

AFRICAN DEVELOPMENT BANK GROUP



ZIMBABWE

RURAL ROADS I PROJECT

Project Performance Evaluation Report (PPER)

**OPERATIONS EVALUATION DEPARTMENT
(OPEV)**

16 August 1999

TABLE OF CONTENTS

	<u>Page</u>
CURRENCY EQUIVALENTS AND ABBREVIATIONS, PREFACE AND BASIC PROJECT DATA	i-viii
1. <u>EVALUATION SUMMARY</u>	1
1.1 Project Objectives and Scope	1
1.2 Project Implementation	1
1.3 Compliance with Loan Conditions and Covenants	2
1.4 Performance Evaluation	2
1.5 Project Sustainability	3
1.6 Conclusions, Feedback and Recommendations	4
2. <u>BACKGROUND</u>	7
2.1 Macro-Economic Context	7
2.2 The Road Sub-sector	8
2.3 History of Operations - Bank Group	9
2.4 Project Formulation	9
2.5 Project Rationale	10
2.6 Project Objectives and Scope at Appraisal	11
2.7 Financing Arrangements	11
2.8 Evaluation Methodology and Approach	12
3. <u>PROJECT IMPLEMENTATION</u>	12
3.1 Loan Effectiveness	12
3.2 Changes in Project Design	14
3.3 Implementation Schedule	15
3.4 Reporting	16
3.5 Procurement	16
3.6 Project Costs	17
3.7 Disbursements	18
3.8 Compliance with Loan Conditions and Covenants	18
4. <u>PERFORMANCE EVALUATION</u>	19
4.1 Operating Performance	19
4.2 Financial Performance	19
4.3 Economic Performance	19
4.4 Institutional and Social Performance	20
4.5 Impact on Women	22
4.6 Environmental Performance	22
4.7 Performance of Contractor, Consultant and Borrower	22
4.8 Bank Group Performance	23

5.	<u>PROJECT SUSTAINABILITY</u>	23
6.	<u>PERFORMANCE RATING</u>	24
7.	<u>CONCLUSIONS, FEEDBACK AND RECOMMENDATIONS</u>	24
7.1	Conclusions	24
7.2	Lessons	25
7.3	Recommendations	26
7.4	Follow-up Action Matrix	27

LIST OF ANNEXES

	<u>No. of Pages</u>
1. Project Location Map	1
2. Recommendations and Follow-up Action Matrix	3
3. Road Maintenance Budget Allocations	1
4. Project Implementation Schedule	1
5. Performance Rating	3
6. Retrospective Logical Framework Matrix	2
7. Annual Loan and GOZ Disbursements	1
8. Traffic Forecasts	4
9. Vehicle Operating Costs	1
10. Savings in Vehicle Operating Costs	4
11. Streams of Costs and Benefits	4

1

This report was prepared by Messrs **W. Byaruhanga**, Principal Post Evaluation Officer, and **Jose C. Horta**, Consulting Civil Engineer, following a mission to Zimbabwe in July, 1998. Any further matters relating to this report may be referred to Mr. **G.M.B. Kariisa**, Director, Operations Evaluation Department, (Extension 4052).

CURRENCY EQUIVALENTS AND ABBREVIATIONS

Currency Equivalents

Zimbabwe Currency Unit: Zimbabwe Dollar (Z\$)

1 UA =Z\$	1.47266	Jan.-March	1985 (Appraisal)
1 UA =Z\$	1.75020	Jan.-March	1986 (Loan effectiveness, Comm. W. R177 R330, R847)
1 UA =Z\$	1.86663	April-June	1986 (First disbursement)
1 UA =	Z\$ 2.00299	Oct.-Dec.	1986 (Commencement works R659)
1 UA =Z\$	2.35932	Jan.-March	1988 (Completion works R330)
1 UA =Z\$	2.61453	April-June	1989 (Completion works R659)
1 UA =Z\$	2.66893	July-Sept.	1989 (Completion works R177)
1 UA =Z\$	3.75075	Jan.-March	1991 (Completion works R847)
1 UA =Z\$	6.92099	April-June	1992 (Last disbursement)
1 UA =Z\$	11,3909	June	1994 (Project Completion Report)
1 UA =Z\$	21.9087	June	1998 (PPER)

