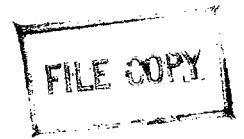


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**Report No. P-3552-SU**

**REPORT AND RECOMMENDATION**  
**OF THE**  
**PRESIDENT OF THE**  
**INTERNATIONAL DEVELOPMENT ASSOCIATION**  
**TO THE**  
**EXECUTIVE DIRECTORS**  
**ON A**  
**PROPOSED CREDIT OF SDR 15.5 MILLION**  
**TO THE**  
**DEMOCRATIC REPUBLIC OF THE SUDAN**  
**FOR A**  
**THIRD HIGHWAY PROJECT**

February 28, 1984

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### CURRENCY EQUIVALENT

Sudanese Pounds (LS)	=	100 piasters
LS 1.00	=	US\$ 0.662
LS 100	=	US\$ 66.2
LS 1,000,000	=	US\$ 662,000

### WEIGHTS AND MEASURES

1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 miles (mi)
1 sq.km (km <sup>2</sup> )	=	0.3886 sq.mi (mi <sup>2</sup> )
1 metric ton (mt)	=	2,205 pounds (lb)
1 liter (l)	=	0.264 gallons (gal)

### GLOSSARY OF ABBREVIATIONS

CAD	=	Civil Aviation Department
EEC	=	European Economic Community
KP	=	Khartoum Polytechnic Institute
LWOST	=	Low Water Ordinary Spring Tide
MCPW	=	Ministry of Construction and Public Works
MFEP	=	Ministry of Finance and Economic Planning
MTC	=	Ministry of Transport and Communications
ODA	=	Overseas Development Administration (UK)
PPU	=	Project Preparation Unit (MFEP)
RBPC	=	Roads and Bridges Public Corporation
RTC	=	River Transport Corporation
SPC	=	Sea Ports Corporation
SRC	=	Sudan Railways Corporation
TPU	=	Training Production Unit of RBPC
UNDP	=	United Nations Development Program
USAID	=	United States Agency for International Development
voc	=	vehicle operating costs
vpd	=	vehicles per day

### GOVERNMENT OF THE SUDAN

#### FISCAL YEAR

July 1 - June 30

S U D A N

THIRD HIGHWAY PROJECT

CREDIT AND PROJECT SUMMARY

Borrower: Democratic Republic of the Sudan  
Beneficiary: Roads and Bridges Public Corporation (RBPC)  
Amount: SDR 15.5 million  
Terms: Standard  
Onlending Terms: Not applicable

Project

Description:

The proposed Project would support the objective of reducing the cost of transport of agricultural and industrial inputs and products by improving road maintenance. In particular, the Project would support improvements in: (a) maintaining the existing road network; (b) transport planning and intermodal coordination; and (c) management, planning and operations in the road sector. The Project would, over a period of four years, strengthen RBPC through: (a) technical assistance and training in management and organization, planning and execution of road maintenance; (b) provision of equipment, spares, limited supplies of fuel and bitumen; and (c) consultancy services for a highway organization and investment study and finance two ferries for the Nile Crossing at Ed Dueim. The main benefits from improved road maintenance would be lower vehicle operating costs resulting from a reduction in the rate of degradation of all roads. The institutional aspects of the project would result in improved transport planning and increased efficiency of RBPC. The two ferries would result in savings in operating costs of vehicles which would otherwise have to travel a larger distance over sandy tracks. Risk affecting achievement of the Project objectives would be failure to fully achieve institutional objectives, due to difficulties in recruiting and retaining qualified technical assistance staff. Problems encountered in these aspects under the ongoing Second Highway Project are being overcome and experience gained should result in a more expeditious implementation of technical assistance components under the proposed Project. A comprehensive implementation schedule, including the timing of steps to initiate project execution, terms of reference and composition of technical assistance teams and their counterparts has been agreed upon.

Summary of Project Cost:

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	-----	US\$ million	-----
<u>Assistance to RBPC</u>			
A. Technical Assistance	0.3	2.1	2.4
B. Training (incl. training equipment, spares & fuel)	0.3	2.1	2.4
C. Equipment, Tools, Spares, & Bitumen	<u>-</u>	<u>5.7</u>	<u>5.7</u>
Subtotal	0.6	9.9	10.5
<u>Ferries</u>	0.2	2.0	2.2
<u>Other Consulting Services</u>			
Highway Organization and Investment Study	<u>0.1</u>	<u>0.7</u>	<u>0.8</u>
Base Cost (October 1983, net of duties and taxes) <u>1/</u>	0.9	12.6	13.5
<u>Contingencies</u>			
A. Physical	0.1	1.1	1.2
B. Prices <u>2/</u>	<u>0.1</u>	<u>2.3</u>	<u>2.4</u>
Subtotal	<u>0.2</u>	<u>3.4</u>	<u>3.6</u>
Total Project Cost	<u>1.1</u>	<u>16.0</u>	<u>17.1</u>

1/ Insofar as taxes and duties apply to the Project Costs, they are negligible.

2/ For local price contingencies, it has been assumed that any excess of domestic inflation over international inflation since December 1982 will be offset by a corresponding depreciation of the Sudanese Pound. Under this assumption, the price contingency of the local cost component, expressed in US\$, is equal to that for the foreign exchange component.

Financing:

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	----- US\$ million -----		
IDA	-	16.0	16.0
Government	<u>1.1</u>	<u>-</u>	<u>1.1</u>
Total	<u>1.1</u>	<u>16.0</u>	<u>17.1</u>

Estimated Disbursements:

<u>IDA Fiscal Year</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
	----- US\$ Million -----				
Annual	1.97	4.27	4.36	3.50	1.90
Cumulative	1.97	6.24	10.60	14.10	16.00

Rate of Return

Road Maintenance Component : 154%  
Ferries : over 100%

Appraisal Report: No. 4290-SU, February 6, 1984

Map: IBRD No. 16809R2



INTERNATIONAL DEVELOPMENT ASSOCIATION

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED CREDIT  
TO THE DEMOCRATIC REPUBLIC OF THE SUDAN  
FOR A THIRD HIGHWAY PROJECT

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1. I submit the following report and recommendation on a proposed Development Credit to the Democratic Republic of the Sudan for SDR 15.5 million (US\$16.0 million equivalent) on standard IDA terms to help finance a Third Highways Project.

PART I - THE ECONOMY

2. An economic mission visited Sudan in January 1983. Its report ("Pricing Policies and Structural Balances") No.4528a-SU of November 10, 1983 has been distributed to the Executive Directors. The findings of the mission are reflected below. Summary tables of social, economic and financial data are presented in Annex I.

Background

3. Sudan, with an area of 2.5 million square kilometers, is the largest country in Africa. It has a population of about 19.8 million (1982 estimate) and is classified by the UN as a least developed country. Per capita GNP is estimated at about US\$460 (1982 Atlas methodology).<sup>1/</sup> Much of the country is unoccupied or very sparsely populated and there is relatively little population pressure on the land. Although much of the country is desert or semi-desert, the Sudan has great untapped potential for agricultural development. About two-thirds of the total land area is suitable for crop or pastoral production, but only a small fraction of this land is under intensive use. The economy is heavily dependent on exports of cotton, the major commodity from irrigated land, and on groundnuts, sesame and gum arabic. The manufacturing sector is relatively small and is limited to processing agricultural commodities such as cotton, oil seeds and sugar and to the production of consumer goods and building materials. A development of potential significance to Sudan's prospects is the discovery of oil reserves in the southwestern part of the country. An export pipeline carrying around 50,000 b/d will be constructed, and export is expected to commence in 1986. The public sector has long been important in the Sudanese economy. It embraces all modern irrigation facilities, the railways, virtually all power and water supply, and a significant proportion of industry, commerce and finance. Although some industrial enterprises are being returned to the private sector, about half of the GDP is still generated within the public sector.

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<sup>1/</sup> Based on the official exchange rates for the period 1978-79 - 1980/81. Based on the exchange rate as of November 15, 1982 of LSD 1.00 = US\$0.769, per capita GNP for 1981/82 would have been about \$278.

### The Current Crisis

4. The most immediate problem facing Sudan is the balance of payments situation. Between 1972/73 and 1974/75, the deficit on current account increased from US\$11 million to about US\$470 million and remained between US\$450 and US\$550 million until 1979/80, when the combination of a doubling of oil prices and a serious decline in cotton production pushed the deficit to over US\$900 million. A further reduction in cotton exports and increased petroleum imports led to a current account deficits of US\$809 million in 1980/81 and US\$1.3 billion in 1981/82. Gross official reserves have fallen to only a few days worth of imports. By end 1982, external payments arrears had accumulated to above \$2.2 billion.

5. The crisis is largely the consequence of inadequate economic management policies compounded by external factors, such as the sharply increased cost of petroleum imports, which have constrained Government's ability to respond quickly with effective remedial action. Adverse developments in foreign trade were accompanied by other adverse forces -- reduced flows of external capital after 1976, mounting debt problems, and absorptive capacity constraints.

6. The rapid increase in the value of imports came about partially because of the sharp increase in oil prices and the steep rate of international inflation, particularly in 1973/74 and 1974/75. There was, however, a sharp rise in the volume of imports between 1974/75 and 1977/78; since then, imports have actually declined in real terms. Exports declined in real terms by nearly 50 percent between 1972/73 and 1981/82. The decline was concentrated in cotton and this occurred because of a shift from cotton to other crops and also because of falling cotton yields. The volume of cotton exports in 1981/82 was less than 15 percent of the 1971/72 level. Transport difficulties and other infrastructural problems contributed to this decline, as did declining maintenance in many public irrigation schemes.

7. The rise in development expenditures after 1973 was financed in large measure by external capital, but because of absorptive capacity problems, disbursements of this capital declined unexpectedly in the mid-1970s, dropping from \$465 million in 1974 to \$332 million in 1977 and 1978. Because of the slow disbursements and accumulating arrears, external donors became less willing to make new commitments. Sudan faced a difficult choice: either to cut back on projects just started or to maintain the projects by running down foreign exchange reserves and borrowing from banks or other sources abroad. The Government decided to try to sustain the development effort by using reserves and by borrowing heavily on relatively hard terms. Annual external public debt service payments falling due increased from \$55 million in 1972/73 to more than \$800 million in 1982/83. The debt service burden as a proportion of exports of goods and services increased from 12 percent in 1972/73 to over 100 percent in 1982/83. This unfavorable debt profile has not only led to a heavy current debt service burden, but also has critical implications for future debt service obligations.

