design and cost analysis sufficient to provide the information necessary to support a 611(a) determination. The Second Tranche of the engineering design effort will consist of completion of final design, and preparing bid documents. The engineering design contract would include a provision requiring AID approval to continue with the second tranche of the contract.

Actual tasks to be performed by the A&E firm in the 1st tranche are:

- A. Review existing project documentation.
- B. Conduct field surveys and soils investigations necessary for preliminary design.
- C. Review appropriateness of proposed and alternative road standards and cross sections.
- D. Recommend road standards and cross sections to AID and GOS for review and approval.
- E. Inspect existing bridges and drainage structures, determine requirements for repair, modification or new construction.
- F. Review GOS contracting procedures, determine capabilities, recommend assistance if required for GOS construction/supervision contract.
- G. Assess GOS southern region road and equipment maintenance capabilities, review other donor plans for maintenance assistance, determine maintenance assistance required for physical facilities, equipment and technical training for the project.
- H. Develop preliminary design plans/cost estimate to meet 611 requirements.
- I. Recommend discrete road or project segments for possible multi-donor financing.
- J. Review alternative approaches to construction without sacrificing the parameters of sound engineering practice.

For Second Tranche, A&E firm will:

- (1) Conduct field surveys and soils investigations necessary for final design.
- (2) Prepare final road design, plans and specifications.
- (3) Prepare final plans and specifications for physical facilities.
- (4) Prepare bid documents.

It is expected that the A&E firm will complete its task according to the following schedule:

	TIME (MONTH)	TOTAL TIME (MONTH)
A. Prepare scope of work, revise design PP and authorize funding and negotiate contract for A&E	5	5
B. Tranche I A&E firm work (4 field, 2 office)	6	11
C. Review Tranche I and authorize start Tranche II	1	12
D. Complete Tranche II	12	24

### III. PROJECT ANALYSIS

#### A. Technical and Engineering Analysis

##### 1. Background

This project will prepare the engineering design requirements for the construction of a road from Wau to Mundri. Substantial documentation was developed in support of construction, and this documentation is retained herein to provide ample background for the final engineering design.

Each element of the project identified in the PID was examined during May 1979 and under a variety of climatic conditions. A windshield inventory was taken for 100 percent of the road length proposed for rehabilitation. Inventories were also taken of the existing maintenance facilities at Rumbek, Wau, and Juba. Road maintenance camps serving the road were observed.

Other elements related to the project were also evaluated in the regional and provincial capitals and in the bush. An aerial reconnaissance was made of alternative alignments and a road being constructed by another donor as well as the project roads. Relatively new deadlined maintenance equipment observed in the maintenance yards or abandoned near the road was inspected to determine the cause of early retirement. Discussions about a variety of projects in the region were held with government, other donor groups, and private industry representatives to develop a consensus regarding the guidelines for designing a successful project in southern Sudan.

Therefore, this technical and engineering analysis reflects judgment based on observations of the existing field conditions and substantiated, where possible, by the related experiences of at least two other sources operating in the region. This is not a detailed engineering evaluation based on a quantitative analysis of data obtained from standard topographic, soils, drainage, and/or traffic surveys.

##### 2. Road Rehabilitation Project

###### a. Existing Facilities

The existing Mundri-Rumbek-Wau and Rumbek-Yirol-Shambe roads are 3 to 4 meter-wide laterite roads that were built and have been maintained by hand. Existing traffic volumes are estimated to be approximately fifteen vehicles per day. It is the judgment of the team that the Rumbek-Yirol-Shambe road (175 kilometers) should not be included as a part of this project because of engineering and economic factors that are discussed in Section II-A and Annexes G and I.

The Mundri-Rumbek-Wau road's drainage system, surface conditions,

and geometry were noted during the windshield inventory. The results of the inventory are provided in Annex G along with a 1:250,000 scale geographical map of the road. Traffic wear, weathering, and insufficient maintenance have all resulted in deterioration of the road surface and in many cases the entire road formation.

The existing cross drainage system includes about sixty culverts, ten minor bridges, and three major bridges including one 400 meters long. Some of the culverts appear to be unsound; the minor bridges appear to be sound but need repair work on such features as the wing walls, parapets, and handrails, and major bridges appear new and sound. About twenty additional sites where cross drainage culverts may be required were identified. A little over one-half of the road length appears to have adequate lateral drains. Flyoffs should be investigated for the other half of the road to carry surface drainage away from the roadway.

Inadequate surface cover or corrugation of the little remaining cover is the major problem with three-quarters of the road. Pot holes, ruts, and erosion affected movement of traffic on the remaining quarter of the road.

Red lateritic soils were observed on the road surface in approximately three-quarters of the total length. Light brown and yellow soils that do not have good bearing capacities covered the other quarter. This area of the Southern Region is reportedly abundant in such materials as lateritic soils, ironstone, and concretionary gravels, which are suitable for roads. These soils are generally found between 0.10 and 3.00 meters below the surface of the earth in most areas except floodplains and other wetlands. It is estimated that suitable embankment and surface materials will be readily available adjacent to the road or within 5 kilometers of any road segment.

Two-thirds of the terrain can be classified as flat, and one-third as gently rolling. The profile grade line is either depressed or elevated no more than .5 meters except for a total of 20 kilometers through various wetlands areas where the grade rise exceeds 1 meter.

The roadway width varies between 3 and 4 meters as noted above. The cleared area including roadway and drains varies between 10 and 13 meters.

## b. Engineering Design

The geometric design standards are proposed in Annex G. As previously noted, they are based on the government's MCA standards, field observation of existing geometrics, traffic mix, driving habits, terrain, and international design standards for similar roads. Three elements of the design (width, grade rise, and pavement thickness) are discussed below.

First, the MCA road is a 6.5 meter-wide roadway with a designated travelway of 4.5 meters and 1 meter shoulders. One cannot visually differentiate between the travelway and shoulders of a laterite road. However, the designation between travelway and shoulders does reflect driving habits on low-volume roads; that is, virtually all the traffic uses the middle of the road except to pass, which is done on the shoulders (assuming the road is properly maintained). It is proposed that the same select materials be used across the entire 6.5 meter surface since they are abundant in the project area and cost only an additional 5 percent to place and compact to the required density

The question then becomes the necessity for a 6.5 meter travelway. International standards indicate that a 4.5 meter road will adequately serve up to fifty vehicles per day.<sup>1</sup> The project road will exceed this volume in various sections between 1983 and 1990. Therefore, in our judgment, surfacing the entire 6.5 meters with select materials is justified.

The second element, a grade rise, is proposed to protect the road from erosion. A minimum grade rise of 0.35 meters above the surrounding ground level is recommended to protect the roadbed from surface drainage originating from the surrounding area. A 0.35 meter grade rise is thought to be adequate because the geographical maps indicate that the road traverses a small ridge for most of its length.