Weights and Measures

1 metric ton (t)	=	2.205 lbs
1 kilogramme (kg)	=	2.2 lbs
1 metre (m)	=	3.28 ft
1 foot	=	0.305 m
1 kilometre	=	0.621 mile
1 mile	=	1.609 km
1 square kilometre (km ²)	=	0.386 square mile
1 hectare (ha)	=	0.01 km ²

Fiscal Year

1st July - June 30

Abbreviations

ADB	:	African Development Bank
ADF	:	African Development Fund
ADI	:	African Development Institute
ADT	:	Average Daily Traffic
CMED	:	Central Mechanical Equipment Depot
CU	:	Construction Unit
DSR	:	Department of State Roads
EIRR	:	Economic Internal Rate of Return
ERR	:	Economic Rate of Return
FE	:	Foreign Exchange
GDP	:	Gross Domestic Product
GNP	:	Gross National Product
GoZ	:	Government of Zimbabwe
LC	:	Local Currency
MF	:	Ministry of Finance
MLA	:	Ministry of Lands and Agriculture
MNRT	:	Ministry of Natural Resources and Tourism
MTE	:	Ministry of Transport and Energy
PAR	:	Project Appraisal Report
PCR	:	Project Completion Report
PPER	:	Project Performance Evaluation Report
PTA	:	Preferential Trade Area
SADC	:	Southern African Development Community
SIDA	:	Swedish Agency for International Development
TA	:	Technical Assistance
TOR	:	Terms of Reference
UA	:	Unit of Account
UNDP	:	United Nations Development Programme
VOC	:	Vehicle Operating Costs
VO	:	Variation Order
VPD	:	Vehicle Per Day
Z\$:	Zimbabwe dollar

PREFACE

1. This Project Performance Evaluation Report (PPER) is concerned with the performance of the Rural Roads Project I in Zimbabwe.
2. On 26 August 1985, an ADB Loan (N^o: CS/ZBW/TR/85/003) in the amount of UA 30.00 million was approved by ADB for the Project. The first disbursement was made on 5 May 1986. The last disbursement on 14 May 1992 after completion of the works. The Loan was used to finance the improvement to bitumen standards of four rural roads for a total length of 221 km, including construction supervision.
3. The project was completed and the roads entirely opened to traffic at different times as follows: Seke -Zvipadze in January 1988; Gwanda - Guyo in April 1989; Mvuma - Gweru in August 1989; Kwekwe - Gokwe in March 1981. A Project Completion Report (PCR) was prepared by the Bank in June 1994, following a mission to Zimbabwe.
4. The project has largely attained its objectives of upgrading and construction of the existing gravel/earth roads to bitumen standards in order to link the four growth points within the impact areas of the main arteries to the highway network and thereby integrate these areas into the main economic and social centres of the country.
5. The draft PCR has narrated and covered in broad terms the implementation experience of this project. The purpose of this evaluation report is to look deeper into this experience as well as other issues of the completed project. The report therefore clarifies, amplifies and complements the findings in the PCR.
6. While this report critically accepts the lessons given in the PCR, it nevertheless provides a set of additional lessons which are designed to enhance the effectiveness of Bank Group financed projects in Zimbabwe and in other member countries of the Bank.
7. The evaluation report is a result of a post evaluation mission undertaken in July 1998. The information contained herein is based on discussions with Zimbabwe Government officials, a visit to the project sites, information from the appraisal and PCR reports, and from project documents and Bank files.
8. The overall assessment in both the PCR and this evaluation report shows a satisfactory project performance outcome.
9. The draft of this report was submitted for comments to the Operations Departments of the Bank and to the Borrower; comments received were taken into account in the final version of the report.