8. The structural weakness in Sudan's public sector finances became increasingly pronounced during the course of the 1970s. Sharp increases in expenditures were not matched by increases in revenue. The consequent sharp rise in public sector demands on the domestic banking system led to a rapid acceleration in the growth of money supply, which reached 44 percent in 1976/77. Although the monetary expansion has slowed in succeeding years, the growth rate over the period 1977/78-1980/81 still averaged nearly 25 percent per year; during 1980/81, the rate of expansion again rose to around 50 percent and, after a slowdown in 1981/82, rose again in 1982/83 by around 30 percent. This contributed to an acceleration in annual price increases from 6 percent in the early 1970s to over 30 percent in the past two years. Most of the increases in current expenditures have been for social and community services, transfers to local government, and general administration. The sharp increases in general administration expenditures were due in large part to rising wages and salaries of civilians in the central government, cost of living subsidies and extra-budgetary expenditures. On the revenue side, tax revenues have increased over the past few years; but since the tax system is relatively inelastic, these increases have been made possible only with frequent new tax measures. Recent changes, such as efforts to increase the relative contribution of direct taxes, should improve elasticity somewhat.

#### Policy Changes

9. Against this background of serious payments imbalances and general economic crisis stemming from structural maladjustments in production and trade, the Government has taken several significant decisions in the last few years to establish financial equilibrium, to restore export growth through appropriate policies and public investments, to improve the performance of the public corporations, and to install an adequate system for management of the nation's external debt.

##### (a) Financial Stabilization and IMF Agreements

10. In June 1978, a stabilization program was announced as part of a Stand-by Agreement with the IMF. The Agreement included a variety of measures to establish a more realistic exchange rate, reduce deficit financing, control foreign borrowing, and improve production incentives, particularly in the irrigated agriculture sector. In May 1979, agreement was reached on similar policy actions that allowed access to a three-year Extended Fund Facility (EFF).

11. In November 1980, the Fund Board approved a second year program under the EFF. Because of non-compliance with agreed targets, the Government was not able to make drawings in the third and fourth quarters of 1980/81. Subsequently, in March 1981, several measures were taken to strengthen the central government's budget, including increases in petroleum product prices, import duties and the prices of cigarettes and liquor. Further measures were taken in November 1981, including (i) a unification of the official and parallel exchange rates at a new depreciated rate of LSd 1.00 = US\$1.11; (ii) removal of budgetary subsidies for petroleum products, wheat products, and sugar; and (iii) measures designed to raise revenues and constrain credit expansion. These measures,

together with pledges at a special Donors Meeting in January 1982 that closed the financing gap in the program, made it possible in the following month for the IMF to approve a one-year Stand-by Arrangement for the Sudan of SDR 198 million. However, this program also lapsed in mid-term because of the Government's inability to comply with all of its conditions.

12. The 1982 Stand-by Arrangement was subsequently cancelled. Further policy measures were taken in December 1982, including a 44 percent devaluation of the Sudanese Pound to LS 1.00 = US\$0.77. The Government also prepared a comprehensive medium-term recovery program, Prospects, Programmes and Policies for Economic Development, 1982/83-1984/85 (see para. 18); this document formed the basis for discussions at the Consultative Group Meeting in Paris in January 1983. The outcome of this Meeting, together with a new debt restructuring package obtained from the Paris Club in February 1983 (see para. 17), enabled the IMF to approve a Stand-by Program for 1983 for a total amount of SDR 170 million. The terms of a new Standby Arrangement for 1984 are under consideration between the Government and the IMF.

(b) Export Promotion and Public Investment Programs

13. An essential aspect of the Government's stabilization program is a concerted drive to increase foreign exchange earnings through increased exports. This is being carried out under the Export Action Program (EAP), initiated in mid-1979. The EAP was designed to raise the volume of cotton exports at an average rate of 7 percent per annum during the period 1979-91. By mid-1981 the actual production of seed cotton had in fact declined further, but 1981/82 saw a substantial recovery with a 50 percent increase in production volume. This improving trend was continued in 1982/83 with a further 25 percent increase, and the total seed cotton production is now close to 85 percent of the original target in the Export Action Program. Several investments in the irrigated subsector are supporting this export recovery. Under the Agricultural Rehabilitation Program (Credit No. 1000-SU of US\$65 million and EEC Special Action Fund Credit of about US\$11 million), funds were made available for urgently needed spare parts and equipment. Several rehabilitation projects will be carried out in the 1980s. The New Halfa Rehabilitation Project, Credit 1022-SU, approved in May 1980, was the first of these, followed by projects for the Blue and White Nile. A rehabilitation project for the largest irrigation scheme, the Gezira, is currently underway. The Agricultural Rehabilitation Program II (Credit No. 1389-SU) provides much needed foreign exchange for purchases of agricultural inputs in the sub-sector. In addition, several policy measures have been taken in the areas of cost recovery, cotton marketing, and institutional reform.

14. Simultaneously with the EAP, the Government reduced the size of its overall development program, as reflected in the Six-Year Plan, to a more realistic level consistent with expected external and domestic financial resources. In 1979 the Government prepared the first Three-Year Public Investment Program covering the period 1978/79-1980/81. This Program has been updated three times; the latest investment program, covering the period 1983/84-1985/86, was incorporated into the updated medium-term recovery program presented to the Consultative Group Meeting held in December 1983.

(c) Public Corporations

15. The Government has taken several actions to help remedy the problems of the public enterprises. The Government has abolished a cumbersome and overly centralized corporate structure in agriculture and replaced it with more autonomous agricultural entities. Organizational reforms have also been implemented in the industrial and commercial sectors as well. During the past year the Government has substantially increased the prices for products of public corporations to improve their financial positions.

(d) Management of External Debt

16. As indicated earlier, Sudan's external debt burden has been quite heavy for a number of years. The total disbursed outstanding external debt at the end of 1983 amounted to around US\$8.0 billion. Scheduled debt service payments for 1984 exceed US\$1.0 billion. During the mid-seventies external debt management was weak, in part because authority to engage in foreign borrowing and the administration of foreign loans was divided among many different ministries. This inefficiency was ameliorated through the decision to vest sole authority for foreign borrowing with the Ministry of Finance. A debt management unit (DMU) in the Ministry of Finance was established in 1979, but this unit has not operated effectively. A new unit, the Directorate for External Finance, is now being established, directly linked to the Minister of Finance's office, to remedy this situation and will be supported by a technical adviser provided by the IMF.

17. Steps have also been taken to deal with the severe debt arrears problems. In November 1979, a Paris Club meeting was held on the rescheduling of Sudan's debt. Participating countries (Austria, Belgium, Denmark, France, Germany, Italy, Japan, the Netherlands, Switzerland, the United Kingdom, the United States) and the Government reached agreement on: (a) a rescheduling or refinancing of amounts falling due before October 1, 1979 and not paid (arrears); and (b) a rescheduling or refinancing of amounts owed for the period October 1979 to June 1981. A further meeting held in March 1982 rescheduled maturities falling due between July 1981 and December 1982. The first payment on this arrangement was made by Sudan, but because of an increasing scarcity of foreign exchange, the Government was unable to discharge the other payments on time. The magnitude of Sudan's debt problem and its inability to pay its rescheduled debt payments led, in October 1982, to the appointment of an "External Finance Coordinator". The first step towards a viable long-term solution to Sudan's debt problem was taken by the Paris Club in February 1983 when it agreed to reschedule all outstanding obligations due up to the end of 1983 over 16 years, with a six-year grace period. Agreements for 1983 payments were made with the commercial banks and other creditors.

New Recovery Program

18. In October 1983, the Government issued a new medium-term recovery program entitled Prospects, Programmes and Policies for Economic Development: 1983/84-1985/86. In addition to a realistic three-year public investment program focused on economic recovery, primarily through

rehabilitation of the export sector and economically efficient import substitution (especially in sugar), this document contained macro projections through 1990/91 that reflect the long-term nature of the recovery process and a set of short and medium term policy objectives covering areas such as foreign trade, production, demand management, resource allocation and external resource mobilization.

19. At the Consultative Group Meeting held in Paris on December 14-16, 1983, the Government presented its updated version of the medium-term recovery program document, and requested program and project aid to support the recovery program. At this meeting, the Government was commended by many donors for the actions taken during 1983 to implement its recovery program. In addition to program aid, a substantial amount of debt relief will also be required to close the balance of payment gap for 1984. The Paris Club is expected to meet on this issue following conclusion of a new Standby Arrangement with the Fund. If the Government builds on the progress which has been made by staying within the terms of the IMF Standby Arrangement, keeping the exchange rate realistic, continuing to encourage agricultural output by maintaining adequate price levels for crops, and by adhering to its announced development strategy for the next several years, a slow but steady improvement in the balance of payments situation can be anticipated.

## PART II - BANK GROUP OPERATIONS IN SUDAN

20. World Bank Group gross commitments to Sudan to date total US\$922.0 million. Of this, US\$33.0 million are IFC commitments. There have been eight loans (two on Third Window terms) and 33 credits for a total of 36 projects. Nineteen projects are under implementation. Over 50 percent of total Bank/IDA lending has been for agricultural development: seven irrigation projects, three rainfed mechanized farming projects, four smallholder development projects; a livestock marketing project; an agricultural research project; two Agricultural Rehabilitation Program Credits, and an agricultural credit project. Projects in other sectors include: three power projects, two education projects, two highway projects, a domestic aviation project, four railway projects, two port projects, two technical assistance projects, and two industrial credit projects. Annex II contains a summary statement of Bank loans, IDA credits and IFC investments as of September 30, 1983.

21. Physical progress in implementing development projects in Sudan has been mixed. Many projects have difficulty in getting key materials - cement, fuel and timber of which there are periodic shortages. Belated delivery of equipment and supplies due to transportation difficulties also affects most projects. The continuing drain of skilled manpower to the Middle East oil rich countries takes its toll on effective preparation and implementation of projects. Largely as a result of these problems, the Savannah Development Project (Credit 718-SU of June 24, 1977) has had to be redesigned into a much smaller pilot project (Credit 1181-SU). Also, the Domestic Aviation Project (Loan 1287-T; Credit 643-SU of July 7, 1976) encountered serious delays and cost overruns and has had to be terminated. There have also been lengthy delays in meeting effectiveness conditions,

mainly because of problems in establishing new institutions or project accounts, hiring key staff, completing necessary legal documentation, or concluding required co-financing arrangements. These problems have been brought to the attention of Government authorities, and steps have been taken to resolve some of them such as in procurement and obtaining legal opinions.

