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Report No. 15622

PROJECT COMPLETION NOTE

SUDAN

**KHARTON – PORT SUDAN ROAD REHABILITATION PROJECT
(Credit 2070–SU)**

May 15, 1996

**Energy and Infrastructure Operations Division
Eastern Africa Department
Africa Region**

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CURRENCY EQUIVALENT

Currency Unit	=	Sudanese Pound
US\$ 1.00	=	£Sd. 4.5 (Nov. 1989)
		£Sd. 89.6 (April 1996)

WEIGHTS AND MEASURES

1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 mile (mi)
1 sq. kilometer (km ²)	=	0.386 square miles (sq. mi)
1 metric ton (ton)	=	2,205 pounds (lbs)

ABBREVIATIONS

KfW	Kreditanstalt für Wiederaufbau
ODA	Overseas Development Administration (UK)
PMS	Pavement Management System
RBPC	Road and Bridges Public Corporation

FISCAL YEAR

July 1 - June 30

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TABLE OF CONTENTS

Page No.

PREFACE.....	i
INTRODUCTION.....	1
Project Objectives	2
Project Description.....	2
Project Costs and Financing.....	3
Project Implementation.....	3
Bank Performance.....	4
Borrower Performance.....	4
Project Achievements	5
Lessons Learned.....	5
STATISTICAL TABLES.....	6
Table 1: Summary of Assessments	6
Table 2: Related Bank Loans/Credits	7
Table 3: Project Timetable.....	8
Table 4: Project Financing	9
Table 5: Credit Allocations and Actual Disbursements.....	10
Table 6: Bank Resources: Missions.....	11

MAP

Sudan, Khartoum Port Sudan Road Rehabilitation Project (IBRD 21991R)

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PREFACE

This is a Project Completion Note (PCN) for the Khartoum - Port Sudan Road Rehabilitation Project for which Credit 2070-SU in the amount of SDR 65.7 million (US\$82.2 million equivalent) was approved on December 5, 1989, and made effective on September 20, 1990.

As with other projects in Sudan, disbursements under the Credit were suspended on September 13, 1993, following the Government failure to meet its debt service obligation to IDA, and the country was placed in non-accrual status. On April 8, 1994, the Credit was closed and the undisbursed balance in the amount of SDR 31.45 million was canceled.

The PCN was prepared by Mr. S.L. Kathuria, Highway Engineer Consultant, Task Manager, AF2EI, as desk review on the basis of the materials in the project files, and reviewed by Mr. Stephen Weissman, Chief, AF2EI, and Mr. Surendra Agarwal, Project Adviser, AF2DR.

No comments were received on the PCN from the co-financiers (KfW and the Kingdom of Norway).

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KHARTOUM - PORT SUDAN ROAD REHABILITATION PROJECT

(CREDIT 2070-SU)

INTRODUCTION

1. The Khartoum - Port Sudan Road, a principal transport link and economic life of the country, extends from Khartoum to Port Sudan on the Red Sea via Wad Medani, Gedaref, Kassala and Haiya; 1,182 km long it represents 50% of Sudan's paved road network. Consistent with the Bank's strategy to support essential infrastructure needed to facilitate the expansion of exports and economic development in Sudan, the project provided for reconstruction/ strengthening of major sections of the road that were in need of urgent repair. Built in sections, the road was in part 17 years old. Due to heavy overloading of trucks, especially during the 1985 drought relief transport operations, certain segments, notably between Gedaref and Kassala and between Haiya and Suakin (Map IBRD 21991R), were showing severe base failure and were approaching the stage where full reconstruction would be the only solution. The rehabilitation needs of the failed or failing sections of the road increased after the August 1988 floods because the flood waters hastened the deterioration of certain additional sections of the road. The rehabilitation/reconstruction of the road was so urgent that the project was initially called Highway Emergency Project; however, the term "emergency" was later dropped since the project did not fall under the definition of an "emergency operation". The detailed engineering and bidding documents for the road were prepared by consultants financed from a Norwegian Grant administered by IDA. The project was appraised in June - July 1988.

2. The project underwent several changes after negotiations in December 1988:

- (i) KfW agreed to co-finance the project and to contribute DM 30 million (US\$16.1 million equivalent), under a joint financing agreement, toward rehabilitation of the road;
- (ii) payment of a cost overrun (US\$15.6 million) on the Jebel Aulia - Ed Dueim Road construction component of the Second Highways Project was added to the project; and
- (iii) ODA which had originally intended to cofinance certain institutional development measures decided to withdraw from the project, in line with its revised country strategy.

These changes led to two "renegotiations", April 1989 in London and September 1989 in Addis Ababa. The project was approved by the Board on December 5, 1989.