SUMMARY DATA SHEET

1.	Country	:	Republic of Zimbabwe
2.	Project	:	Rural Roads I Project
3.	Loan number	:	CS/ZBW/TR/85/003
4.	Borrower	:	Government of Zimbabwe
5.	Beneficiary	:	Government of Zimbabwe
6.	Executing Agency	:	Department of State Roads of the Ministry of Transport and Energy

A. BASIC LOAN DATA

	<u>Appraisal Estimate</u>	<u>Actual</u>	
1.	Amount (UA million)	30.00	15.71
2.	Amount cancelled (UA million)	---	14.29
3.	Interest rate (% annum)	9.86	9.55
4.	Service charge	---	---
5.	Repayment period (years)	18	18
6.	Grace period (years)	4	5
7.	Loan balance (UA million)	---	14.29
8.	Loan negotiation date	---	5 - 9 August 1985
9.	Loan approval date	June 1985	26 August 1985
10.	Loan signature date	---	23 October 1985
11.	Loan effectiveness date	---	20 February 1986

B. PROJECT DATA

	<u>Appraisal Estimate</u>				<u>Actual</u>				
1.	Total cost (UA Million)	42.86				22.44			
	Total cost (Z\$ million)	63.11				33.04			
(i)	FE component (UA million)	30.00				15.71			
	FE component (Z\$ million)	44.17				48.27			
(ii)	LC component (UA million)	12.86				6.73			
	LC component (Z\$ million)	18.96				9.91			
2.	Financing Plan (UA million)	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>
	ADB	30.00	0.00	30.00	70	15.71	0.00	15.71	70.0
	GOZ	0.00	12.86	12.86	30	0.00	6.73	6.73	30.0
	Total	<u>30.00</u>	<u>12.86</u>	<u>42.86</u>	<u>100</u>	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>	<u>100.0</u>
3.	Deadline for first disbursement	31 December 1986				31 December 1986			
4.	Effective date of first disbursement	---				5 May 1986			
5.	Deadline for final disbursement	31 December 1990				30 June 1996			
6.	Effective date of last								

	disbursement	---	14 May 1992
7.	Commencement of implementation (Consultant appointed)		
	Kwekwe - Gokwe	1 September 1985	23 January 1986
	Mvuma - Gweru		
	Seke - Zvipadze		
	Gwanda - Guyo		17 April 1986
8.	Commencement of works		
	Kwekwe – Gokwe	1 February 1986	31 January 1986
	Mvuma - Gweru	1 October 1985	15 January 1986
	Seke - Zvipadze	1 November 1985	15 January 1986
	Gwanda - Guyo	15 February 1986	3 November 1986
9.	Completion of works		
	Kwekwe – Gokwe	1 July 1989	31 March 1991
	Mvuma - Gweru	1 October 1987	15 August 1988
	Seke - Zvipadze	1 November 1987	15 August 1988
	Gwanda - Guyo	15 February 1988	3 March 1989
10.	End of maintenance period		
	Kwekwe - Gokwe	1 July 1990	31 March 1992
	Mvuma - Gweru	1 October 1988	15 August 1989
	Seke - Zvipadze	1 November 1988	15 August 1989
	Gwanda - Guyo	15 February 1989	3 March 1990

C. PERFORMANCE INDICATORS

1.	Cost overrun	UA 20.42 million, or Z\$ 30.07 million, or 48%	
2.	Time overrun	21 months	
	Slippage on effectiveness	4 months	
	Slippage on first disbursement	none	
	Slippage on last disbursement	17 months	
	Extension of last disbursement	18 months	
	Slippage on start-up of works	2 months	
	Kwekwe - Gokwe	0 months	
	Mvuma - Gweru	3.5 months	
	Seke - Zvipadze	2.5 months	
	Gwanda - Guyo	8.5 months	
	Slippage on completion of works		
	Kwekwe - Gokwe	21 months	
	Mvuma - Gweru	11.5 months	
	Seke - Zvipadze	10.5 months	
	Gwanda - Guyo	12.5 months	
3.	Project implementation status	completed	
4.	Implementation performance	satisfactory	
5.	Bank performance	satisfactory	
6.	Project outcome	satisfactory	
7.	EIRR		
	Kwekwe – Gokwe	25%	15%
	Mvuma - Gweru	16%	15%
	Seke - Zvipadze	19%	33%
	Gwanda - Guyo	19%	12%