22. The disbursement rate, i.e., actual disbursements during the year as a percentage of the undisbursed balance at the beginning of the year, declined from 23.4 percent in FY78 to 12.1 percent in FY81, but in FY82 the rate improved markedly to 27.7 percent. The FY83 disbursement rate was 25.8 percent, as compared to 24.7 percent for Eastern Africa and 23.4 percent Bank-wide.

#### Assistance Strategy

23. The Bank Group assistance strategy has been to encourage the Government to undertake a broad program of economic reform aimed at addressing the structural imbalances in the economy. We have been working very closely with the Government and the IMF in the development and implementation of Sudan's economic recovery program, which formed the basis for a Consultative Group meeting in January 1983 and a Standby Agreement with the IMF (para. 12). This was followed by the creation of a Joint Monitoring Committee (JMC), where the aid donors and the Government jointly monitor progress in carrying out the program, and continued Bank involvement in reviewing the updated versions of the recovery program and in chairing Consultative Group meetings. In broad outline, this program concentrates Government resources on the rehabilitation of existing capital investments, particularly those which can contribute to expanding export earnings, while restraining investment in new projects. At the project level, IDA has continued to emphasize the rehabilitation of irrigated agriculture, Sudan's major export earner, plus improvements in infrastructure needed to service the agricultural sector. The Agricultural Rehabilitation Program (Credit 1000-SU of April 4, 1980) was effective in providing badly needed spare parts and replacement machinery for the irrigated sector, as well as encouraging the Government to take some important steps toward improving incentives to farmers through better cotton prices and costing arrangements for the irrigated schemes, and the Second Agricultural Rehabilitation Program (IDA Credit 1389-SU) followed up this earlier effort with the financing of recurrent agricultural inputs. We will continue to concentrate IDA lending on the agricultural sector and critical infrastructure during the period ahead, with proposed projects in sugar rehabilitation, cotton marketing, electric power expansion, highway maintenance, and petroleum exploration.

#### Relationship to Other Aid Flows

24. Bank and IDA lending - both new commitments and disbursements - represent about 10 to 15 percent of total aid flows to the Sudan. We expect that this relationship will continue at about the same level during the next several years. Bank and IDA obligations represent about 6 percent of Sudan's total outstanding and disbursed debt. Bank/IDA debt service was only about 1 percent of Sudan's total external debt service falling due in

1983. While this may rise slightly in the next several years, it will remain a very small portion of Sudan's total debt service obligations.

### PART III - THE TRANSPORT SECTOR

25. The Government's strategy for the transport sector is to improve efficiency and rehabilitate existing facilities. In the past, actual expenditures in the transport sector have fallen short of projections (67 percent of planned expenditures between FY1978 and FY1981), but the implementation rate is expected to improve under the new investment program, which is more realistic than previous programs. While the general orientation of the investment program is appropriate, two longer-term problems remain to be addressed: (a) the best means of improving south-north communications, and (b) the means by which the emerging need for inter-modal coordination can be achieved. The south/north communications problem is how to achieve efficient transport over a vast distance at reasonable cost. Although river transport is the lowest cost form of transport as measured in fuel and equipment costs, it is very slow, taking several weeks to cover the 1,450 km from Juba to Kost. Trucks handle most of the traffic, including such low value commodities as firewood, even on unpaved roads. The issue of inter-modal coordination, unimportant until the mid 1970s, when rail was still the prime surface transport mode and the road between Port Sudan and Khartoum an earth track, has since come sharply into focus upon completion of a paved road between these two cities in late 1980.

26. Responsibility for planning and coordination within the transport sector rests with the Ministry of Transport and Communications (MTC) which has no authority over the Roads and Bridges Public Corporation (RBPC) since it was transferred to the Ministry of Construction and Public Works (MCPW). Because of its role in determining financial allocations between sectors, the Ministry of Finance and Economic Planning (MFEP), has established a transport and communications planning unit with assistance from a planning team under a UNDP-financed project, executed by the Bank. The MFEP is involved in evaluating all investment proposals by the various transport agencies. Thus, overall transport planning capacity now exists only in MFEP.

27. Sudan is in danger of substituting road for rail transport even in regions in which rail transport has clear economic advantages. A main sectoral issue in the near future will therefore be the determination of the railway's role in transport, and how rapidly and in what directions the highway network should be expanded. The Government does not have clear views on this but now recognizes that the solution to the railway problems is not simply one of more equipment. It considers that this complex issue should be subject to thorough review. It will be examined in the course of three studies: the ongoing UNDP-financed "Western Sudan Transport Study" executed by the Bank, the proposed "Sudan Railways Action Program" to be formulated with assistance under the Second Technical Assistance Project (Credit 1153-SU), and the "Highway Organization and Investment Study" under the project proposed in this report.

28. The Bank Group's sector strategy will be to encourage Government to concentrate on improving the efficiency with which existing assets are employed, through the Second Port Project (Credit 1233-SU), the ongoing preparation of a possible fifth railway project and through maintenance oriented road projects.

#### Transport Modes

29. Although the railway system of about 4,800 km of 1.067 m gauge, single line track is quite extensive, it fails to meet the demands put upon it. Freight traffic has declined in recent years from a peak of 2.7 billion ton-km in 1971 to 1.5 billion ton-km in 1981, while passenger traffic has fluctuated between 1.0 and 1.3 million passenger-km. The principal role of the Sudan Railways Corporation (SRC) is to transport agricultural products including cotton to Port Sudan for export, and to move imports, increasingly capital goods and construction materials, from Port Sudan to Khartoum and other parts of the country. The corporation handles about one-third of total import and export traffic. SRC's role in internal freight movements has been relatively minor at about 9 percent of the 1980 total. The Fourth Railway Project (Credit 727-SU and Loan 1467T-SU), approved in 1977, has improved locomotive availability, but the operational improvements required to utilize available material to its full advantage have been slower to materialize (para. 44). The completion of a paved highway between Port Sudan and Khartoum in 1980 has provided strong competition from the trucking industry which offers more reliable services, though at higher economic and financial costs. The most pressing problems are the upgrading of technical and managerial skills, including marketing and traffic management, in order to make effective use of the considerable investments sunk in Sudan's railway system.

30. Port Sudan, the country's deep sea port, is managed by the Sea Ports Corporation (SPC). The First Port Project (IDA Credit 781-SU) was recently completed successfully. Implementation of the Second Port Project (IDA Credit 1233-SU), approved in 1982, will provide adequate capacity to at least 1987. With comparatively minor additional investments by 1986/1987 Port Sudan's capacity can be further increased to meet Sudan's port traffic requirements until 1990 or beyond.

31. Air traffic in Sudan has grown relatively rapidly over the past four years despite seriously constrained domestic services. The number of domestic air passengers has more than doubled since 1972 but traffic growth during the last five years has been small and erratic and showed a decline in 1981 due mainly to fuel shortage. International passenger traffic has about tripled in the last five years. Of Sudan's 20 airports, only Khartoum is genuinely all-weather. Strengthening of the runway and taxiways and ancillary works to take wide body aircraft and a program for the upgrading of electronic landing aids and installation of navigational aids and telecommunications equipment for major regional routes are currently in progress.

32. River transport is used on the Kosti-Malakal-Juba (1,450 km) and the Karima-Dongola (290 km) sections of the Nile system and currently accounts for only 1-2 percent of total freight traffic. The Kosti-Juba

section is by far the most important, accounting for about 70 percent of river traffic, and serves as the major surface transport link between southern and central Sudan. Even so, it falls far short of meeting the south's freight transport requirements (para. 25). Use of river transport is constrained by adverse physical conditions, such as shallow water during the 3-4 low-water months, a huge swamp in the south, water hyacinth encroachment, inadequate berthing and cargo handling facilities and by the inefficient services of the River Transport Corporation (RTC) for traffic other than oil products and food which currently receive priority. RTC's fleet has been expanded in recent years with assistance from Norway and the Federal Republic of Germany. Low fleet utilization, attributable to poor operations and maintenance, is compounded by low load factors which are largely the result of the directional imbalance of traffic and the necessity to underload on shallow river sections.

#### The Highway Subsector

33. The development of a highway network in Sudan is of recent origin with 70 percent of the paved roads constructed in the last decade. The road network is not adequate to cover all parts of the country and its condition is very unsatisfactory. Except for the paved roads and gravel roads constructed and improved with financial assistance from bilateral and multilateral aid agencies, most roads are mere tracks which are impassable during the rainy season.

#### Road Transport Characteristics

34. The vehicle fleet increased by 160 percent from 1969 to 1979 but is believed to have increased more slowly since. The main factor has been the construction of a paved road between Port Sudan and Khartoum, completed in 1980. Despite the rapid growth, the average vehicle density of 7 per thousand inhabitants is well below the average of about 11 for Africa. The density is uneven with most vehicles concentrated in the Khartoum, Wad Medani, and Port Sudan triangle. The density in the Southern Region, for example, is only about a sixth of that of the remainder of the country. Trucking operations are largely concentrated in an area bounded by Khartoum, Kost, Damazin and Port Sudan. Important operations also occur between Kost and Malakal, around El Obeid, and between Juba and the southern rail terminal of Wau. Other areas are poorly served and in the west and south, in particular, there are serious capacity shortages. The industry is competitive, being dominated by owner-drivers, with freight rates determined by market forces. Road passenger services are provided almost exclusively by private operators, employing buses of various sizes and modified trucks.

35. Vehicle safety and traffic regulations are satisfactory, but vehicle dimensions and axle load limits appear to be restrictive compared to the demand for larger trucks which may be particularly economical because of the long travel distances involved. In 1981, legislation was drafted to raise the legal axle load limit from 9.2 mt to 10 mt which was however not ratified. A technical committee was recently formed to draft regulations to govern dimensions and specifications of vehicles imports in order to prevent import of vehicles not in accordance with road design.

Efforts to enforce legal axle loads on the roads have failed because of procedural difficulties. The Highway Organization and Investment Study under the project proposed in this report would include a review of the current laws and procedures pertaining to control of vehicle dimensions and weights and those governing vehicle import specifications and recommendations for amendments as necessary and enforcement measures. During negotiations agreement was reached with the Government that it would, by January 1, 1987, take the necessary measures for the regulation of vehicle dimensions and axle loads, including regulation of vehicle import specifications. (Section 4.04, Draft Development Credit Agreement).