3. The Credit became effective on September 20, 1990, some 5 months behind schedule. The Credit effectiveness was delayed because of the delay in the finalization of the financing agreement between KfW and Government. The Finance and Project Agreement between KfW and Government was signed on August 18, 1990. According to the disbursement arrangements agreed between KfW and IDA, German funds were to be utilized to finance 35.3% of the foreign exchange component of the advance payment and 100% of subsequent interim payments (foreign exchange component) of the road rehabilitation contract until DM 30 million were consumed.

Project Objectives

4. The project objectives were: (i) to arrest deterioration of the Gedaref - Port Sudan section of the Khartoum - Port Sudan Road by reconstructing or strengthening sections in need of urgent repair, thus protecting capital investment in Sudan's main transport corridor and preventing transport costs and delivery times from increasing; (ii) to plan and implement an effective Axle Load Control System to prevent or reduce the abuse of the road once the same had been rehabilitated; (iii) to institute a Pavement Management System so that Roads and Bridges Public Corporation (RBPC) could better assess and plan its future road maintenance and reconstruction needs in a timely fashion; and (iv) to continue supporting RBPC's institutional development with technical assistance and training.

5. The project objectives were realistic and important for the sector and in line with the Bank's Country Assistance Strategy. Avoiding the complete break-up of major sections of the Khartoum - Port Sudan road and averting the need for much greater investments in the future were critical to the Sudanese economy. Implementing an Axle Load Control System was essential to prevent premature deterioration of the road and instituting a Pavement Management System to better assess and plan future road maintenance and reconstruction needs.

Project Description

6. The project consisted of: (i) reconstruction of 70 km and overlaying of about 500 km of deteriorating sections of the Khartoum - Port Sudan Road between Gedaref and Port Sudan, repairs to one hundred or so bridges, and related construction supervision; (ii) funding of a cost overrun on the Jebel Aulia - Ed Dueim Road construction component of the Second Highways Project; (iii) implementation of an Axle Load Control System, including provision of technical assistance and training, rescue vehicles and data processing equipment, and construction and equipping of permanent and mobile weighbridges; (iv) implementation of a Pavement Management System (PMS) including provision of technical assistance and training; and (v) institutional support for RBPC, agency responsible for project implementation.

Project Costs and Financing

7. The total project costs, net of taxes and duties, were estimated at US\$114.4 million, with a foreign exchange component of US\$98.3 million (86 percent). IDA's contribution was to be US\$82.2 million, KfW's DM 30 million (US\$16.1 million equivalent) and Government was to finance local costs of the project, estimated at US\$16.1 million equivalent. Following Board presentation, the PMS forming part of the project was agreed to be financed through a Norwegian Grant in an amount of NOK 6 million; an Agreement between the Kingdom of Norway and the Association was signed on December 14, 1990, and a Development Grant Agreement between the Republic of the Sudan and the Association, as Administrator on behalf of the Kingdom of Norway, was signed on April 16, 1991.

Project Implementation

8. RBPC awarded, with the Association's approval, a contract (a combination of 2 contracts) for the rehabilitation of Khartoum - Port Sudan Road to the lowest evaluated bidder; a contract between Government and the contractor was signed on February 20, 1991, some 10 months after the public bid opening. The delay in signing the contract was caused due to: (i) the delay in finalization of the financing agreement between KfW and Government (Para. 3); and (ii) the long time spent in contract negotiations between Government and the contractor. The order to commence works was given on July 10, 1991, with contract completion by February 9, 1994, about 18 months behind the Appraisal estimates.

9. Actual construction works on the road started on October 10, 1991, after a 3-month mobilization period. The works progressed well and generally stayed ahead of schedule. RBPC issued several variation orders for the work, including pothole patching and overlaying of certain new sections, aggregating 194 km, between Haiya and Kassala which were not included in the original road rehabilitation program. The road in these new sections was at the time of preparation in 1988-89, considered to be in reasonably good condition, and was scheduled only for resealing with the help of road maintenance units.

10. Following increase in the scope of the work as a result of the said variation orders, the contract completion date was extended by 11 1/2 months to January 24, 1995; the contract price increased from US\$63 million equivalent to US\$75.4 million equivalent. Based on the January 1994 Bank supervision mission's findings -- this was the last supervision mission fielded by IDA --, some 90 percent of the original contract work had been completed and taking into account the Variation Orders, about 75 percent had been completed. No information is available on the latest progress of the works, or current costs of the project.