7.	Cost of works (Z\$ million)	25.00	33.84
8.	End of maintenance period	1 July 1990	31 March 1992

F2. **Mvuma - Gweru**

1.	Name:	Ministry of Transport and Energy Construction Units N° 7	
2.	Responsibility:	Execution of the Construction Works	
		<u>Appraisal</u>	<u>Actual</u>
3.	Date contract awarded:direct labour force account	direct labour force account	direct labour force account
4.	Date of commencement	1 October 1985	15 January 1986
5.	Date of completion	1 October 1987	15 August 1988
6.	Duration of contract	24 months	31 months
7.	Cost of works (Z\$ million)	12.87	14.37
8.	End of maintenance period	1 October 1988	15 August 1989

F3. **Seke - Zvipadze**

1.	Name:	Ministry of Transport and Energy Construction Units N° 8	
2.	Responsibility:	Execution of the Construction Works	
		<u>Appraisal</u>	<u>Actual</u>
3.	Date contract awarded:direct labour force account	direct labour force account	direct labour force account
4.	Date of commencement	1 November 1985	15 January 1986
5.	Date of completion	1 November 1987	15 August 1988
6.	Duration of contract	24 months	31 months
7.	Cost of works (Z\$ million)	8.55	7.27
8.	End of maintenance period	1 November 1988	15 September 1989

F4. **Gwanda - Guyo**

1.	Name:	Partizanski Put (Zimbabwe) Ltd. (Pvt) Headquarters in Yugoslavia	
2.	Responsibility:	Execution of the Construction Works	
3.	Date contract awarded:22 October 1986		
		<u>Appraisal</u>	<u>Actual</u>
4.	Date of commencement	15 February 1986	3 November 1986
5.	Date of completion	15 February 1988	3 March 1989
6.	Duration of contract	24 months	28 months
7.	Cost of works (Z\$ million)	14.63	9.8
8.	End of maintenance period	15 February 1989	3 March 1990

G. **CONSULTANTS**

G1. **Kwekwe - Gokwe, Mvuma – Gweru, and Seke - Zvipadze**

1.	Name	Renardet S. A. Consulting Engineers, Geneva, Switzerland
2.	Responsibility	Construction supervision
3.	Date contract signed	23 January 1986
4.	Date contract terminated	April 1991
5.	Contract duration	52 months

6.	Amount of contract (Z\$ million)	2.099	4.215
----	-------------------------------------	-------	-------

G2. **Gwanda - Guyo**

1.	Name	Scott, Wilson, Kirkpatrick and Partners	
2.	Responsibility	Construction supervision	
3.	Date contract signed	16 April 1986	
4.	Date contract terminated	April 1989	
5.	Contract duration	36 months	
6.	Amount of contract:		
	(GBP)	42,160	45,635
	(Z\$ million)	0,608	0,721

1. **EVALUATION SUMMARY**

1.1 **Project Objectives and Scope**

1.1.1 The existing gravel roads R330 Seke - Zvipadze, R659 Gwanda - Guyo, R517 Mvuma - Gweru, and R847 Kwekwe - Gokwe were programmed by the GOZ for upgrading to bitumen paved standards. With support from SIDA, the GOZ prepared the detailed design and tender documents in 1984/85 and addressed a formal request to the Bank in 1984 for financial assistance to implement reconstruction of priority rural roads. Project preparation was carried out by a Bank mission in March 1985. The appraisal report was prepared in 10 May 1985.

1.1.2 The principal objective of the project as stated at appraisal was to upgrade and construct the existing gravel/earth roads to bitumen standard in order to link the four growth points within the impact areas to the main arteries of the highway network and thereby integrate these areas into the main economic and social centres of the country.

1.1.3 The project objective has been attained: the upgraded roads link their growth poles and impact areas to the highway network of Zimbabwe at lower costs and have thus facilitated the movement of goods and people from these areas and poles to the main economic and social structure of the country.

1.2. **Project Implementation**

1.2.1 The Loan was negotiated from 5 to 9 August 1985, approved two weeks later and signed on 23 October 1985. It was declared effective four months later after fulfilment by the Borrower of the conditions precedent to first disbursement. This period taken to achieve effectiveness is reasonable and within the six-month maximum delay now enforced by the Bank.