#### Administration and Organization

36. The Roads and Bridges Public Corporation (RBPC) is responsible for construction of all roads and maintains paved roads and bridges. The maintenance of earth and gravel roads is the responsibility of the regional governments with technical assistance provided by the RBPC regional managers. Although the RBPC was established as a public corporation, it has no autonomy and functions as a government department. In 1982, responsibility for the corporation was transferred from the Ministry of Transport and Communications to the Ministry of Construction and Public Works. RBPC's organizational structure has too many layers of management while the maintenance division suffers from inadequate staffing. The Highway Organization and Investment Study in the proposed Project would review the existing role of RBPC, define its future functions and recommend improvements to its organization. During negotiations, agreement was reached with the Government that, not later than June 30, 1987, a plan would be implemented to improve the organization of RBPC (Section 3.06(a), Draft Development Credit Agreement).

37. Many RBPC staff lack adequate qualifications for their positions. Turnover is high, particularly among experienced engineers and technicians who move to the private sector or go abroad where salaries are much more attractive. Nevertheless, staffing is excessive. Newly recruited graduates are trained by consultants and contractors working on road projects but few qualified technicians join RBPC because of poor salaries and low prestige. A training program which would be financed under the Project has been designed to help overcome these deficiencies, particularly to strengthen RBPC's road maintenance capability.

38. Highway investment planning is the responsibility of RBPC. Planning is, however, fragmented and carried out mainly on the basis of a series of feasibility studies carried out by various foreign consultants, while participation by RBPC, which is largely staffed by engineers, is limited. RBPC has yet to develop a capability to update road feasibility studies so that priority assessments tend to be based on obsolete feasibility studies. The proposed project includes provision for an experienced transport economist in RBPC to strengthen RBPC's Planning Division.

39. RBPC has a design section in its projects directorate but only minor road improvements and bridges are designed in-house. Detailed engineering of major works is carried out by foreign consulting firms and the main function of the RBPC design staff is to coordinate their work.

40. Construction works are carried out either by RBPC or foreign contractors. Apart from RBPC, which was originally established as a construction corporation, there are no domestic road contractors. Where RBPC has constructed the works as in the case of the Sennar-Kosti road (110 km), it was assisted by a management team provided by consultants.

41. Maintenance. RBPC maintains the paved roads and bridges through regional managers. Each region is divided into two or more districts supervised by district engineers. The present administrative structure for maintenance is satisfactory, but road maintenance has suffered through lack of adequately trained staff and low availability of equipment. Under the First Highway Project, the Association financed equipment and spares for road maintenance. The RBPC has also benefitted from a Japanese credit for purchase of equipment and spares, and British assistance for workshop improvements. Although the equipment fleet is nominally adequate, many items have become unserviceable due to lack of proper maintenance. Equipment availability is low because of ill-trained mechanics, poor workshop organization and management, and insufficient supply of spare parts. The proposed Project would provide for technical assistance to improve workshop operations including training, the procurement of spare parts and components for equipment rehabilitation and the implementation of training and road maintenance programs.

42. Financing. Highway expenditures, both construction and maintenance, are financed from three sources: (i) government general revenues, (ii) foreign aid, and (iii) highway toll revenues. The level of general revenues generated by road user charges averaged LS 66 million annually in 1979-81. This amount was well in excess of total expenditures on highways which averaged about LS 32 million annually during this period. Since most of the construction expenditures are financed by bilateral and multilateral aid agencies, the bulk of road user revenues is used at the present time for general purposes. Tolls were introduced in late 1980 on the Port Sudan-Khartoum road and toll revenue in 1981 totalled LS 935,000. The tolls, averaging only about LS 4 per vehicle for the 1190 km road, do not seem to have any noticeable effect on traffic volumes. Administration expenses are not readily identifiable in RBPC accounts, but amount to not more than 10 percent of revenue. RBPC expenditures have been fairly stable in recent years, averaging LS 32 million annually in FY1978-82. These do not include expenditures on roads serving the major irrigation schemes. The proportion devoted to maintenance and administration has increased, largely as a result of the rapid increase in the paved road network for which RBPC is responsible. Available records of expenditures on roads in the region show that such expenditures have been substantially lower, about LS 3.0 million annually in FY1981 and FY1982. Expenditures will increase rapidly, however, as more of the gravel roads, currently being rehabilitated by bilateral aid agencies, are handed over to the regions for maintenance. Funding for RBPC road maintenance has been satisfactory during the past few years but it is difficult to segregate road maintenance expenditures from pavement strengthening work and rehabilitation. There is a clear need to establish a realistic level of maintenance expenditure. To achieve this, the cost accounting system in RBPC will have to be improved. The technical assistance financed under the proposed Project would therefore include cost accountants. Agreement was

reached during negotiations that Government would, not later than July 1, 1986, revise the formats of annual estimates of RBPC expenditures to show clearly the road maintenance works to be executed and corresponding allocations of funds (Section 3.06(b), Draft Development Credit Agreement).

#### Previous Bank Group Operations in the Sector

43. The proposed Project would be the third lending operation in support of road transport in the Sudan. In 1972 a Credit for US\$7.0 million was approved (Credit 331-SU) to: (a) improve organization and operation of the Department of Roads in the Ministry of Transport; (b) improve transport planning and coordination; (c) identify priority roads and carry out feasibility and engineering studies; (d) establish maintenance programs; and (e) procure equipment and spare parts to carry out these programs. A Project Completion Report on this project, Number SecM83-30, was distributed on January 10, 1983. Although implementation took twice as long as estimated at appraisal, provision of equipment, spare parts and technical assistance led to improvements in the paved road network. A reevaluation shows that the rate of return on the maintenance component in the North, estimated at 32 percent during appraisal, was exceeded by about 6 percent. No data are available to allow a similar analysis on the impact of the Southern maintenance component. To keep costs within available funds, detailed engineering for 350 km of roads identified under the project was deleted. Problems encountered during implementation were inadequacy of recurrent budget funds, indecision on the Government's part in pursuing consultants' recommendations, Government's procurement procedures and slow recruitment of technical assistance staff. A Second Highway Project (Credit 882-SU) approved in 1979, provided US\$41.0 million for: (a) construction of the Jebel Aulia-Ed Dueim road (158 km) and provision of two ferries along the White Nile and related consulting services; (b) detailed engineering of the Jebel Aulia-Rabak road and a further 500 km of roads to be identified; and (c) 348 man-months technical assistance plus workshops, offices, housing, equipment, vehicles, spares and fuel to strengthen the highway administration (Southern Regional Ministry of Communications, Transport and Roads, SRMCTR) in the southern region which was divided on July 1, 1983 in three regions (Bahr-el-Chayal, Upper Nile and Equatoria). Physical project implementation is now proceeding satisfactorily after delays of 5 months in signing contracts for construction and 15 months in contracting technical assistance staff. In July 1983, USAID signed an agreement with the Government to provide US\$19.7 million to continue efforts to rehabilitate and improve road maintenance in the south when the Association's ongoing project comes to a close at the end of 1984.

44. Experience in project implementation in other transport subsectors is mixed. The First Port Project (Credit 781-SU) was recently completed successfully and implementation of the Second Port Project (Credit 1233-SU) has started expeditiously. The Domestic Aviation Project (Loan 1287T-SU and Credit 643-SU) approved in 1976 was closed on Sept. 30, 1981. Except for consultancy design services, amounting to \$627,000, the major project components which were to be funded by the Bank were not executed due to repeated delays in tendering and resulting cost escalations rendering construction of Wau and Malakal airports economically

unfeasible. Remaining balances in the Loan and Credit accounts were cancelled. Construction of the airports at Port Sudan and Juba, the justification of which remained intact, is proceeding with funding from the Saudi Fund and the European Development Fund, respectively, under arrangements originally conceived as cofinancing with the Bank. Since 1958, the Bank Group has made three loans and two credits for four railways projects to a total amount of US\$114.0 million. Although provision of rolling stock and other equipment has helped overcome physical bottlenecks, general operations of the railway have deteriorated. Over the past ten years rail transport has declined by 44 percent for freight and 10 percent for passengers. While in the early seventies rail accounted for 73 percent of total freight, it is presently 26 percent. Performance against financial and operational indicators has deteriorated dramatically (para. 27). Although the inevitable advent of road transport has had its effect upon the railway's share in traffic, the lack of operational efficiency and the unreliability of its services is a major cause of the railway's decline. There is an urgent need for provision of spare parts but further major investments in capital stock are not justified at the present time. Emphasis must be placed upon: (a) improved operational and financial efficiency of the railway system; (b) improved intermodal coordination between rail and road transport to render the two modes complementary rather than competitive as at present, with consequent economic inefficiencies (paras. 25, 27). The Government is making efforts to restore the railways as an asset to Sudan's economy and agreement was reached early in 1983 between the Government and the Association on the formulation of a coherent action program to restore SRC's efficiency to an acceptable level within the near future. To assist in the formulation of this recovery plan, the Association agreed to provide consultancy services under the Second Technical Assistance Project (Credit 1153-SU).

#### PART IV - THE PROJECT

##### Background

45. The proposed Project would continue and consolidate the institutional efforts initiated under the first and second highway projects with emphasis on maintenance. The Project was appraised in October 1982. The Staff Appraisal Report (No. 4290-SU, dated February 6, 1984) is being circulated separately. The Credit and Project Summary sheet is at the beginning of this report and a supplementary data sheet is at Annex III. Negotiations were held in Washington from March 23 to March 30, 1983; the Government delegation was headed by Mr. Osman Mustafa, Under Secretary, Ministry of Finance and Economic Planning. Discussions on fuel pricing issues continued thereafter. Subsequently, the project was partially reformulated, and, in February 1984, final agreement was reached on the proposed Development Credit Agreement.

##### Project Objectives

46. The proposed Project would support the objective of reducing the cost of transport of agricultural and industrial inputs and products by improving road maintenance. In particular, the Project would support

improvements in: (a) maintaining the existing road network; (b) transport planning and intermodal coordination; and (c) management, planning and operations of RBPC. These objectives are consistent with the Bank Group strategy of rehabilitation and conservation of existing capital and infrastructural support to production and export development.