The pavement thickness, the third element, is proposed to be 20 centimeters of select lateritic materials. This measurement may be more than is required at this time, but again, it is only 5 percent more expensive and it will delay the periodic replenishing operation by five or more years.

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1

National Academy of Sciences, Compendium 1, Geometric Design Standards for Low-Volume Roads, 1978.

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### 3. Rumbek Maintenance Center Project

#### a. Existing Facilities

The existing facility at Rumbek serves principally as a storage compound for deadlined equipment and scrap. The three buildings on the compound have under 200 square meters of floor space. They include two offices, a small stock of tools, construction materials, a few spare parts, and a deadlined motorcycle.

The existing storage area is located about 1 kilometer south of Rumbek on the project road. A detailed description of the facility is provided in Annex G.

#### b. Related Projects

The World Bank Second Highway Project will provide technical assistance, training, workshops, equipment and tools, stores, maintenance equipment, spare parts, and fuel to assist the SRMPWTC strengthen its road maintenance capabilities. Juba will be the designated central workshop capable of major overhauls and repairs. For further information, see Section II-C-2.

#### c. Proposed Maintenance Center at Rumbek

If the GOS proceeds with construction of the Wau-Mundri road, it is proposed that a regional maintenance center be established at Rumbek to serve Lakes Province and to handle routine repairs. The Rumbek center is not intended to duplicate the central workshop in Juba, which will continue to be responsible for the major overhaul and repair of equipment assigned to Lakes Province.

Three types of buildings are proposed for the maintenance center. The Type I building is to be roofed and completely enclosed on all four sides. This building will be of a steel-framed construction with roof trusses and corrugated fiberglass or aluminum roofing and masonry non-bearing walls. Type I buildings will house the control office and classroom, engine overhaul shop, electrical shop, battery room, paint shop, POL office, and generator building.

The Type II building, the general repair shop, will also be a steel-framed building with roof trusses and corrugated roof, but all four sides will be open to allow for easy access while providing adequate cover to protect the repair work.

The Type III buildings will be partially enclosed and the construction will be similar to that of the Type I buildings. The number of walls will depend on the location in the compound and the function of the building. Type III buildings will house the welding and blacksmith shop, radiator repair shop, body repair shop, and carpentry and upholstery shop.

The total covered area to be constructed will be over 1,750 square meters. Certain facilities, such as the general repair shop and machine shop, have been selected for possible future expansion and/or construction.

There are no existing utilities at the storage compound; therefore, a water well and storage tanks will be installed and a sewerage system established as part of the project.

Details of the facility, including a proposed list of workshop equipment and tools, is provided in Annex G.

If the GOS proceeds with construction of the Wau-Mundri road, it is further proposed that technical assistance be provided to the Rumbek Center to advise the provincial roads engineer and his staff on road maintenance throughout Lakes Province and to train government personnel in all aspects of maintenance shop operations, including analyzing problems, making general repairs, ordering spare parts, and keeping records on equipment use and repairs.

#### 4. Road Maintenance

##### a. Existing Methods and Organization

In the seven years since the Civil War, road maintenance has been the responsibility of the government. The road maintenance system consists of ten to twelve man road camps located approximately 10 kilometers apart along the entire road. Each camp is responsible for maintaining its 10 kilometer section of the road by hand. A road supervisor is appointed to oversee four to five work camps and reports to a senior road supervisor, who is responsible for fifteen to twenty road camps. All of these people are technical personnel. Overall road maintenance is under the administrative responsibility of the provincial roads engineer, who is a polytechnic graduate with at least seven years of engineering experience.

Nonetheless, the road has deteriorated, so it must be assumed that the maintenance system has failed. Several reasons have been cited for this failure. Two of them seem noteworthy. First, the civil service laws make it difficult, if not impossible, to use disciplinary action if the road is not properly maintained. Second, the government is often months behind in meeting the laborers' payroll; therefore, instead of maintaining the roads, the laborers often use their productive time to engage in subsistence farming in order to feed their families.

b. Proposed Program

If the GOS proceeds with construction of the Wau-Mundri road, it is proposed that technical assistance and equipment be provided so that the government's road maintenance methods can be upgraded from labor intensive to an intermediate technology using agricultural tractors pulling maintenance equipment and oxen pulling carts in support of manual labor crews. It is evident that reliance on presently used labor-intensive techniques has failed and that heavy equipment is too advanced for road maintenance in the Southern Region -- an inordinantly large number of relatively new machines are deadlined for minor problems or because of broken parts that "never break."

It is proposed that the government's organizational framework for maintenance be modified to effectively control the use of the new techniques. The routine maintenance work would be organized by an expatriate road engineer and divided into two categories of maintenance crews. The first, surface maintenance crews (three members), would be responsible for maintaining riding quality: the intended grade and cross section. They would be organized and trained to make semi-annual passes over the road with agricultural tractors pulling scarifiers, moldboards, and compactors. One crew would be assigned to each senior road supervisor and would maintain about 150 kilometers of road.

The first reshaping crew would be recruited and begin on-the-job training when the first 100 kilometers of road is turned over to the government from the contractor. The second and third crews would begin on-the-job training one and two years thereafter, respectively.

The second, general maintenance crews (twenty-two members), would be responsible for assisting the surface maintenance crews when in their area in stockpiling materials, handpatching, hand ditching, culvert cleaning, and bush cutting. The general maintenance crews would replace the existing maintenance camps system and will be responsible for 20 kilometers of roadway. The first five crews would begin when the first 100 kilometers of road is turned over to the GOS. An additional nine crews would be added a year thereafter, and the final eight crews would begin work another year later. The training program for the general maintenance crews would concentrate on teaching proper maintenance techniques to the road supervisor, and through him, to the person in charge of each crew.

Finally, it is proposed that the technical assistance team establish a pilot project to train livestock (which are abundant in the project area) to support the general maintenance crew by pulling carts loaded with surfacing materials from the borrow area to the stockpiles along the

road or for hauling hand tools and laborers to and from their work camps and work site. The objectives of the program are to decrease maintenance costs and the burden placed on the laborers so that their productive time can be used more effectively on road repair work.

## B. Economic Evaluation

The economic analysis of this project is Annex I herein; it assumes that the roads are subsequently constructed. Included therein is a summary of total road benefits, consisting of both road user benefits and agricultural benefits. The internal rate of return is estimated to be 16.77%, using a discount rate of 10% (as used by the IBRD). Nevertheless, as one of the principal tasks of this project is the more precise definition of construction costs, it is not possible to make a thoroughly accurate economic analysis at this stage. Suffice it to say that in an engineering context, the expenditure of \$2.7 million on the precise engineering of such a road would likely permit savings of at least an equivalent amount to be realized if/when the road is constructed.

The following analysis summarizes sections of Annex I; it is only illustrative of the type of analysis which will be possible to do at the end of this project.