1.2.2 Unlike most other regional member countries, Zimbabwe had an efficient and well-equipped road management system with fully operational road construction units under the Ministry of Transport. It was therefore decided to allocate these valuable resources for project implementation and to construct three of the roads on direct labour force account while the works of the fourth road were to be opened to tenders by private contractors.

1.2.3 A comparison between the appraisal and actual implementation schedules for the project shows that the start of construction was delayed on three of the roads; there was a delay of 9 months on Gwanda - Guyo (private contractor), a 3.3 months delay on Mvuma - Gweru, and a 2.5 month delay on Seke - Zvipadze.

1.2.4 The construction period envisaged at appraisal was largely exceeded on three of the roads. Thus Gwanda - Guyo (private contractor) took 29 months to construct instead of 24 months, Mvuma - Gweru took 43 instead of 24 months, and Kwekwe - Gokwe 61 instead of 41 months. Only works on Seke - Zvipadze were completed within the 24 months as envisaged at appraisal.

1.2.5 The main reasons that account for the long delays in the completion of the road works are the following:

- (i) The lowest evaluated bidder on Gwanda - Guyo declined to extend the validity of his bid and the contract was awarded to the second lowest bidder. The selected contractor experienced serious financial difficulties, was not conveniently supported by his headquarters in Europe and was using defective equipment.

- (ii) Additional works were ordered by the Government on the other three roads. Thus a road over rail bridge and its approaches designed by the Ministry of Transport and two access roads demanded extra construction time to Mvuma - Gweru. The scope of the works on Kwekwe - Gokwe was also modified by an additional 22 km long main road section, revision of geometric and pavement design standards of certain other sections, as well as different access roads and bridges. However, modifications of the scope of the works on Seke - Zvipadze including a 20m single span bridge with approaches and an access road did not result in construction time overrun.
- (iii) The road construction units of the Department of State Roads (DSR) worked with markedly low availability of plant and equipment and experienced shortages of materials and spare parts, largely due to cumbersome procurement procedures for these items.

1.2.6 At appraisal, the total project cost was estimated at UA 42.86 million (Z\$ 63.11 million), net of taxes and duties. After all the changes in the scope of the works and time delays, the actual total cost of the completed project was UA 22.44 million (Z\$ 68.23), net of taxes and duties.

1.2.7 The ADB loan was UA 30 million and the actual disbursed amount at project completion was 15.71 million, leaving an undisbursed amount of UA 14.29 million which was subsequently cancelled. The Government disbursed an amount equivalent to 30 % of actual total project costs. However, as the Government purchased equipment, materials and supplies in bulk for use by the Construction Units of the DSR, some project expenditures could not be properly identified for reimbursement purposes due to the global nature of the suppliers' invoices which could not be honoured by the Bank.

1.2.8 The actual project costs in terms of UA fell far below the appraisal estimate in spite of increases in the scope of the works and time delays. The savings on the loan were largely attributable to frequent foreign exchange rate changes during project implementation and also to possible cost overestimation at appraisal. Actually, the overall conclusion of the consultant's final construction supervision report was that «a force account unit can carry out construction work of the scope covered by the project much more economically than a private contractor». The above mentioned lack of identification and reimbursement of Government expenditures by the Bank also accounts for some proportion of the project cost under-run and the large loan balance.

1.3. **Compliance with Loan Conditions and Covenants**

1.3.1 All loan conditions were fulfilled without long delays and the loan became effective within four months of its signature.

1.3.2 Actually, the loan conditions themselves were relatively easy to fulfil as they were mere undertakings. However, although the Government made an undertaking to increase the budgetary allocation for road maintenance, this was not done during project implementation and further action still needs to be taken on this condition to ensure the viability of the country's road network and sustainability of the project roads.

1.4. **Performance Evaluation**

1.4.1 Following the opening of the roads to traffic between 7 and 10 years ago, an increase in traffic volumes has been reported. Traffic growth rates vary from 5 to 10% and they are even higher on Seke - Zvipadze which is close to the capital city of Harare and carries the highest volume of traffic. The roads were constructed to good engineering standards and have received adequate routine maintenance.