#### Project Description

47. The Project comprises:

- (a) assistance to RBPC consisting of:
  - i) technical assistance to improve workshop organization and management, spare parts management and equipment rehabilitation, strengthen planning and road maintenance capability, and implement the road maintenance programs of the respective agencies;
  - ii) training;
  - iii) procurement of workshop tools and equipment, road maintenance equipment and spares and limited amounts of fuel and bitumen;
- (b) procurement of two ferries for the Nile crossing at Ed Dueim; and
- (c) other consulting services for a highway organization and investment study including the establishment and training of an RBPC pavement evaluation unit.

#### Detailed Features

##### Improvement of Workshop and Equipment Rehabilitation

48. The Project would finance 216 man-months of technical assistance to reorganize RBPC's central workshop at Khartoum, improve its management, assist in rehabilitation of the equipment stock, train mechanics, and reorganize existing mechanical stores. Presently, about 30 percent of equipment is available on average for service at any one moment. By end 1988, availability and utilization is expected to be 80 percent as a result of the Project. During negotiations agreement was reached concerning monitoring of equipment availability and utilization rates against agreed annual targets (Section 4.03(c)(ii), Draft Development Credit Agreement).

##### Maintenance

49. The project includes a total of 36 man-months of consultant services to assist the recently established maintenance directorate of RBPC through provision of a maintenance engineer and a cost accountant. This component would assist in implementing an agreed road maintenance program. The composition of the technical assistance team and an outline of the terms of reference was agreed upon during negotiations. Agreement was

reached on submission, for IDA's review and approval, of RBPC's annual maintenance budget, physical targets, and capital investment plans (Section 4.03(c)(i), Draft Development Credit Agreement).

### Planning

50. Planning in RBPC would be strengthened through the provision of a transport economist/planner to RBPC for 30 man-months.

### Training

51. The proposed training program would aim at improving (i) equipment repair and servicing, and (ii) the standard of highway maintenance through the training, retraining and upgrading of some 360 RBPC workshop and road maintenance personnel. The program would:

- (i) strengthen the RBPC training directorate;
- (ii) establish a mobile Training Production Unit (TPU) in RBPC;
- (iii) procure laboratory and survey equipment for technician training at the Khartoum Polytechnic Institute;
- (iv) institute a three-year apprenticeship scheme in RBPC workshop to train master mechanics and master electricians;
- (v) conduct seminars for midlevel and professional staff in RBPC.

52. Training for workshop personnel would be provided under an apprenticeship scheme to qualify master mechanics and electricians. During negotiations agreement was reached on appropriate certification of graduates from the apprenticeship program (Section 3.05, Draft Development Credit Agreement).

53. Training of road maintenance staff would be provided as follows: Scholarships at the Khartoum Polytechnic to follow the three-year highway technicians course (Section 3.07, Draft Development Credit Agreement). The Project would include survey and laboratory equipment for the Khartoum Polytechnic to an amount of \$135,000 equivalent. A Training Production Unit (TPU) would be established in RBPC for training of staff under actual working conditions. During negotiations agreement was reached that, not later than July 1, 1985, Government would ensure establishment of the TPU, to be staffed and equipped to the satisfaction of the Association (Section 3.06(b)(ii), Draft Development Credit Agreement). Technical assistance for training to be provided to RBPC (120 man-months), in addition to the technical assistance described in paras. 48-51, would include a training specialist to assist in planning, coordination and monitoring of training activities.

54. The consultancy study included in the Project comprises a Highway Organization and Investment Study (69 man-months) which would help develop a coordinated strategy for the entire transport sector, improve intermodal

coordination, and formulate a comprehensive highway investment program. Consultants assigned under this study would help establish and train a pavement evaluation unit in RBPC.

#### Equipment and Supplies

55. Equipment and tools procured under the project would meet requirements for the TPU and for expansion of the road maintenance equipment fleet. Survey and laboratory equipment required for road maintenance training would be provided to the Khartoum Polytechnic Institute (para. 53). Spare parts amounting to \$3.1 million for RBPC would be provided for rehabilitation and maintenance of existing equipment. Adequate supply of fuel has been a persistent problem in implementing projects in the Sudan, due to the serious foreign exchange constraints. Therefore fuel requirements for the TPU to an amount of \$230,000 would be met under the Credit. An initial stock of bitumen would be provided from the Credit proceeds to an amount of \$750,000 to support the operations of the TPU under RBPC.

#### Two Ferries

56. The ongoing project (Credit 882-SU) included provision for the procurement of two ferries for motor vehicles, to service the Nile crossing at Ed Dueim on the Jebel Aulia-Ed Dueim road. The financing of substantial cost overruns on the construction of the road, also under the ongoing project, has resulted in insufficient funds being available for the purchase of the two ferries. The Government has requested financing to be included in the proposed project. The ferries are intended to replace two existing ferries operating between Ed Dueim on the west bank of the White Nile and the Jebel Aulia-Ed Dueim-Rabak road on the east bank of the river. The ferries provide a feeder access to the road. The existing ferries can be operated satisfactorily for only one more year and an amount of US\$2.3 million has been earmarked in the project for the procurement of two new ferries.

#### Project Costs

57. The total cost of the Project, excluding duties and taxes, is estimated at US\$17.1 million equivalent including contingencies. Base costs are in October 1983 prices. (A summary cost table is given in the Credit and Project Summary). Total foreign costs amount to US\$16.0 million or 94 percent. Foreign exchange costs for consulting services (471 man-months in total) are estimated at US\$8,900 per man-month on average. Since Sudan has no local consultancy capacity for services included in the proposed Project, no estimates for local services are included. Contingencies for price escalation are included as follows: Local costs - FY1984, 25%; FY85, 20%; FY86, 17%; FY87 and FY88, 15%. Foreign costs - FY84, 7.8%; FY85, 7.2%; FY86, 6%; and FY87 onwards, 6%.

Financing

58. The Project would be financed as follows:

	Local	Foreign	Total
	-----	US\$ Million	-----
Association	-	16.0	16.0
Government	<u>1.1</u>	<u>-</u>	<u>1.1</u>
T o t a l	1.1	16.0	17.1

59. Since RBPC does not have financial autonomy, onlending arrangements are not applicable under the proposed Project.

Implementation

60. RBPC would be responsible for the execution of the project components except for the highway organization and investment study (para. 54) which would be executed by the Project Preparation Unit (PPU) of the Ministry of Finance and Economic Planning. As discussed in Part III above, RBPC requires improvements in its management structure, operations, planning and staffing. To strengthen RBPC and to assist in project implementation, the Project includes provisions for technical assistance and training as set out in the preceding paragraphs and summarized in Annex III. In addition, agreement has been reached during negotiations that by June 30, 1986, Government would adopt a coordinated highway and rail investment program, satisfactory to the Association, covering the period FY1987-1989 (Section 4.03(c)(iii), Draft Development Credit Agreement). The objective of this provision is to help ensure improved intermodal coordination (paras. 25 and 26). Furthermore, agreement was reached that Sudan would complete a Transportation Cost Review by December 31, 1984 under terms of reference satisfactory to the Association, discuss its findings with the Association and, thereafter, based on the findings, maintain appropriate fuel prices (Section 4.02, Draft Development Credit Agreement). Although revenue from road user charges presently far exceeds road construction and maintenance costs (para. 42), there is scope for increasing fuel prices, which would enhance government revenues, slow the rate of growth of fuel imports, and improve incentives to use rail and river transport (paras. 25 and 27). An implementation schedule including steps and timing to initiate project execution, terms of reference for technical assistance services, composition of technical assistance teams and their counterparts has been agreed upon. Financial and operational reporting requirements are set out in the following paragraphs. The Project completion date would be set for June 30, 1988, a realistic target, and the Credit closing date for June 30, 1989. The twelve-month interval is in line with Sudan's current disbursement performance.

61. Project Accounts will be maintained by RBPC and PPU with separate accounts for each component. The agencies' accounting systems and staff are adequate to maintain satisfactory project accounts. Auditing of the

RBPC is the responsibility of the Auditor General. During negotiations, agreement was reached with the Government that an independent auditor would be appointed to audit the project accounts and not later than nine months after each financial year, the Association would be furnished with certified copies of the project financial statements and an audit report of sufficient scope and detail (Section 4.01(b), Draft Development Credit Agreement). Responsibility for project reporting would be shared between RBPC and consultants as follows: (i) inception, progress and final report on technical assistance by consultants providing these services in accordance with their terms of reference; (ii) inception, progress and final reports on studies by consultants undertaking the studies in accordance with their terms of reference; and (iii) quarterly progress reports and a completion report by RBPC. During negotiations, agreement was reached with the Government regarding submission of quarterly progress reports to the Association, of sufficient scope and detail, on progress of project implementation, its costs and benefits (Section 3.04(b), Draft Development Credit Agreement). A Project Completion Report in a form satisfactory to the Association would be submitted not later than six months after the project closing date (Section 3.04(d), Draft Development Credit Agreement).

#### Procurement

62. Items to be financed under the Credit would be procured as follows: road maintenance equipment and spares for RBPC and its TPU (US\$4.59 million) would be procured through international competitive bidding (ICB) in accordance with Bank guidelines. Nine manufacturers tendered bids for the two ferries (US\$2.31 million) under the ongoing project following ICB. They will be invited to present new bids. RBPC workshop tools and equipment (US\$0.29 mn), aids and equipment for the TPU (US\$0.18 mn), fuel (US\$0.23 mn), and bitumen (US\$0.75 mn) for the TPU would be procured through limited international bidding by inviting not less than three suppliers, from three different countries, to bid. Spares and components for repair and rehabilitation of existing RBPC equipment to an estimated value of about US\$3.8 million would be procured through limited international bidding or from the original suppliers. Documentation for limited international bidding would be the same as for ICB and bids would be evaluated as under ICB. Qualified domestic manufacturers would receive preference in bid evaluation of 15 percent or the import tariff, whichever is the lower. Miscellaneous items in packages of less than US\$50,000 within a ceiling of US\$0.5 million would be procured under local procurement procedures which are satisfactory to the Association. Contracts for bidding packages for goods over US\$200,000 equivalent would be subject to prior review and approval of bid documents by the Association. This would result in a coverage of about 80 percent of the value of goods. The balance of contracts would be subject to post review by the Association after contract award. The contracts for technical assistance services and other consulting services estimated to total about US\$5.53 million would be awarded in accordance with Bank Guidelines for the Use of Consultants. During negotiations, the above procurement arrangements were agreed upon (Section 3.02 and Schedule 3, Draft Development Credit Agreement).