### 1. Methodology

The rehabilitation and maintenance of the 440 kilometer Mudri-Rumbek-Wau road will result in three major categories of benefits:

1. Reduced transportation cost (vehicle operating costs savings)
2. Increased agricultural production induced by improved access to markets, inputs, credit, and technology
3. Improved social welfare resulting from improved access and communication between the currently isolated rural areas and administrative, social, and economic centers of the Southern Region

Economic cost/benefit methodologies are available to quantify the increased income generated by building the proposed road through reduced transport costs and increased agricultural production. Unfortunately, however, neither economics nor sociology has developed an acceptable methodology for quantifying non-income related benefits. Therefore, only road user and agricultural benefits will be quantified in this economic evaluation. The other aspects of social change are extremely important, however, and are discussed in detail in Annex J.

### 2. Road User Benefits

#### a. Approach

The traditional method of evaluating road projects has focused on the savings in operating costs, which accrue to the operators and owners whose vehicles used the improved road. This evaluation method requires

an analysis of existing and future traffic levels (normal, generated, and diverted) and an assessment of vehicle operating costs (cars, buses, light trucks, and heavy trucks). In order to quantify the road use benefits, the total annual traffic levels are combined with their associated vehicle operating costs under two cases: with the road improvement and without the road improvement. The difference between the total annual road user costs for the two cases is the annual net benefit.

## b. Traffic Analysis

### i. Existing Traffic

Traffic analysis in an area such as the Southern Region is extremely difficult. Because of the very poor road conditions, seasonal weather problems, and frequent petrol shortages, it is difficult to determine existing traffic on the project road.

In the Southern Region traffic data figures are maintained at police posts located at the major activity centers along the road. For the present analysis traffic data were collected at the police posts at Mundri, Mvolo, Rumbek, Tonj, and Wau for the two-week period from April 16 to 30, 1979. Two problems were noted, however: (1) the police record books were often incomplete and (2) based on the design team's observation, police figures consistently underestimated the actual traffic on the road by 30 percent to 100 percent.

The average two-way existing traffic recorded at the police posts was twelve vehicles per day travelling on the Mundri-Rumbek section of the road and fifteen vehicles per day travelling on the Rumbek-Wau portion of the road. As a result of the traffic underestimation, however, these figures have been increased by 25 percent to fifteen and nineteen vehicles per day, respectively.

Based on the police post count, 58 percent of the vehicles on the Mundri-Rumbek section were travelling between Juba and Wau and 42 percent were originating in or were destined for Rumbek. On the Rumbek-Wau portion, 53 percent were originating in or were destined for Rumbek and 47 percent were travelling beyond Rumbek.

The composition of the average daily traffic consisted of: ten light vehicles, 35 percent (Landrovers, Toyota pick-up trucks); sixteen medium goods vehicles, 60 percent (5-7 ton souk lorries); and one heavy vehicle, .5 percent (25 ton Mercedes truck). Typically, four to eight passengers travel in a light vehicle, while the medium and heavy goods vehicles often carry as many as twenty to fifty passengers.

### ii. Traffic Projections

Annual traffic growth depends on a number of factors that cannot be forecast precisely over a twenty-year period. However, based on the analysis of economic and population development trends given in Annex I and traffic

growth rates on the project road between April 1975 and April 1979, future forecasts have been developed for normal, generated, and diverted traffic.

In April 1975 a German consulting firm conducted a traffic count from police post data on the Mundri-Rumbek-Wau road. At that time, average daily two-way traffic on the entire road was less than seven vehicles per day. Since then, according to police post records, traffic has increased on the Mundri-Rumbek section at an average of 16 percent annually and by 22 percent annually on the Rumbek-Wau section. Based on these growth rates, an increase of 10 percent per year in normal traffic on both the Mundri-Rumbek road and the Rumbek-Wau road is a conservative estimate for the period from 1979 through 1985.

For the period from 1985 through 1990, traffic is expected to increase by 12 percent on the Rumbek-Mundri road and by 15 percent on the Rumbek-Wau road. The principal reasons for the traffic increases during this period are three major development projects in the area that will begin operating at close to planned capacity by 1985. They are: the Tonj Kenaf Plant, the White Nile Brewery in Wau, and the Aweil Rice Scheme, north of Wau. Each of these developments will use the project road, particularly the Rumbek-Wau section, for shipping goods and receiving supplies through Juba and Rumbek.

From 1990 to 1995 it is anticipated that traffic growth should decrease to 8 percent a year, and for the remainder of the project period, from 1995 to 2005, it is expected to slow to 5 percent annually. Details of the projected traffic are shown in Table III-1.

Because of the danger of double counting agricultural benefits, only passenger traffic is assumed to be generated. It is estimated that by 1990 buses will be approximately 5 percent of the normal traffic.

The diverted traffic is assumed to be 10 percent of normal traffic on the project road as it is anticipated that much of the Juba-Yambio-Wau traffic will use the project road because it is shorter.

c. Vehicle Operating Costs

i. Costs

The vehicle operating costs used in this analysis are based on investigations carried out by Norwegian consultants in a report on the Sudan-Kenya Road Link published in August 1978.<sup>1</sup> The figures presented in

<sup>1</sup> Norconsult, AS, Kenya-Sudan Road Link Appraisal, 1978.

their report reflect road conditions on the Juba-Torit road in Eastern Equatoria, which are similar to the project road, and in the Transport Road Research Laboratory Report 672, which analyzes vehicle operating costs in East Africa.

These figures have been developed for four representative vehicle classes generally used in southern Sudan: light vehicles (Land-rovers and Toyota pick-up trucks); medium goods vehicles (souk lorries and 5-ton Bedford trucks); heavy goods vehicles (25-ton Mercedes truck); and buses. (No costs have been developed for military vehicles, tractors, or bicycles.) The vehicle operating costs include the standard items, such as fuel, lubricants, tires, spares, and insurance, as well as driver's salary; no costs have been added for accidents. All costs are economic costs and thus exclude duties and taxes.

Based on an examination of the vehicle operating costs, two adjustments were made for this analysis. First, the operating costs for light vehicles on both surface conditions were raised

Table III -1  
Average Two-Way Daily Traffic Projections, 1980-2005  
(rounded figures)

Mundri to Rumbek  
(225 kilometers)

<u>Year</u>	<u>Normal Traffic</u>	<u>Generated Traffic</u>	<u>Diverted Traffic</u>	<u>Total Traffic</u>
1980	17	-	-	17
1985	27	-	3	30
1990	47	2	5	54
1995	69	4	7	80
2000	88	4	9	101
2005	112	6	11	129

Rumbek to Wau  
(215 kilometers)

<u>Year</u>	<u>Normal Traffic</u>	<u>Generated Traffic</u>	<u>Diverted Traffic</u>	<u>Total Traffic</u>
1980	21	-	-	21
1985	34	-	3	37
1990	68	3	7	78
1995	100	4	10	114
2000	127	6	13	146
2005	162	8	16	186

by 50 percent to conform to general Sudanese light vehicle costs. Second, because the original costs were developed in July 1977, they have been adjusted upward by 25 percent to reflect 1979 prices. This increase takes into consideration the devaluation of the Sudanese pound and inflation.