11. Due to the non-payment by Government of contractor's invoices, following the suspension of disbursements by IDA, the contractor after giving 30 days notice, on March

1, 1994, to RBPC of its intention to terminate its employment under the contract, suspended all operations at the end of March 1994, and subsequently, on January 19, 1995, notified its intention to lodge a formal request for arbitration to the International Chamber of Commerce.

12. The cost overrun on the Jebel Aulia - Dueim Road construction component of the Second Highway Project was covered by way of payment to the contractor of the arbitration award resulting from a dispute with the Government.

13. Two permanent weighbridges and three mobile weighbridge sites were constructed, but equipment for the Axle Load Control System was not procured. RBPC signed contracts with suppliers for the supply of rescue vehicles, radio equipment, wrecking cranes, etc.; however, RBPC did not proceed with the contracts, in view of the suspension of disbursements. Also, it did not employ technical assistance for implementation of the Axle Load Control System.

14. RBPC engaged consultants for the implementation of the PMS; a contract between Government and the consultants was signed on January 4, 1993. After initial delays, actual work on the PMS started in September 1993. The work progressed well and by March 1994, equipment for the PMS had been procured, pavement condition survey data collected and a number of RBPC engineers trained in the usage of equipment. To allow completion of the implementation phase (Stage 3) of the PMS, IDA extended, with the agreement of the Kingdom of Norway, the original closing date of March 31, 1994, of the Norwegian Grant to December 31, 1994. The follow-up phase (Stage 4) for the annual input to the road maintenance program, which was intended to be carried out with the help of consultants for a period of 3 years, was deleted, as it was thought that with the completion of the implementation phase RBPC would have a fully functional PMS and adequately trained staff to continue its operations.

15. RBPC signed contract with consultants for technical assistance services for institutional development, but did not proceed with the same in view of the suspension.

Bank Performance

16. The Bank's performance in project preparation assistance and appraisal, as well as project supervision was satisfactory. The Bank identified implementation problems correctly and provided appropriate and timely advice to the borrower.

Borrower Performance

17. The borrower's performance in project preparation was satisfactory. However, due to the weak management of RBPC progress reports on the project were generally received very late; no audit reports were received for FY92 and FY93. Government failed to meet its debt service obligations to IDA.

Project Achievements

18. The project did not achieve its objectives to protect capital investment and to prevent transport costs and delivery times from increasing, and to prevent the abuse of the road due to heavy overloading of trucks. Pavement rehabilitation was done for about 80 percent of the length involved; some 30 bridges were provided only with temporary ramps; and road shoulders were left incomplete over long lengths. Possible contractor claims for demobilization costs, idle equipment and labor, lost profits, etc. and unforeseen delays in the execution of the remaining works would have resulted in much higher costs than were originally estimated, besides loss of economic benefits. Although work on a few weighbridges was completed, equipment for the axle load control was not procured, nor was any technical assistance employed for the implementation of the Axle Load Control System. No technical assistance was employed for the follow-up phase of the PMS (Para. 14), or for the institutional support for RBPC (Para. 15).

Lessons Learned

19. The project was processed at a time when the country's economy was in a very poor state. A new Government had assumed power in June 1989, the peace process had stalemated and the Government was in the process of defining its economic policies. The October 1989 IMF mission to the country observed that the economic reforms that the authorities were considering fell short of what the mission considered adequate. As a consequence, the Bank decided to limit its exposure in Sudan. Since the Bank, however, viewed the rehabilitation of this road as critical to the Sudan's existence as well as its economic recovery, it decided to proceed with the project despite the risks posed by the deteriorating macroeconomic situation. Although not successful, we believe the risk was justified under the circumstances.

STATISTICAL TABLES

Table 1: Summary of Assessments

A.	<i>Achievement of objectives</i>	<i>Substantial</i>	<i>Partial</i>	<i>Negligible</i>	<i>Not applicable</i>
	Macroeconomic policies				✓
	Sector policies			✓	
	Financial objectives				✓
	Institutional development			✓	
	Physical objectives		✓		
	Poverty reduction				✓
	Gender concerns				✓
	Other social objectives				✓
	Environmental objectives				✓
	Public sector management				✓
	Private sector development				✓
	Other (specify)				✓
B.	<i>Project sustainability</i>	<i>Likely</i>	<i>Unlikely</i>	<i>Uncertain</i>	
			✓		
C.	<i>Bank performance</i>	<i>Highly satisfactory</i>	<i>Satisfactory</i>	<i>Deficient</i>	
	Identification		✓		
	Preparation assistance		✓		
	Appraisal		✓		
	Supervision		✓		
D.	<i>Borrower performance</i>	<i>Highly satisfactory</i>	<i>Satisfactory</i>	<i>Deficient</i>	
	Preparation		✓		
	Implementation				✓
	Covenant compliance				✓
E.	<i>Assessment of outcome</i>	<i>Highly satisfactory</i>	<i>Satisfactory</i>	<i>Unsatisfactory</i>	<i>Highly unsatisfactory</i>
					✓