Disbursement

63. The Credit will be disbursed on the following basis:
- (a) 100 percent of foreign expenditures for workshop tools and equipment, road maintenance equipment, ferries, spare parts and fuel and bitumen if imported directly, 100 percent of local expenditures (ex-factory costs) if manufactured locally, and 60 percent of local costs, if procured locally; and
  - (b) 100 percent of foreign expenditures for consultants' services.

All disbursement requests would be fully documented. A projected disbursement schedule is given in the Project Summary.

Environmental Impact

64. The net environmental impact of the project is favorable. The improved maintenance of the gravel roads will reduce the need for reconstruction of these roads and hence the demand for quarry material which in many areas of the Sudan is scarce. Improved maintenance of paved roads will benefit the environment through reduced fuel consumption of the vehicles using the roads and hence a reduced production of noxious fumes resulting in improved air quality.

Benefits, Justification and Risks

65. The main economic objective of the proposed Project is to ensure that the recently expanded paved road network will be properly maintained. The paved network expanded from about 300 km in 1970 to over 2200 km in 1982, with the main growth in traffic over the system having occurred over the past six years. Thus the system is relatively new and, except on some of the older stretches, the need for maintenance is not yet obvious. However, it is conservatively estimated that unless a planned and systematic maintenance program is carried out, the road system will rapidly deteriorate, with consequent significant increases in vehicle operating costs.

66. Calculations of the benefits from avoidance of doubling of surface roughness of paved roads over a period of seven years result in an economic rate of return of 154 percent. The beneficiaries will in the first instance be freight vehicle operators (about 55 percent) and bus and light vehicle, including car, operators (45 percent). In the competitive environment existing (para. 34), savings are expected to be passed on to consumers. A sensitivity analysis, assuming costs increased by 25 percent and benefits reduced by 50 percent, shows an economic rate of return over 60 percent.

67. The ferries at Ed Dueim would provide access to the economically important area across the Nile. The section Jebel Aulia-Ed Dueim was completed recently under the ongoing project. The section from Ed Dueim to Rabak is being financed by the Government of the Federal Republic of

Germany. In the absence of the ferry connection traffic would be forced to travel 158 km over sandy tracks through the desert on the east bank of the Nile river rather than using the Jebel Aulia-Ed Dueim road over the same distance on the west bank. The savings in vehicle operating costs per year due to the ferry connection are estimated at LS 13 million. Investment costs of the ferries (US\$2.3 million at October 1983 prices) would thus be recouped in a few months only, indicating an economic rate of return of over 100 percent. The traffic at the Ed Dueim ferry crossing in 1985 is projected at 417 vehicles per day. As one ferry has a capacity of 290 vehicles per day, a second ferry is required and economically justified. Given a projected traffic growth rate of 10 percent per year, the two ferries should be able to cope with the traffic demand till the late 1980s.

68. The Project is subject to risk in that it may not fully achieve its institutional objectives due to the difficult living and working conditions which could reduce the effectiveness of technical assistance provided under the project. As noted in para. 43, appointment of technical assistance staff under the Second Highway Project (Credit 882-SU) was delayed considerably. The situation is improving however and experience gained under the Second Project should result in a more expeditious implementation under the proposed Project. During negotiations a comprehensive implementation schedule, including the timing of steps to initiate project execution, terms of reference and composition of technical assistance teams and their counterparts was agreed upon. Progress would be monitored against the agreed implementation schedule.

#### PART V - LEGAL INSTRUMENTS AND AUTHORITY

69. The Draft Development Credit Agreement between the Democratic Republic of the Sudan and the Association, and the Recommendation of the Committee provided for in Article V, Section 1(d) of the Articles of Agreement of the Association, are being distributed separately to the Executive Directors.

70. Special features of the Draft Development Credit Agreement are mentioned in the text and listed in Section III of Annex III.

71. I am satisfied that the proposed Credit would comply with the Articles of Agreement of the Association.

#### PART VI - RECOMMENDATION

72. I recommend that the Executive Directors approve the proposed Credit.

A.W. Clausen  
President

Attachments

T A B L E 3A

SUDAN	- SOCIAL INDICATORS DATA SHEET				
				REFERENCE GROUPS (WEIGHTED AVERAGES) /a	
	1960/b	1970/b	MOST RECENT ESTIMATE/b	LOW INCOME AFRICA S. OF SAHARA	MIDDLE INCOME AFRICA S. OF SAHARA
<b>AREA (THOUSAND SQ. KM)</b>					
TOTAL	2505.8	2505.8	2505.8	.	.
AGRICULTURAL	671.8	677.0	684.2	.	.
<b>GNP PER CAPITA (US\$)</b>	150.0	190.0	380.0	254.6	1147.9
<b>ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)</b>	58.0	170.0	101.0	79.8	724.2
<b>POPULATION AND VITAL STATISTICS</b>					
POPULATION, MID-YEAR (THOUSANDS)	11228.0	13849.0	19242.0	.	.
URBAN POPULATION (% OF TOTAL)	10.3	16.4	25.7	19.5	28.5
<b>POPULATION PROJECTIONS</b>					
POPULATION IN YEAR 2000 (MILL)			33.7	.	.
STATIONARY POPULATION (MILL)			111.8	.	.
YEAR STATIONARY POP. REACHED			2135	.	.
<b>POPULATION DENSITY</b>					
PER SQ. KM.	4.5	5.5	7.5	29.5	56.5
PER SQ. KM. AGRI. LAND	16.7	20.5	27.3	94.1	131.8
<b>POPULATION AGE STRUCTURE (%)</b>					
0-14 YRS	43.7	43.7	44.2	45.0	45.9
15-64 YRS	53.2	53.4	53.0	52.1	51.2
65 AND ABOVE	3.1	2.9	2.8	2.9	2.8
<b>POPULATION GROWTH RATE (%)</b>					
TOTAL	2.0	2.1	3.0	2.8	2.8
URBAN	6.9	6.7	7.1	6.2	5.3
<b>CRUDE BIRTH RATE (PER THOUS)</b>	46.5	46.7	46.6	47.9	47.6
<b>CRUDE DEATH RATE (PER THOUS)</b>	24.5	22.1	18.4	19.2	15.2
<b>GROSS REPRODUCTION RATE</b>	3.3	3.3	3.3	3.2	3.2
<b>FAMILY PLANNING</b>					
ACCEPTORS, ANNUAL (THOUS)	..	..	..	..	..
USERS (% OF MARRIED WOMEN)	..	..	..	..	..
<b>FOOD AND NUTRITION</b>					
INDEX OF FOOD PROD. PER CAPITA (1969-71=100)	92.0	100.0	104.0	87.8	95.7
<b>PER CAPITA SUPPLY OF CALORIES (% OF REQUIREMENTS)</b>	83.0	91.0	101.0	88.0	97.1
<b>PROTEINS (GRAMS PER DAY)</b>	65.0	66.0	69.0	51.2	56.0
<b>OF WHICH ANIMAL AND PULSE</b>	24.0	22.0	22.0/c	18.1	17.2
<b>CHILD (AGES 1-4) DEATH RATE</b>	40.1	32.4	20.8	25.7	23.6
<b>HEALTH</b>					
LIFE EXPECT. AT BIRTH (YEARS)	39.6	41.8	46.6	47.4	51.9
INFANT MORT. RATE (PER THOUS)	168.0	150.4	121.8	126.5	117.6
<b>ACCESS TO SAFE WATER (%POP)</b>					
TOTAL	..	19.0	46.0/d	24.7	25.4
URBAN	..	61.0	49.0/d	56.8	70.5
RURAL	..	13.0	45.0/d	18.3	12.3
<b>ACCESS TO EXCRETA DISPOSAL (% OF POPULATION)</b>					
TOTAL	..	16.0	22.0/e	28.1	..
URBAN	..	..	..	65.7	..
RURAL	..	..	..	21.9	..
<b>POPULATION PER PHYSICIAN</b>	33420.0	14060.0	8800.0	27420.6	12181.6
<b>POP. PER NURSING PERSON</b>	3030.0/f	1720.0	1410.0	3456.2	2292.0
<b>POP. PER HOSPITAL BED</b>					
TOTAL	980.0/g	920.0/g	1010.0/c	1183.2	1075.4
URBAN	130.0/f,g	190.0/g	450.0/c	380.6	402.3
RURAL	4400.0/f,g	5120.0/g	1760.0/c	3177.5	3926.7
<b>ADMISSIONS PER HOSPITAL BED</b>	..	..	..	..	..
<b>HOUSING</b>					
<b>AVERAGE SIZE OF HOUSEHOLD</b>					
TOTAL	..	5.1	..	..	..
URBAN	..	5.7/h	..	..	..
RURAL	..	..	..	..	..
<b>AVERAGE NO. OF PERSONS/ROOM</b>					
TOTAL	..	..	..	..	..
URBAN	..	2.5/h	..	..	..
RURAL	..	..	..	..	..
<b>ACCESS TO ELECT. (% OF DWELLINGS)</b>					
TOTAL	..	..	..	..	..
URBAN	..	26.4/h	..	..	..
RURAL	..	..	..	..	..