The costs used in this analysis are shown in Table III-2 and reflect the future and current conditions of the project road.

#### ii. Savings

Vehicle operating cost savings are developed by comparing the cost of operating each of the four vehicle types on a worn-down gravel road and a good gravel road. These savings are then multiplied by the traffic percentages of each vehicle type to establish the weighted savings. The savings for each vehicle type are presented in Table III-2.

### 3. Agricultural Benefits

The methodology for evaluating agricultural benefits is called the value-added, or producer-surplus, approach. The basic premise behind this approach is that the improvement of the road will release a critical development constraint and permit a more thorough utilization of an area's physical and human resources. It is assumed that although some development will occur in the absence of the road project, public and private investment will not be as extensive or as successful. The benefits of the road project are therefore quantified as the additional value-added associated with the road-induced higher production levels.

In this analysis, the road project was assumed to bring about increased production in smallholder farming, mechanized farming, and commercial livestock offtake. Benefits of the road project were quantified by projecting the current production levels over the project period both with and without the road. These projections were based on historical trends and expert opinions on the development constraints and potential of the project area. The net production levels were derived by comparing the projections with and without the road for each year of the project period. From this, a benefit stream of the value added of net production with the road project was established by using economic prices and deducting the intersectoral costs.

Ideally, these costs and other investments, such as extension training and technological inputs, should be considered together with the road project to form an integrated rural development project. Given that no such integrated plan exists for the project road, however, a joint investment approach is impossible.

Table III -2

Vehicle Operating Costs and Savings in Southern Sudan, 1979

Vehicle Type	Operating Costs <sup>1</sup> per veh/km (L.S.)		Savings	Percent Traffic		Weighted Savings	
	Good Gravel	Worn-Down Gravel		1985-1990	1990-2004	1985-1990	1990-2004
Light Vehicle	.053	.193	.140	35	25	.049	.035
Medium Goods Vehicle	.119	.403	.284	60	50	.170	.142
Heavy Goods Vehicle	.159	.553	.394	5	20	.020	.079
Bus	.103	.355	.252	--	5	----	.013

<sup>1</sup> Norconsult A.S., Kenya-Sudan Road Link Appraisal, 1978, Vol. I, p. 172

Therefore, because it is unjustified to attribute the total increase in agricultural production to the road alone, only 50 percent of the value-added benefits have been allocated to the road project.

The procedure used for estimating agricultural and livestock benefits of the road project are described in detail in Annex In all cases, an examination of transportation constraints in the project area formed an integral part of the analysis and was the basis for the value-added projections.

a. Smallholder Food Production

Rehabilitation of the project road is expected to reduce both production and marketing constraints in the project area. The impact of technology, including improved extension services, higher yielding seeds, and ox-ploughs will occur much more rapidly with the road project than without it. Furthermore, without the road there will be no incentive to increase crop production much above the subsistence consumption level. It is anticipated that, with the road, marketing channels will develop and the farmers will have an incentive to sell surplus crops.

i. Extension of Cultivated Area

Currently there are approximately 243,000 feddan, which represents an average of .54 feddan per person being cultivated within the primary area of project influence. It is expected that without the road project this ratio will remain constant over the project period; cultivation will still be constrained by manpower; and people will grow just enough food to feed themselves. Land availability will not be a major constraint, however, as the best land is already being cultivated.

The spread of ox-cultivation will probably take place over a twenty-year period and acceptance will vary by area. Rumbek and Wau should generally be major areas of ox-plough development. The spread of ox-plough cultivation will be more rapid with the road, and it is assumed that it will mean an annual 1 percent increase in the number of farmers who use ox-ploughs. This trend results in a net difference of approximately 30 percent in the total area under cultivation by the year 2005, the end of the study period. This amount is over and above the additional cultivation required to feed the expanding rural population, which is expected to occur with or without the road project.

## ii. Increased Yields

The present crop yields in the project area are among the lowest in the Southern Region. Although yield potentials are limited by the soils capability of the Ironstone Plateau, there is significant room for substantial improvement. Currently, the PDU stations are experimenting with the development of improved seed: maize and groundnut seed production is concentrated at Yei, and sorghum seed production is carried out at Halima (near Wau) and to a lesser extent at Rumbek.

In addition, the PDU plans to establish a seed supply and marketing system that ensures delivery to the village level. Under the proposed plan, the districts of Wau and Tonj would be supplied from Halima, and the districts of Mundri, Rumbek, and Yirol would be supplied from Yei. In both cases, the rehabilitation of the project road should have a substantial impact as deliveries from both Yei and Halima would come over the project road.

In the project area improved seeds will be used primarily for groundnuts and sorghum, which will raise yields to an average of 358 kg/feddan for sorghum and 440 kg/feddan for groundnuts. Improved seed adoption is expected to be high in the areas around Wau, Tonj, Cuiebet, and Rumbek but lower in the outlying areas. It is assumed that the annual adoption rate of higher-yielding seeds in the project area without the project road would be .5 percent of the total number of feddan cultivated. With the project road, the annual adoption rate would increase to 1.5 percent; in addition, it is assumed that one-half of the feddan using ox-plough cultivation in any year would adopt higher-yielding seeds.

### b. Mechanized Cultivation

There are three planned mechanized dura schemes of 30,000 feddan each located along the project road: in Yeri, in Amathadol, and in Cuiebet.

The development of these schemes faces significant constraints. As a result, only 200 feddan in each area are under cultivation, and those are cultivated by hand. One of the most important constraints is transport access. An all-weather road is vital to maintain supplies of fuel and spare parts during the cultivation season, which coincides with the rains, which make the roads impassable. In addition, the current transport costs from these areas to the major urban consumer centers of Juba and Wau are extremely high, and this is a significant disincentive to the economic production of dura as it is cheaper to import dura from the north by the subsidized river routes.

It seems quite likely however, that if road construction were to commence, by 1980, the three dura schemes will become feasible by 1985 and that by the end of the project benefit period in 2005 approximately 52,000 feddan will be under mechanized cultivation on these three schemes.

### c. Livestock

It is anticipated that the project road will have two important effects on the development of livestock production in the project area: it will facilitate veterinary and livestock extension work, and it will stimulate livestock marketing.

According to reports, there is an adequate number of veterinarians to cover the region, but the lack of transport and pharmaceuticals frequently prevents them from working. When vehicles and drugs are available, the improved project road will contribute to an increase in the veterinarians' efficiency in providing services to livestock owners. This is particularly true during the wet season, when the cattle are concentrated around the permanent villages close to the project road.