1.4.2 The EIRR calculated at appraisal on the basis of the feasibility study and detailed design were 25, 16, 19, and 19 % respectively for Kwekwe - Gokwe, Mvuma - Gweru, Seke - Zvipadze, and Gwanda - Guyo. At completion, the EIRR as calculated by the PCR were 13, 14, 42, and 20 % respectively. The EIRR were recalculated in this report based on recent traffic counts and revised forecasts and were found to be 15, 15, 33, and 12% respectively. The high traffic volumes carried by Seke - Zvipadze explains the high value of the EIRR of this road and should call the attention of the Borrower to possible strengthening requirements of this road.

1.4.3 The DSR of the Ministry of Transport assisted by resident engineers of two consulting firms was responsible for the overall execution of the project on behalf of the Government and performed satisfactorily.

1.4.4 In spite of all changes introduced during construction, the direct labour construction units and the private contractor provided good workmanship and delivered good products. Their performance was satisfactory.

1.4.5 The performance of the consultants in charge of the supervision of the Works and financial contract management was satisfactory. In addition to 115 progress reports, the Consultant supervising the Construction Units prepared a useful general report on cost and works management and performance monitoring.

1.4.6 With regard to the overall administration of the project, the performance of the Borrower and the Executing Agency was satisfactory. However, they should have kept appropriate records of expenditures for the Construction Units working for the project and provided specific invoices for reimbursement by the Bank. Appropriate accounts would have permitted a more accurate evaluation of project costs at this stage.

1.4.7 The Bank did not undertake a project identification mission. As soon as the loan application was received, the Bank sent a mission comprising one transport economist and two civil engineers from 1 to 17 March 1985 for project appraisal. The Bank was effective in providing guidance to the Executing Agency in order to support project implementation. The Bank effected one follow-up mission from 1 to 17 November 1985 and was effective during construction with eight supervision missions. On balance, the Bank's performance can be considered to have been satisfactory.

1.5. **Project Sustainability**

1.5.1 The benefits from the project can only be sustained if the roads will continue to be maintained and in a timely manner. Routine maintenance has been regularly provided but the roads have not been resealed since construction. The project roads should be programmed for resealing in the short term. Seke-Zvipadze also requires widening and should be tested for strengthening/overlay requirements.

1.5.2 Project sustainability implies adequate budgetary allocation of funds to the maintenance activity, but also adequate provision of maintenance equipment and qualified personnel to the Road Maintenance Units. While the DSR is well organised and tries hard to undertake both routine and periodic maintenance of the state roads under its charge and their efforts are commendable in this regard, the annual budgetary allocations fall far short of the requirements. Over the recent past, budgetary allocations have shown a declining trend: on average, only about a third of the requested amount is provided each year.

1.6. **Conclusions, Feedback and Recommendations**

1.6.1 Conclusions

The present report accepts most of the conclusions of the PCR with the additions stated below:

- (i) The project has met its main objective which was to upgrade and construct the existing gravel/earth roads to bitumen standards in order to link the four growth points within the impact areas to the main arteries of the highway network and thereby to bring these areas closer to the main economic and social centres of the country.
- (ii) Following frequent foreign exchange rate changes during project implementation, lack of proper identification and reimbursement by the Bank of some expenditures in supplies, materials and equipment for the Construction Units and the low cost of direct labour force account works, the actual project cost was only 52% of its appraised cost, in spite of additional works. The recalculated values of the EIRR are comparable to the appraised values, except for Seke - Zvipadze which yields a much higher value of 33 % as a result of higher than expected volumes of traffic.
- (iii) Design scope changes during construction as proposed by the GOZ and agreed by the Bank resulted in considerable time overrun, except for Seke – Zvipadze which was completed on schedule in spite of an additional 20m single span bridge with approaches and an access road. However, the considerable changes in the scope of design did not result in appreciable cost overrun. The project roads were all completed according to the required technical standards and main design characteristics.
- (iv) Following design changes and delays in procurement of plant, supplies and aterials, the implementation of the project experienced delays during the construction phase which caused a maximum time overrun of 21 months.
- (v) The Department of State Roads as the Executing Agency for the project performed satisfactorily in overseeing project execution with construction supervision by two different consultant teams.
- (vi) The Bank's performance is on the whole rated to be satisfactory, although the Bank could have been more effective and active at the identification and preparation stages, namely in the evaluation of the appropriateness of the detailed design so as to avoid changes in design scope during construction.
- (vii) The roads have helped to boost crops production, (namely maize), mining and different industrial and commercial activities. The Seke-Zvipadze road has also largely contributed to better living conditions and development of the Seke township.