TABLE 3A

SUDAN		- SOCIAL INDICATORS DATA SHEET				
SUDAN		REFERENCE GROUPS (WEIGHTED AVERAGES) /a				
		(MOST RECENT ESTIMATE) /b				
		MOST RECENT ESTIMATE /b			LOW INCOME	MIDDLE INCOME
		1960 /b	1970 /b	ESTIMATE /b	AFRICA S. OF SAHARA	AFRICA S. OF SAHARA
<b>EDUCATION</b>						
ADJUSTED ENROLLMENT RATIOS						
PRIMARY: TOTAL	25.0	38.0	51.0	63.9	97.2	
MALE	35.0	46.0	60.0	73.6	103.1	
FEMALE	14.0	29.0	43.0	51.6	88.5	
SECONDARY: TOTAL	3.0	7.0	16.0	12.5	17.2	
MALE	5.0	10.0	20.0	16.7	23.5	
FEMALE	1.0	4.0	12.0	8.1	14.2	
VOCATIONAL (% OF SECONDARY)	3.4	1.4 /i	4.0 /i, j	7.3	5.2	
PUPIL-TEACHER RATIO						
PRIMARY	41.0	47.0	34.0	46.4	42.9	
SECONDARY	20.0	17.0	20.0	25.1	23.7	
ADULT LITERACY RATE (%)	13.1	14.7 /h	32.0	36.5	37.1	
<b>CONSUMPTION</b>						
PASSENGER CARS/THOUSAND POP	1.4	2.0	..	3.3	18.8	
RADIO RECEIVERS/THOUSAND POP	17.0 /k	80.4	71.2	45.3	97.8	
TV RECEIVERS/THOUSAND POP	0.8 /l	3.2	5.6	2.2	18.6	
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	4.4	..	1.0	4.7	18.2	
CINEMA ANNUAL ATTENDANCE/CAPITA	0.9	..	0.6	1.0	0.6	
<b>LABOR FORCE</b>						
TOTAL LABOR FORCE (THOUS)	3722.0	4544.0	6086.0	..	..	
FEMALE (PERCENT)	9.6	10.2	10.9	34.5	36.1	
AGRICULTURE (PERCENT)	86.0	82.0	72.0	76.9	56.8	
INDUSTRY (PERCENT)	6.0	8.0	10.0	9.8	17.5	
PARTICIPATION RATE (PERCENT)						
TOTAL	33.2	32.8	31.6	40.9	37.0	
MALE	59.3	58.2	55.6	53.0	47.1	
FEMALE	6.4	6.8	7.0	28.9	27.0	
ECONOMIC DEPENDENCY RATIO	1.4	1.4	1.5	1.2	1.3	
<b>INCOME DISTRIBUTION</b>						
PERCENT OF PRIVATE INCOME RECEIVED BY						
HIGHEST 5% OF HOUSEHOLDS	20.9 /l, m	..	..	..	..	
HIGHEST 20% OF HOUSEHOLDS	50.1 /l, m	49.2 /n	..	..	..	
LOWEST 20% OF HOUSEHOLDS	5.0 /l, m	5.1 /n	..	..	..	
LOWEST 40% OF HOUSEHOLDS	13.9 /l, m	14.5 /n	..	..	..	
<b>POVERTY TARGET GROUPS</b>						
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)						
URBAN	..	..	137.0 /o	165.9	534.2	
RURAL	..	..	80.0 /e	87.4	255.9	
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)						
URBAN	..	..	115.0 /o	100.8	491.5	
RURAL	..	..	100.0 /o	64.6	188.1	
ESTIMATED POP. BELOW ABSOLUTE POVERTY INCOME LEVEL (%)						
URBAN	..	..	..	39.5	..	
RURAL	..	..	85.0 /e	69.0	..	

.. NOT AVAILABLE  
. NOT APPLICABLE

NOTES

- /a The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.
- /b Unless otherwise noted, "Data for 1960" refer to any year between 1959 and 1961; "Data for 1970" between 1969 and 1971; and data for "Most Recent Estimate" between 1979 and 1981.
- /c 1977; /d 1976; /e 1975; /f 1962; /g Government hospital establishments; /h 1966; /i Beginning 1970, the duration of general secondary education was reduced from 8 to 6 years; /j Includes programs of 5 training centers operated by Department of Labor and 17 short-term centers operated by Ministry of Youth and Sport; /k 1963; /l 1964; /m Omdurman, urban; /n 1967-68; /o 1978.

## DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the same country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income" and "Middle Income North Atlantic" in which case the reference group is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population weighted arithmetic means for each indicator and shown only when uniformity of the countries in a group has data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

## AREA (thousand sq. km.)

Total - Total surface area comprising land area and inland waters; 1960, 1970 and 1980 data.

Agricultural - Estimate of agricultural area used temporarily or permanently for crops, pastures, meadows and kitchen gardens or to lie fallow; 1960, 1970 and 1980 data.

GDP PER CAPITA (US\$) - GDP per capita estimated at current market prices, calculated by same conversion method as World Bank Atlas (1979-81 basis); 1960, 1970, and 1981 data.

ENERGY CONSUMPTION PER CAPITA - Annual apparent consumption of commercial primary energy (coal and lignite, petroleum, natural gas and hydro, nuclear and geothermal electricity) in kilograms of coal equivalent per capita; 1960, 1970, and 1980 data.

## POPULATION AND VITAL STATISTICS

Total Population, Mid-Year (thousands) - As of July 1; 1960, 1970, and 1981 data.

Urban Population (percent of total) - Ratio of total urban population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1981 data.

## Population Projections

Population in year 2000 - Current population projections are based on 1980 total population by age and sex and their mortality and fertility rates. Projection parameters for mortality rates comprise of three levels assuming life expectancy at birth increasing with country's per capita income level, and female life expectancy stabilizing at 77.5 years. The parameters for fertility rate also have three levels assuming decline in fertility according to income level and past family planning performance. Each country is then assigned one of these nine combinations of mortality and fertility trends for projection purposes.

Stationary population - In a stationary population there is no growth since the birth rate is equal to the death rate, and also the age structure remains constant. This is achieved only after fertility rates decline to the replacement level of unit net reproduction rate, when each generation of women replaces itself exactly. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.

Year stationary population is reached - The year when stationary population size will be reached.

## Population Density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970, and 1980 data.

Per sq. km. agricultural land - Computed as above for agricultural land only; 1960, 1970 and 1980 data.

Population Age Structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population; 1960, 1970, and 1981 data.

Population Growth Rate (percent) - total - Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-81.

Population Growth Rate (percent) - urban - Annual growth rates of urban populations for 1950-60, 1960-70, and 1970-81.

Crude Birth Rate (per thousand) - Annual live births per thousand of mid-year population; 1960, 1970, and 1981 data.

Crude Death Rate (per thousand) - Annual deaths per thousand of mid-year population; 1960, 1970, and 1981 data.

Gross Reproduction Rate - Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1981.

Family Planning - Acceptors, Annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family Planning - Users (percent of married women) - Percentage of married women of child-bearing age (15-49 years) who use birth-control devices to all married women in same age group.

## FOOD AND NUTRITION

Index of Food Production per Capita (1961=100) - Index of per capita annual production of all food commodities. Production excludes seed and feed and is on calories basis. Commodities cover primary products (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded). Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1981 data.

Per capita supply of calories (percent of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies include domestic production, imports less re-exports, and changes in stocks. Net supplies exclude animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961-65, 1970 and 1980 data.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowances of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey; 1961-65, 1970 and 1980 data.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day; 1961-65, 1970 and 1977 data.

Child (ages 1-4) death rate (per thousand) - Annual deaths per thousand in age group 1-4 years, to children in this age group; for most developing countries data derived from life tables; 1960, 1970 and 1981 data.

## HEALTH

Life Expectancy at Birth (years) - Average number of years of life remaining at birth; 1960, 1970 and 1981 data.

Infant Mortality Rate (per thousand) - Annual deaths of infants under one year of age per thousand live births; 1960, 1970 and 1981 data.

Access to Safe Water (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to Insects Removal (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) served by insect disposal as percentages of their respective populations. Insect disposal may include the collection and disposal, with or without treatment, of human excreta and wastewater by water-borne systems or the use of pit privies and similar installations.

Population per Physician - Population divided by number of practicing physicians qualified from a medical school at university level.

Population per Nursing Person - Population divided by number of practicing male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

Population per Hospital Bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, in low health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer inpatient accommodation and provide a limited range of medical facilities. For statistical purposes urban hospitals include WHO principal/general hospitals, and rural hospitals, local or rural hospitals and medical and maternity centers. Specialized hospitals are included only under total.

Admissions per Hospital Bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

## HOUSING

Average Size of Household (persons per household) - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

Average number of persons per room - total, urban, and rural - average number of persons per room in all urban and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Access to Electricity (percent of dwellings) - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

## EDUCATION

## Enrolled Enrollment Ratios

Primary school - total, male and female - Gross total, male and female enrollment of all ages at the primary level as percentages of respective primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

Secondary school - total, male and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

Vocational enrollment (percent of secondary) - Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

Pupil-teacher ratio primary and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

Adult literacy rate (percent) - Literate adults (able to read and write) as a percentage of total adult population aged 15 years and over.

## CONSUMPTION

Passenger Cars (per thousand population) - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

Radio Receivers (per thousand population) - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since radio countries abolished licensing.

TV Receivers (per thousand population) - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper Circulation (per thousand population) - Shows the average circulation of "daily general interest newspaper," defined as a periodical publication devoted primarily to reporting general news. It is considered to be "daily" if it appears at least four times a week.

Cinema Attendance per Capita per Year - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

## LABOR FORCE

Total Labor Force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1981 data.

Female (percent) - Female labor force as percentage of total labor force.

Agriculture (percent) - Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1981 data.

Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1981 data.

Participation Rate (percent population) - total, male, and female - Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1981 data. These are based on 100% participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

Economic Dependency Ratio - Ratio of population under 15 and 65 and over to the total labor force.

## INCOME DISTRIBUTION

Percentage of Private Income (both in cash and kind) - Received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

## POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

Estimated Absolute Poverty Income Level (US\$ per capita) - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated Relative Poverty Income Level (US\$ per capita) - urban and rural - Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

Estimated Population Below Absolute Poverty Income Level (percent) - urban and rural - Percent of population (urban and rural) who are "absolute poor".

SUDAN - COUNTRY DATA

ECONOMIC INDICATORS

<u>GROSS DOMESTIC PRODUCT IN 1981/82</u> <sup>1/</sup>	<u>ANNUAL RATE OF GROWTH</u> (%, Constant Prices)			
	<u>US\$ Mln.</u>	<u>%</u>	<u>1977/78-1981/82</u>	<u>1977/78-1981/82</u>
GDP at Market Prices	8,894.4	100.0	8.0	0.1
Gross Domestic Investment	1,051.7	11.8	11.4	4.4
Gross National Saving	-248.6	-2.8	- 2.6	-24.8
Current Account Balance	-1,300.2	-14.6	-30.6	-23.9
Exports of Goods, NFS	787.8	8.9	- 2.7	1.8
Imports of Goods, NFS	2,246.3	25.3	9.8	11.9

OUTPUT, LABOR FORCE AND PRODUCTIVITY IN 1981/82

	<u>Value Added</u> <sup>2/</sup>		<u>Labor Force</u> <sup>3/</sup>		<u>V.A. Per Worker</u>	
	<u>US\$ Mln.</u>	<u>%</u>	<u>Mln.</u>	<u>%</u>	<u>US\$</u>	<u>% (of average)</u>
Agriculture	2,989	36.5	3.93	70.3	760	52.0
Industry	1,139	13.9	0.40	7.2	2,840	194.5
Services	4,052	49.5	1.26	22.5	3,210	220.0
Total	8,180	100.0	5.59	100.0	1,460	100.0

GOVERNMENT FINANCE

Central Government - 1981/82  
(L\$d. Mln.)      % of GDP <sup>4/</sup>

Current Receipts	890	12.3
Current Expenditure	975	13.5
Current Surplus	- 84	- 1.2
Capital Expenditures <sup>5/</sup>	512	7.1

<u>MONEY, CREDIT AND PRICES</u>	<u>77/78</u>	<u>78/79</u>	<u>79/80</u>	<u>80/81</u>	<u>81/82</u>
	(million L\$ <u>d.</u> outstanding end period)				
Money Supply	669.1	877.0	1,047.5	1,488.9	2,028.1
Bank Credit to Central Government	593.5	913.7	1,131.6	1,400.0	1,590.8
Bank Credit to Private Sector and Parastatals	490.8	652.9	814.3	1,118.6	1,560.9

(Percentages)

<u>Annual percentage changes in:</u>					
General Price Index (estimates)	17.0	25.6	25.9	28.1	24.9
Bank Credit to Central Government	27.4	54.0	23.8	23.7	13.6
Bank Credit to Private Sector and Parastatals	13.5	33.0	24.7	37.4	39.5

NOTE: All conversions to dollars in this table are at the annual average effective nominal exchange rate prevailing during the period covered.