The marketing system is currently operated by local traders on an irregular basis, and all cattle are delivered on the hoof to the major consumer centers. This process is time consuming and also results in the cattle losing weight and sellers receiving lower prices. At present, livestock trading is hampered during the wet season by the muddy conditions; yet it is during this time when the Dirka need to sell their cattle to buy dura. A regular marketing system in the major towns and the introduction of trucks for transporting the cattle to Juba and Wau will be possible with the road project. A decrease in transport costs will also allow a greater range of consumer goods to be made available in the markets, which should provide a cash stimulus to induce pastoralists to increase their livestock sales.

Based on these considerations, projections have been developed that assume that with the rehabilitation of the project road, improved veterinary services, and a better marketing system, the commercial offtake in the project area will increase over the twenty-year period from 1985 to 2005.

C. Social Impact Assessment

1. Incidence of Benefits

If the roads are constructed subsequent to this project, they would result in three main categories of benefits: reduced vehicle operating costs; increased agricultural production induced by improved access to markets, inputs, credit, and technology; and improved social welfare due to improved access communications.

The first category of benefits, vehicle operating savings, will initially accrue to the operators and owners whose vehicles use the roads. The vehicles using the road are primarily Landrovers owned by the government and donor agencies and are usually carrying government officials or development workers; 5-7 ton souk lorries owned by private traders and wholesale merchants, usually carrying local consumer commodities and passenger traffic; and 25 ton Mercedes trucks owned by donor agencies or private transport companies and usually carrying cement, fuel, or dura to support development projects in the area.

The extent to which the cost savings benefits will be passed on by the owners of souk lorries to shop owners, consumers, and passengers will depend on competition. Based on the current monopolistic position of the traders in the project area, initially 75 percent to 90 percent of the vehicle cost savings will be kept by the vehicle owners. However, as goods become more available and vehicle traffic (especially buses) on the road increases, a greater percentage of the cost savings will be passed on to the local consumers. The cost savings benefits for the heavy goods trucks will be passed on more equitably, as the donor agencies using these transport services will buy their own vehicles if they do not receive a fair transport rate. The savings accruing to government and donor agencies will be passed on to the people in the project area, as these savings will allow more money to be spent on actual development work.

The benefits from increased agricultural production in the area will accrue predominantly to the smallholder farmers in the project area; smaller portions will go to merchants and transporters. The smallholders in the area are all subsistence farmers, and the benefits, such as protection from famine and increased consumption, nutrition, and income, will principally accrue to them and their families. Although there currently are not any "rich farmers" in the project area, experience in other parts of Africa indicates that some farmers will be more receptive to new ideas and technology and that income difference will gradually become more pronounced.

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The rehabilitation of the project road is expected to have a series of economic, sociological, and cultural consequences. With improved access, government workers, traders, extension workers, doctors, and teachers will be able to deliver their economic or social services more easily and more frequently. Similarly, the improved road will allow a significant increase in bicycle, motor vehicle, and possibly even ox cart traffic, which will allow local inhabitants easy access to social and economic services located in Rumbek, Wau, and Juba.

In principle, the benefits of improved road access accrue to all the people living along the project road. In practice, however, the extent to which these benefits are enjoyed by any given individual depends on various factors. Benefits from access into and out of the project area will be realized principally by those who are travelling in vehicles--government officials, traders, doctors, teachers, and passengers. It is obvious that these access benefits will materialize only to the extent that people are provided with, or are willing and can afford to spend, money for vehicular transportation.

Other access benefits such as a greater variety of commodities in the market and increased government services in health, education, and agriculture will generally accrue more equitably to all the people along the road.

## 2. Social Consequences

### a. Direct Effects

If the roads are constructed subsequent to this project, they would directly influence the social welfare of the project area: through employment; through the purchases of goods and services; and through land acquisition.

#### i. Employment

In the short run, constructing the roads should contribute substantially to local employment. During the initial three and one-half year rehabilitation phase, the Contractor will require an estimated 49 skilled and semi skilled laborers and 90 unskilled laborers. While it is assumed that most of the former category will be brought in from outside the project area, it is expected that most of the unskilled labor will be hired locally. No additional labor is expected to be required for the actual road maintenance, however, as this will be executed by personnel currently on the SRMPWIC permanent payroll.

It is anticipated that there will not be any problem in finding local laborers, as many young men from the Dinka tribes currently migrate to other provinces in search of work. In fact, a positive aspect of the project will be that many of the local men will work on the project instead of migrating to other areas.

ii. Purchase of Goods and Services

It is expected that the major portion of the funds would be spent on the purchase of construction equipment, materials for the maintenance center, and logistics support for expatriate personnel. These goods would be procured primarily in the United States. A significant amount of the funds, however, will almost certainly be spent in the local area. The magnitude of this spending will depend on the construction laborers' (local and expatriate) consumption patterns.

iii. Land Acquisition

There will be no land acquisition problems caused by the proposed road project as the Southern Regional Government currently owns the existing rights-of-way. Since the proposed plan is to rehabilitate the existing road, no alignment changes are expected. The land required for a maintenance center and expatriate housing in Rumbek currently belongs to the provincial government of Lakes Province, which has agreed to allocate the land for the project. Therefore, constructing the roads would not take any land away from small farmers or out of agricultural production.

b. Indirect Effects

Improving these barely passable roads to Minimum Commercial Access or all-weather standard will also have an indirect impact on the social structure of the project area. It must be stressed, however, that even though roads are a major factor in the rural economy, their mere presence will not automatically ensure social and economic development. The magnitude of change depends on many factors, including: local travel patterns, local social customs, and provision of complementary investments.

Therefore, in order to assess the impact of improved access on rural society, this analysis will examine various social welfare indices in the project area: health, education, family and community life, women, basic commodities, migration, and urbanization.

### i. Health

Because the population is spread over a large area and there is a shortage of trained medical personnel, it is difficult for the government to provide adequate health coverage through hospitals and dispensaries. Thus, the government has embarked on a Primary Health Care Program aimed at providing maximum coverage to the rural population through a preventive as well as curative system at the community level. Under this program existing dressing stations have been upgraded to Primary Health Care Units and additional units are being constructed.

Improved road access to health service facilities will benefit the local inhabitants in the following ways. First, it will make it easier to supply these facilities with necessary drugs and equipment, which are primarily supplied by the Medical Supply Department in Khartoum and transported by train via Wau then trucked to the Rumbek area; drugs requiring refrigeration, however, are flown to the major hospitals in Juba or Wau. Second, it will contribute to better supervision and inspection of the new Primary Health Care Centers as health officials will be able to travel much faster and visit many more facilities. Third, an improved road will facilitate visits to villages by Primary Health Care workers as they will be able to go and return to the centers in one day instead of the current two or three. Fourth, it will increase the probability that vehicle transport will be available to villagers who may require serious medical attention at the provincial hospital.

### ii. Education

The majority of the primary schools are located in the project area, but since most students walk to school, the poor road condition is not a constraint except during the rainy season, when it becomes thick with mud. For secondary and technical schools, distance is a more serious access constraint. It is unlikely that road improvements alone will solve this problem, however, as only the wealthier students could afford bus transportation or a bicycle.