- (viii) The roads have received adequate routine maintenance. They should be programmed for resealing in the short term in order to avoid functional distress development. Because of particularly high volumes of traffic, the Seke-Zvipadze should be tested for overlay/strengthening requirements.
- (ix) The overall assessment shows a satisfactory project outcome.

1.6.2 Lessons

The following lessons can be drawn out of the project:

- (i) An implementation schedule should be monitored step by step, and target dates should be respected, and all parties, namely the Borrower, the Bank, Consultants and Contractors should be more concerned by time effectiveness (para. 3.3.3.).
- (ii) Where a detailed design is already available at appraisal, it should always be carefully checked, scrutinised and evaluated in order to make sure that it is comprehensive, site specific and appropriate for project implementation. If not, the existing design should be reviewed and completed and the cost estimate as well as feasibility indicators updated (Section 3.2).
- (iii) Lack of familiarity with the Bank procedures with respect to reimbursement can cause delays and rejection of payments, and can affect the completed project cost (para. 3.7.2).
- (iv) Important factors such as quantities, physical and price contingencies, unit prices, and currency exchange rates on which cost estimates are based, require careful consideration and need to be as realistic as possible. Attention should be drawn to the fact that unit prices tendered by private contractors can be quite different from those of direct labour force construction (para. 3.6.2).

1.6.3 Recommendations

The following recommendations are formulated for the consideration of the Government and the Bank:

For the Government

- (i) The Government should be required to keep detailed records of expenditures for supplies, materials and equipment used by the Construction Units and provide specific invoices for reimbursement by the Bank (para. 3.7.2).
- (ii) The Government should strive to reduce delays in processing disbursement applications through its own administration (para. 4.7.6).
- (iii) In order to minimise design modifications during construction, senior engineers should be assigned to scrutinise existing detailed designs and make sure that they are comprehensive, site specific and appropriate for project implementation (Section 3.2 and para. 4.7.7).

- (iv) Executing agencies should periodically prepare two different up to date lists of unit prices and cost escalation factors to be used in project cost estimates, namely one list for direct labour force construction and the other list for construction by private contractors (para. 3.7.2).
- (v) The Department of State Roads (DSR) should ensure that resealing of project roads is undertaken without delay. In particular, the Seke - Zvipadze should be tested and eventually programmed for overlay / strengthening requirements (para. 4.1.3).
- (vi) The DSR should forward to the Bank as from 1998, original audited financial statements and a signed copy of the Auditor's report on on-going road projects (para. 3.4.4).

For the Bank

- (i) The Bank should closely supervise and/or check the adequacy of project preparation so that changes in design during project execution can be avoided as far as possible (Section 3.2).
- (ii) At appraisal, the Bank should always carry out a detailed inspection of the project site(s) and thereafter carefully analyse, scrutinise and evaluate existing designs to make sure that they are comprehensive, site specific and appropriate for implementation. If this is not the case, the Bank should require that the existing design be reviewed and completed and the cost estimate as well as feasibility indicators updated (para. 3.2.1).
- (iii) Procurement issues should be given careful consideration at the project preparation stage and be resolved at project appraisal or at loan negotiations stage (paras. 3.3.4 and 3.5.1).
- (iv) The most realistic unit price rates, physical and price contingency allowances should be studied and adopted during project preparation. Prices and costs of works by contract should be distinguished from prices and costs of direct labour force construction (para. 3.5.2).
- (v) Disbursement schedules based on detailed and realistic project execution schedules should be included in project appraisal reports. In this regard, guidelines on preparation of disbursement schedules should be developed to assist project officers.
- (vi) The Bank should follow-up the routine maintenance and resealing programmes for the project roads (para. 5.2).
- (vii) The Bank has to ensure that as from 1998, the Roads Department will forward to the Bank, the original audited financial statements and signed copies of the Auditor's reports on on-going road projects (para. 3.4.4).