<sup>1/</sup> Bank staff estimates.

<sup>2/</sup> The last year of officially published national accounts is 1977/78; the data presented here are the Government's own estimates presented in Prospects, Programmes and Policies for Economic Development; 1982/83-1984/85.

<sup>3/</sup> Total labor force (est.); unemployed are allocated to sector of their normal occupation. "Unallocated" consists mainly of unemployed workers seeking their first job.

<sup>4/</sup> At market prices.

<sup>5/</sup> Expenditures from Development Budget (includes some capital expenditures by other public entities).

SUDAN - COUNTRY DATA  
TRADE BALANCE AND CAPITAL FLOWS

BALANCE OF PAYMENTS ESTIMATES

	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>
	(Millions US\$)			
Exports Goods, NFS	699	798	801	788
Imports Goods, NFS	1,321	1,564	1,827	2,246
Resource Gap	- 622	- 765	-1,026	-1,458
Interest, MLT Debt (net)	- 72	- 60	- 79	- 184
Other Factor Payments (net)	- 69	- 59	- 88	- 192
Private Transfers	240	209	305	350
Current Balance	- 451	- 615	- 809	-1,300
Public Grants	17	84	122	174
Direct Investment	--	10	20	70
Public MLT Loans, disb.	618	615	540	420
Public MLT Loans, amort.	30	42	52	97
Total Public Net	588	573	488	322
Net Credit, IMF	58	115	165	--
Capital Flows (incl. errors and omissions)	- 160	- 113	- 52	499
Change in Net Reserves (- indicates increase)	- 50	- 54	66	235

RATE OF EXCHANGE

	<u>Annual Averages</u>		<u>End Period</u>	
	<u>1980/81</u>	<u>1981/82</u>	<u>Nov. 81</u>	<u>Dec. 82</u>
Official:				
Lsd 1 = US\$	2.000/1.250	1.250/1.111	1.111	0.769
Effective:				
Lsd 1 = US\$	1.580	1.230	1.111	0.769
Free Market:				
Lsd 1 = US\$	---	---	0.769	0.556

.., Not available.

1/ Total DOD (including IMF, outstanding arrears, and military debt) is, however, estimated to US\$7.3 billion as of December 31, 1982.

MERCHANDISE EXPORTS (AVERAGE 1979/80-1981/82)

	<u>US\$ Mln.</u>	<u>%</u>
Cotton	179.1	35.9
Sorghum	70.2	14.0
Groundnuts	47.1	9.4
Gum Arabic	41.5	8.3
Sesame	40.7	8.1
Other	91.0	18.2
Total	477.0	100.0

EXTERNAL DEBT, DECEMBER 31, 1982

	<u>US\$ Mln.</u>
Public Debt, DOD, MLT	5.096.0 <sup>1/</sup>
<u>DEBT SERVICE RATIO FOR 1981/82</u>	<u>%</u>
Public Debt, incl. guaranteed	18.3
Non-Guaranteed Private Debt	..
Total Outstanding and Disbursed	..

IBRD/IDA LENDING, (Dec. 31, 1982) (Million US\$)

	<u>IBRD</u>	<u>IDA</u>
Outstanding and Disbursed	46.8	339.6
Undisbursed	2.6	259.0
Outstanding incl. Undisbursed	49.4	598.6

November 10, 1983

A. STATEMENT OF BANK LOANS AND IDA CREDITS - SUDAN  
(as of September 30, 1983)

<u>Loan/ Credit No.</u>	<u>Year</u>	<u>Borrower</u>	<u>Purpose</u>	<u>Amount (US\$ Million)</u> <u>(Net of Cancellations)</u>		
				<u>Bank</u>	<u>IDA</u>	<u>Undis- bursed</u>
Seven Loans and twelve Credits fully disbursed:				127.2	144.9	
Credit 364-1	1975	Sudan	Rahad Irrigation		20.0	0.5
Credit 547	1975	Sudan	Education II		10.0	0.8
Credit 614	1976	Sudan	Technical Assistance		4.0	0.1
Credit 727	1977	Sudan)			8.0	0.0
Loan 1467T	1977	Sudan)	Railway IV	12.0		0.3
Credit 781	1978	Sudan	Port		22.0	0.1
Credit 782	1978	Sudan	Livestock Marketing		25.0	12.2
Credit 804	1978	Sudan	Mechanized Farming III		16.0	7.7
Credit 834	1978	Sudan	Agricultural Research		15.0	7.8
Credit 882	1979	Sudan	Highway II		41.0	2.7
Credit 904	1979	Sudan	So. Region Agriculture		15.0	7.6
Credit 1000	1980	Sudan	Agric. Rehab. Program		65.0	3.4
Credit 1006	1980	Sudan	Third Power		65.0	32.9
Credit 1022	1980	Sudan	New Halfa Rehabilitation		40.0	33.9
Credit 1118	/1 1981	Sudan	Blue Nile Pump Rehab.		32.0	25.4
Credit 1119	/1 1981	Sudan	White Nile Pump Rehab.		35.0	27.3
Credit 1153	/1 1981	Sudan	Second Tech. Assistance		6.0	4.5
Credit 1181	/1 1981	Sudan	Western Savannah		13.0	6.7
Credit 1201	/1 1982	Sudan	Agricultural Services		18.0	15.9
Credit 1233	/1 1982	Sudan	Second Port		25.0	14.7
Credit 1388	/1 1983	Sudan	**Gezira Rehabilitation		80.0	78.4
Credit 1389	/1 1983	Sudan	Agric. Rehab. Program II		50.0	49.0
Total				<u>139.2</u>	<u>749.9</u>	<u>331.9</u>
of which repaid				<u>93.4</u>	<u>11.5</u>	
Total now outstanding				45.8	738.4	
Amount sold				5.8		
of which repaid				<u>5.8</u>	-	-
Total held by Bank & IDA				<u>45.8</u>	<u>738.4</u>	
Total undisbursed				<u>0.3</u>	<u>331.9</u>	<u>332.2</u>

/1 IDA 6 Credits, US dollar equivalent of SDRs at time of negotiations.  
(Note: SDR amounts of these 6 credits are: SDR 25.1 million, SDR 27.5 million, SDR 4.9 million, SDR 11.2 million, SDR 15.7 million, SDR 21.5 million, SDR 74.2 million and SDR 46.4 million respectively.)

\*\* Not yet effective.

**B. STATEMENT OF IFC INVESTMENTS**  
**(as of September 30, 1983)**

<u>Fiscal</u> <u>Year</u>	<u>Obligor</u>	(Amount in US\$ million)		
		<u>Loan</u>	<u>Equity</u>	<u>Total</u>
1964 and 1972	Khartoum Spinning & Weaving Co. Textiles	1.9	0.3	2.2
1976	Cotton Textile Mills	8.7	1.3	10.0
1978	Seleit Food Production Ltd.	11.0	1.2	12.2
1978	Gezira/Managil Textile Co. Ltd.	6.7	1.4	8.1
1980	Sudan Cement Company	-	0.2	0.2
1982	White Nile Petroleum Co. Ltd.	-	0.3	0.3
		<hr/>	<hr/>	<hr/>
	Total gross commitments	28.3	4.7	33.0
	Less cancellations, terminations repayments and sales	<u>6.7</u>	<u>0.5</u>	<u>7.2</u>
	Total commitments now held by IFC	<u>21.6</u>	<u>4.2</u>	<u>25.8</u>
	Total undisbursed by IFC	<u>1.1</u>	<u>0.4</u>	<u>1.5</u>

S U D A N  
THIRD HIGHWAY PROJECT  
SUPPLEMENTARY PROJECT DATA SHEET

I. Timetable of Key Events

- |   |                   |
|---|-------------------|
| (a) Time Taken to Prepare Project:        | Ten months        |
| (b) Preparation by:                       | RBPC/Consultants  |
| (c) Initial Discussions with Association: | October, 1981     |
| (d) First Bank Mission:                   | October, 1981     |
| (e) Appraisal Mission Departure:          | September, 1982   |
| (f) Completion of Negotiations:           | February 24, 1984 |
| (g) Planned Date of Effectiveness:        | June 30, 1984     |

II. Special Bank Implementation Actions

The Bank staff would assist in the Transportation Cost Review (para. 60)

III. Special Conditions

- (a) Enforcement, not later than January 1, 1987, of vehicle dimensions and axle-load regulations and vehicle import specifications (para. 35);
- (b) Reorganization of RBPC not later than June 30, 1987 (para. 36);
- (c) Revised formats of annual estimates of RBPC expenditures to clearly distinguish maintenance expenditures (para. 42);
- (d) Monitoring and annual assessment of equipment availability against agreed targets (para. 48);
- (e) Annual review and approval by the Association of RBPC road maintenance budgets and physical targets and implementation programs; implementation of highway capital investments programs as agreed by IDA (para. 49);
- (f) Certification of apprentices (para. 52);
- (g) Establishment of Training Production Unit within RBPC by July 1, 1985 (para. 53);

- (h) Adoption, by June 30, 1986, of a coordinated highway and railway investment program covering the three-year period FY 1987-1989 (para. 60);
- (i) Completion of a Transportation Cost Review under agreed terms of reference by December 31, 1984. Based on the findings of this review and upon discussion with the Association, Government to maintain appropriate fuel prices (para. 60).