Poor or seasonal road service does adversely affect: administrators' decisions on where to allocate scarce resources; the supply of books and other teaching materials; the willingness of teachers to work in such areas; and the ability of supervisory personnel to inspect the schools. In this respect, the improved road access should have a beneficial impact on the quality of education in the project area.

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### 3. Family and Community Life

Based on development experience in other countries and observations in the Southern Region, improved road access will probably have a significant impact on traditional family and community life. Generally, as more contacts are made with the outside world through education, modern medicine, marketing or travel, a notable decrease is seen in the degree of mutual dependence on the extended family, the clan, or the tribe. This change is part of the development process, but it often causes stress between the older and the younger generations.

These problems, should be offset, however, by an improved quality of life through better nutrition, health care, education, and economic opportunities.

### 4. Role of Women

Because of the death of men during the Civil War and male migration, women make up the largest segment of the adult rural population in the project area. The women are responsible for the day-to-day management of households, fetching water and wood, preparing and processing food, and raising children. Furthermore, they play a major role in preparing the land, planting, weeding, harvesting, transporting, and marketing. Some young Dinka women herd livestock, while others accompany male herders. Less than 5 percent of Dinka women, though, own livestock.

Opportunities to earn a cash income are primarily limited to selling beer, pots, and to a lesser extent, shea butter and soap, vegetables, and baskets. A very few women serve as government-employed midwives, while others are traditional midwives. Employment possibilities for women are severely limited in the formal sector, mainly because of women's lack of educational qualifications. The few who are educated sometimes encounter difficulties, even though the Sudanese constitution grants women equal pay for equal work and equal job opportunities.

A female employee of the Department of Social Welfare in Juba emphasizing women's lack of awareness of their legal rights and poor living conditions reports: "We have many women who are destitute. . . . We need, first of all, to change their social and economic circumstances...to improve the quality of their lives, and to bring their economic life to a normal level, so they can provide for themselves and their children."

Symptomatic of the poor quality of life, about 80 percent of the southern Sudanese women suffer from anemia, which is attributable to nutritional inadequacies and results in a high incidence of spontaneous abortions, premature births, and miscarriages.

Although the project should affect men and women equally, it may in fact place women in a more difficult position, as the children, who usually help them, will be sent to school. In addition, with more opportunities and local incentives given to local farmers to raise crop production, a disproportionate share of the additional labor required will be borne by the women. In order to offset the women's increased workload, extension programs should undertake activities specifically aimed at meeting the needs of rural women, such as providing hand pumps in villages and better tools for land preparation, weeding, and harvesting.

#### 5. Basic Commodities

Commodity shortages are often felt throughout the region, but Lakes Province is an area of particular scarcity. Seasonal variations in the sources of commodity supply, mutually reinforced by production and marketing cycles, and a long-term process of road degradation have led to this state in the province. The dry season route directly supplying Rumbek with goods from the port of Shambe is almost abandoned. Commodities from the northern provinces as well as from Kenya pass through Juba and are then trucked over the Mundri-Rumbek road, and goods from Wau are trucked over the Wau-Rumbek road, but because of the bad condition of the roads, transporters are unwilling to send their trucks over them. As a result, Lakes Province's allocations of critical fuel, oil, spare parts, and medical and veterinary supplies are frequently appropriated by officials in other provinces that are already better supplied.

New roads would result in a more equitable interprovincial distribution of commodities and provide quicker access. Goods arriving by rail at Wau will be more easily transported to Lakes Province. Also, improvement of the Rumbek-Mundri segment will facilitate the distribution of sorghum, which comes via Juba from Renk in Upper Nile Province, throughout the food deficient Lakes Province. Town dwellers ought to be able to obtain a greater variety and more reliable supply of essential commodities. In particular, the rural population will benefit by a more constant supply of food, if supply factors remain constant. In the short term, the purchasing pattern of the rural inhabitants is expected to remain the same. There may be a negative effect in the long term, however, if an influx of cheap manufactured goods replaces the market for locally made items, such as clay pots, baskets, spears, and hoes.

#### 6. Migration and Urbanization

It is possible that the project road may indirectly contribute to increasing migration to the towns located along the route,

such as Rumbek, Tonj, Wau, and Juba, because of the possibility for work. If a better transportation network stimulates job opportunities in urban areas, increased migration will probably result.

A recent survey by Mefit in Wau reveals that migrants come mainly from areas within the same province as the urban center in which they settle. More than two-thirds maintain close ties with their area of origin by observing obligations to relatives and family, such as contributing to and participating in marriage and funeral ceremonies. Over half visit their original home whenever possible. Furthermore, more than half of the migrants send money or gifts to their area of origin, and some (15 percent) do this at regular intervals. Most migrants (82 percent) still maintain land rights, and approximately half even own cattle kept in their original home area. About half express the intent to eventually return to live in their place of origin. Thus, if the project does contribute to migration, it will have some positive features in regard to urban-rural linkages.

#### 7. Spread Effect--Diffusion

An improved road will almost certainly increase rural people's mobility and their number and extent of contacts. This mobility will facilitate the growth of more complex sets of social relationships that cut across family, clan, and tribal units. Furthermore, it will contribute to increasing ties between town dwellers and rural relatives. Enhancing the scope and frequency of social contact means improving the flow of person-to-person communications, which broadens one's knowledge of social, economic, and political topics. In addition, mobility allows people to witness innovations in other areas, thus, a demonstration impact is felt. Diffusion of innovation research in Africa has shown that the greater a person's mobility, the more likely she/he is to adopt innovations.

The project road would also attract more government services and projects to the area because of the ease of access. Improvement in linkages between local-level government bodies and higher levels of decision making and resource allocation is also likely to occur, which should enhance the effectiveness of the government's development effort. Also, administrative ties between the provincial capitals - Wau and Rumbek - and the regional capital will be strengthened by improved accessibility.

The establishment of the Rumbek maintenance center as well as the training of its personnel and others would increase

the capacity of the SRMPWIC. The center would further the SRMPWIC's ability to undertake road improvements, especially in Lakes Province. Moreover, improvement of commodity procurement and logistical support systems of the SRMPWIC central office in Juba would have a spread effect by increasing the Ministry's capacity to support road projects throughout the region.

A detailed social soundness analysis is contained in Annex J.

#### D. Financial Analysis and Plan

##### 1. Summary

The estimated costs of this activity is \$2,727,550. Due to the nature of this project as final design and engineering, AID will be financing the entire amount. It is expected that the GOS will participate in the financing of constructing this road once costs are defined. Other donors are also being solicited regarding possible participation in constructing this road.

##### 2. Project Costs and Disbursements

A summary of project costs and a disbursement schedule are shown in Tables III-3 and III-5. The project costs are shown in 1980 prices.