Table 2: Related Bank Loans/Credits

<i>Loan/Credit Title</i>		<i>Purpose</i>	<i>Year of Approval</i>	<i>Status</i>
Preceding operations				
1.	Credit 882-SU	Second Highway Project: Construction of the Jebel Aulia - Ed Dueim Road; technical assistance to the Roads Department in Southern Sudan	1979	Completed
2.	Credit 1233-SU	Second Port Project: Improvements to Port Sudan, technical assistance and consultant services	1982	Completed
3.	Credit 1450-SU	Third Highway Project: Procurement of road maintenance and workshop equipment, tools, spare parts, etc.; technical assistance and training; procurement of ferries; and consultant services for highway organization and investment study	1984	Completed

Table 3: Project Timetable

<i>Steps in project cycle</i>	<i>Date planned</i>	<i>Date actual</i>
Identification		March 1988
Preparation		March 1988
Appraisal	June 1988	June - July 1988
Negotiations	November 14, 1988	December 19, 1988
Board presentation	December 1988	December 5, 1989
Signing	December 22, 1989	December 22, 1989
Effectiveness	April 23, 1990	September 20, 1990
Project completion	September 30, 1993	-
Loan closing	March 31, 1994	April 8, 1994

Table 4: Project Financing

		Total Cost Incl. Contingencies	-----FUNDING-----		
			IDA	KfW	GOS
-----US\$ million-----					
A.	Civil Works				
(i)	Khartoum - Port Sudan Road Rehabilitation	88.1	56.6	15.9	15.7
(ii)	Construction of Weighbridges	1.3	0.7	0.2	0.4
(iii)	Cost Overrun on Jebel Aulia - Ed Dueim Road Construction	15.6	15.6		
	SUBTOTAL	105.0	72.8	16.1	16.1
B.	EQUIPMENT AND MATERIALS				
(i)	Axle Load Control Systems	2.1	2.1		
(ii)	Pavement Management Equipment	0.3	0.3		
	SUBTOTAL	2.4	2.4		
C.	CONSULTANT SERVICES & TRAINING				
(i)	Construction Supervision	4.1	4.1		
(ii)	Axle Load Control System TA and Training	1.2	1.2		
(iii)	Pavement Management System TA and Training	0.6	0.6		
(iv)	Institutional Support for RBPC	1.1	1.1		
	SUBTOTAL	7.0	7.0		
TOTAL		114.4	82.2	16.1	16.1

Table 5: Credit Allocations and Actual Disbursements

(SDR Equivalent)

	Category	Original Allocations	Actual Disbursements
(1)	Roads/Bridges Rehabilitation	40,000,000	18,269,757
(2)	Road Construction (Jebel Aulia - Ed Dueim Road)	13,000,000	13,470,330
(3)	Equipment, spare parts and vehicles	1,700,000	-
(4)	Consultants' services	4,500,000	2,512,273
(5)	Unallocated	6,500,000	-
		<hr/>	
		65,700,000	34,252,360

Table 6: Bank Resources: Missions

<i>Stage of project cycle</i>		<i>Month/ year</i>	<i>Number of persons</i>	<i>Days in field²</i>	<i>Specialized staff skills³ represented</i>	<i>Performance rating¹</i>		<i>Types of problems⁴</i>
						<i>Implementation status</i>	<i>Development impact</i>	
Through appraisal	1.	2-3/88	2	11	FA, HE	-	-	-
	2.	6-7/88	2	13	FA, HE	-	-	-
Appraisal through Board Approval	1.	4/89	3	n.a	FA, HE			
	2.	9/89	2	n.a	FA, HE, LC			
Board approval thru' effectiveness	1.	2/90	1	9	HE	-	-	-
	2.	6/90	1	4	HE	-	-	-
Supervision	1.	8/91	1	11	HE	2	1	M, T
	2.	2-3/92	2	15	HE (2)	2	1	M, T
	3.	9-10/92	1	14	HE	Form 590 not available		
	4.	5/93	1	12	HE	2	1	M, T
	5.	1/94	1	10	HE	4	1	M, F, T

¹ 1 - Problem free; 2 - Moderate problems; 3 - Major problems; 4 - Major problems, not addressed adequately

² Combined with supervision missions for other highway projects

³ FA - Financial Analyst; HE - Highway Engineer; LC - Legal Counsel

⁴ M - Managerial; T - Technical; F - Financial



IMAGING

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