##### 3. Recurrent Costs

All developing countries are grappling with the serious issue of financing recurrent costs. In Sudan, one of the world's poorest countries, this is a formidable problem and will continue to be so for years to come.

TABLE III-3  
Project Cost Summary

	<u>FX</u>	<u>LC</u>	<u>Total</u>
Tranche I <sup>1/</sup>			
TA	427,150	69,000	496,150
Commodities	32,000	-	32,000
Other Costs	<u>34,000</u>	<u>-</u>	<u>34,000</u>
Sub-total	493,150	69,000	562,150
Tranche II			
TA	1,288,900	-	1,288,900
Commodities	141,500	20,000	161,500
Other Costs	<u>83,000</u>	<u>-</u>	<u>83,000</u>
Sub-total	1,513,400	20,000	1,533,400
Inflation	314,350		314,350
Contingency	<u>317,650</u>		<u>317,650</u>
Total	2,638,550	89,000	2,727,550

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<sup>1/</sup> It is anticipated that the contractor, using Tranche I funds, will make arrangements with a "life-support company" to supply/rent those services/commodities needed, initially, so that the contractor can commence implementation of the project immediately while, at the same time, procuring equipment, with Tranche II funds, for the duration of the project.

TABLE III-5

DISBURSEMENT SCHEDULE

(000 \$ US)

	<u>FX</u>	<u>LC</u>
FY 1980	171,000	48,000
FY 1981	1,897,550	41,000
FY 1982	<u>570,000</u>	<u>-</u>
	2,638,550	89,000

TABLE III-4  
Souther Rural Infrastructure

	<u>PM</u>	<u>Rate</u>	<u>Dollar</u>	<u>PD @ 750 PM</u>	<u>R/T</u>
I. Technical Assistance					
Project Manager	18	8,000	144,000	8,250	2
Road Engineer	16	7,500	120,000	7,500	2
Road Engineer	17	7,500	127,500	2,250	2
Drainage Engineer	5	6,500	32,500	2,250	2
Structural Engineer	11	6,500	71,500	2,250	2
Soils Engineer	16	6,500	104,000	7,500	2
Soils Engineer	12	6,500	78,000	5,250	1
Maintenance Engineer	8	7,500	60,000	2,250	2
Cost Estimator	9	6,000	54,000	-	1
Specs. Writer	6	6,000	36,000	-	
Architect	3	7,500	22,500	-	
Chief of Surveys	15	6,000	90,000	7,500	2
Surveyors	45	4,500	202,500	22,500	6
Drafts persons	<u>88</u>	4,500	<u>396,000</u>	<u>-</u>	
	269		1,538,500	67,500	24
Post differential			<u>67,500</u>		
			1,606,000		

		\$
II. Transportation		
1. U.S.	27 x 500	13,500
2. International	24 x 1,500	36,000
3. In Country	24 x 400	9,600
4. Air charter	6 x 5,000	30,000
5. Per diem		
A. U.S.		1,500
B. Khartoum	3 x 30 x 75	6,750
C. Juba	3 x 30 x 30	2,700
6. Life Support (1st Tranche)	20 x 30 x 100	60,000
7. Shipment of Effects		14,000
8. Shipment of Equipment		5,000
		<u>179,050</u>
III. Commodities		
1. Vehicles (2nd Tranche) (incl. shipment, spares)	5 @ 20,000	100,000
2. Camping equipment, supplies, etc.		43,500
3. Survey equipment		30,000
4. Fuel		15,000
5. Contractor Supplies		5,000
		<u>193,500</u>
IV. Other		
1. Communications		2,000
2. Typing, printing, drafting		10,000
3. Home office support		100,000
4. Maintenance (JAWS)		5,000
		<u>117,000</u>
	Sub-total	2,095,550
Inflation		314,350
Contingency		317,650
		<u>317,650</u>
	Total	<u>2,727,550</u>

If the roads are rehabilitated subsequent to this project, a determination should be made of the total recurring maintenance costs and the ability of the government to finance them. The determination would include an evaluation of the self-help efforts of the Southern Regional Government to strengthen its institutional capacity to finance recurrent costs. Without a meaningful self-help effort, there is little hope that the recurrent cost issue could be resolved no matter how much external financing is available, including local currency generated under the PL 480 Title III program, which is a possibility. Some self-help initiatives could include:

a. Labor-Intensive Maintenance Methods

If the roads are subsequently constructed, two pilot projects should be undertaken to explore ways of reducing the costs of road maintenance. One pilot project would experiment with the use of animals--oxen or cows--to replace machines for routine hauling functions. If the project is successful, the savings in fuel consumption alone would result in greatly reduced maintenance costs. The other pilot project would experiment with the use of cheaper casual labor in lieu of the currently relatively expensive and inefficient permanent labor crews of the SRMPWTC that are paid whether they are working or not. This scheme offers good possibilities for success and could certainly lead to both resource savings and improved maintenance.

b. Improved Budget Administration

This area requires attention. Existing budgets are confusing. All funds for maintenance repair should be included in the recurrent budget, not in the development budget, which in certain cases, is the current practice. Experience in the Southern Region shows that the development budget contains impressive figures but that the actual percentage disbursed is low (23 percent in 1975). On the other hand, the recurrent budget shows high disbursement and is, therefore, a more meaningful document. The recurrent budget should be broken down by province, showing a line item for each road. Actual SRMPWTC expenditure figures are not available to donors. Unless expenditures to a specific project (line item) can be identified and compared to the corresponding budget, the value of the recurrent budget--or any budget--is limited.

c. Road Maintenance Fund

Pursuant to a World Bank requirement, the SRMPWTC is required to develop a plan for establishing a road fund from the proceeds of vehicle licensing fees and/or user taxes to place road maintenance work on a self-financing basis. It is in the interest of all donors to support this plan vigorously.

d. Fuel Fund for Maintenance

The high cost of fuel is the most serious construction constraint facing

the Southern Region. Being a foreign exchange cost, it is doubly difficult for the government to handle on a recurrent basis, even if, for example, local currency counterpart funds (Title III) were available. If development projects in the south are to succeed, the Central Government must increase the flow of fuel to the Southern Region. If that is not done in sufficient volume, then some other financial mechanism should be explored. An example might be the creation of a fuel fund by donors to be used solely for road maintenance.

e. Donor Coordination

A covenant of the project agreement will require the Southern Regional Government to "consult" periodically with all donors engaged in road construction activities to discuss matters of mutual interest.

4. Conclusions

The current budgetary practices of the Southern Regional Government make any financial analysis of recurrent costs exceedingly difficult. Recent SRMPWTC figures covering budgeted recurrent costs (salaries and services) of the Mundri-Rumbek-Wau project road are as follows:

1977/78:	\$ 59,600
1978/79:	\$116,400 (reflects increased government salaries)
1979/80:	\$116,400 (reflects increased government salaries)

An analysis of the budget figures shown above, however, in the context of the theoretical costs of maintaining the project road shows that the SRMPWTC should be paying \$383,400 annually in salaries alone for the thirty-seven road crews (a crew of ten to twelve laborers every 10 kilometers) that are supposed to be in place and working. Assuming the laborers are receiving their salaries, as budgeted, then the assumption can also be made that fewer road crews actually exist and function. The windshield inventory conducted by the design team indicates that, while road crews were in evidence, there were less than the theoretical number of thirty-seven (see Annex G). The number of road crews ultimately required to maintain the completed road will obviously have a bearing on future analyses of recurrent budgets.

The annual recurrent maintenance cost of the Wau-Mundri road, if rehabilitated, is estimated to be \$488,200 (including \$335,200 for labor, \$42,000 for fuel, and \$111,000 for equipment). Assuming that the above recurrent budget figures for 1977/78, 1978/79, and 1979/80 for the road also reflect expenditures for the same years, the recurrent costs beginning in 1986, represents an annual increase of \$372,800, a sizable amount. (This amount is derived from the estimated annual recurrent costs after completion of the project of \$488,200 minus the currently budgeted amount of \$116,400). The overall increase in recurrent costs to the Southern Regional Government, however, is dependent on the development projects in other areas, the number of people presently employed by the SRMPWTC who can be diverted to the project road, and how many additional personnel the SRMPWTC must hire to meet any shortfall in personnel. There is little doubt that the recurrent costs of the road will be a significant burden on the government's overall budgetary

resources. While some cost savings could be expected to accrue from the maintenance pilot schemes, one must conclude that the government's ability to cope with the entire financing of this burden is remote and that such financing will probably have to depend to some extent on external donor assistance.

#### IV. IMPLEMENTATION PLAN

##### A. Administrative Arrangements

This project is under the jurisdiction of the SRMPWTC, the Ministry responsible for all transport modes in the Southern Region. With only seventeen engineers in the Road Department, its capabilities are limited. There have been no major government construction projects in the region for many years. All ongoing and proposed projects are rehabilitation works that are equipped, professionally staffed, supervised, and financed by international agencies with minimal financial SRMPWTC involvement but substantial labor support.

Reflecting the considerable interest by the donor in road rehabilitation works in the Southern Region, SRMPWTC's technical and administrative capabilities are expected to improve substantially during the 1980s. The ministry will also receive sizable amounts of technical assistance and training from the World Bank under a recently signed loan (see Section II-C-2), from the UNDP, from other donors and from the present project.

AID has the authority to implement the project. A full-time engineer will be added to the AID staff and will serve as project manager. As such, he will be responsible for providing and coordinating AID back-stop support to the project. Additionally, he will monitor the progress of the project and assure that work on all activities is progressing as expeditiously as possible and in compliance with the AID project documents.

##### B. Implementation Schedule

Attached hereafter is a bar chart showing the relationship of the various technical inputs required to complete this activity. Below is shown a step-by-step narrative of the major events.

PP submitted to AID/	April 1980
CBD notice published	June 1980
Project authorized	June 1980
RFP issued	July 1980
ProAg signed	July 1980
Contract signed	Sept. 1980
First Tranche starts	Oct. 1980
First Tranche completed	April 1981
AID Review	April 1-30, 1981
Second Tranche starts	May 1981
Field work terminates	Dec. 1981
Second tranche ends	May 1982

SUDAN SOUTHERN RURAL INFRASTRUCTURE 650-0031 | Schedule of Design Services (field time, office time)

	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18																		Field Time	Office Time	Total Time	
	1st Tranche Preliminary Design						AID Nov	2nd Tranche Final Design														
Project Manager	/																			11	7	18
Road Engineer	_____							_____												10	6	16
Road Engineer	_____							_____												4	13	17
Drainage Engineer	_____							_____												4	1	5
Structural Engineer	_____							_____												4	7	11
Soils Engineer	_____							_____												10	6	16
Soils Engineer	_____							_____												7	5	12
Maintenance Engineer	_____							_____												4	4	8
Cost Estimator	_____							_____												2	7	9
Specifications Writer	_____							_____												0	6	6
Architect	_____							_____												0	3	3
Chief of Surveys	_____							_____												10	6	16
Surveyors (3)	_____							_____												30	15	15
Draftspersons (8)	_____							_____												0	88	88
<b>TOTALS</b>																				<b>96</b>	<b>173</b>	<b>269</b>

## 2. Contracting

The A&E contract for final engineering design will be in accordance with all applicable AID regulations pertaining to such contracting. Logistical support for the team will be provided in the following manner:

(1) Tranche I - It is anticipated that the A&E firm will contract with a safari contractor on a short-term basis to furnish all necessary support, vehicles, fuel, tents, food, etc. for all contractor personnel, so that the contractor can commence work immediately.

(2) Tranche II - Immediately after the contract is signed, the contractor will start ordering camping gear, fuel depot material, food items, fuel, etc. for use during the remainder of the contract. The contractor will also procure five foreign source 4-wheel drive vehicles (see waiver request). The contractor will be responsible for the necessary logistic arrangements to support the field personnel during the longer second tranche of field activities.

At the termination of field activities vehicles and field support equipment will be retained in the custody of AID/Juba. Should construction not occur, or be substantially delayed, the equipment and vehicles could be placed at the disposal of other AID financed activities as agreed by AID and the GOS.

### a. Disbursement Procedures

It is expected that payment for all foreign exchange costs will be made through AID's letter of commitment procedures.

## 3. Reports

In collaboration with the SRMPWTC and AID, the contractor will submit the following reports:

- a. *Monthly* Progress Report
- b. An Annual Audit Report of project expenditures
- c. Final Report on project completion
- d. Other reports that may be identified and required at a later date by AID.

### C. Evaluation

One evaluation will be performed for the principal purpose of assessing the project's progress in meeting its objectives. This evaluation will commence 7 months from the date initial conditions precedent to disbursement are met. It will focus on the project's performance in the first tranche and whether any actions are required to head off problems that could arise at a later date.

D. Conditions, Covenants, and Negotiating Status

1. Conditions Precedent

a. The project agreement will contain the standard conditions precedent, including legal opinions and specimen signatures.

b. The project agreement will provide that prior to disbursement of any funds, AID will have entered into a contract, satisfactory to the cooperating country, with a US supervisory engineering firm for performing final engineering design tasks.

2. Covenants

a. Donor Coordination

The cooperating country will covenant that it will call for quarterly consultation meetings with all donors in the Southern Region engaged in road improvement works, to discuss collectively matters of mutual interest.

3. Negotiating Status

This project paper, and specifically the conditions and covenants outlined above, have been discussed in general terms with the Southern Regional Government and the Government of Sudan. Both governments are in agreement as to the scope of the project and the requirements imposed on them by the above conditions and covenants. Negotiations, chaired by the Ministry of Planning in cooperation with the Southern Regional Ministry of Public Works, Transportation and Communications, will be conducted upon project approval.