1.6.4. **Follow-up Action Matrix**

A summary of the follow-up actions is presented in Annex 2.

2. **BACKGROUND**

2.1 **Macro-Economic Context**

2.1.1 The Republic of Zimbabwe is located in Southern Africa and is landlocked; it is surrounded by Mozambique, Zambia, Botswana and South Africa (Annex 1). The nearest access to the sea is through the port of Beira, in Mozambique, which is connected by road, rail and pipeline to Zimbabwe.

2.1.2 Zimbabwe has an area of 390,580 km². The terrain is mostly high plateau with mountains in the east. Altitudes range from 2,592 (Inyangani) to 162 m (junction of the Lundi and Savi rivers). The climate is tropical modified by altitude, with a summer rainy season from November to March.

2.1.3 The country's population is about eleven and half million inhabitants with a growth rate of 1.26 % (1997 estimate). The population is still youthful, with 43% being under 15 years.

2.1.4 The economy of Zimbabwe is characterised by a strong private sector in all major activities, namely crop farming, mining, industry, finance and services. In agriculture, large-scale private commercial farms, numbering 4,850, cultivate 33 % of the land and produce 55 % of total crop output and 70 % of livestock production. In industry and mining, the 64 companies listed on the Zimbabwean stock exchange have a peak market capitalisation equivalent to 36 % of the GDP and a peak turnover representing 20 % of the GDP.

2.1.5 Agriculture employs 70 % of the labour force and supplies almost 40 % of the exports. Mining only employs 5 % of the labour force, but mineral ores and metals account for about 40 % of the exports. Although agriculture (with 18 %) ranks second in contribution to GNP after manufacturing (with 35 %), it produces raw materials to meet the processing needs of 50 % of the manufacturing industry.

2.1.6 Transport and communications play a key role in support of overall growth in the economy of Zimbabwe, which has well developed rail and road networks.

2.1.7 Zimbabwe has a GDP per capita of US\$ 2,340 (1996 estimate). GDP registered positive growth rates in 1991, 1993, and 1994 but dropped by 6.8 % in 1992 as a result of severe drought and again by 2.4 % in 1995 for the same reason. The overall real income growth for the period 1991-95 was as low as 1.4 % yearly and the per capita income growth was negative. The GDP growth rate rebounded in 1996 to 8.1 % as a result of recovery of the agriculture sector.

2.1.8 Zimbabwe has a high rate of unemployment in the range of 26-40 % and investment still below the level of 30 % required to reduce unemployment to acceptable levels and ensure sustainable growth. Investment is estimated to have fallen from 18.4 to 15.5 % of GDP between 1994 and 1995 but recovered in 1996. Continued recovery will depend on the response of the private sector to policies currently being implemented by the Government, namely privatisation of parastatals, reduction of interest rate from its high levels over 30%, and reduction of Government intervention in the financial market.

2.1.9 The budget deficit continues to be a major problem to the economy of Zimbabwe but positive developments took place recently partly as a result of control measures that force ministries to stay within their budget commitments.

2.1.10 Rigorous implementation of the economic reform programme and continued progress on expenditure control, revenue diversification and encouragement of investment and economic growth are essential to Zimbabwe's future growth and macro-economic stability. Beyond these policy measures, Zimbabwe has sufficient natural resources and technological capacities to achieve a high level of sustainable growth.

2.2 The Road Sub-Sector

2.2.1 The transport network of Zimbabwe is relatively well developed and extensive with a total of 2,759 km of rail of which 335 km electrified and 42 km double track and a total road length of 91,099 km. Rail transport handles 90 % of domestic and export freight. The road network provides access to commercial and industrial centres and commercial farming areas and is being developed to provide better access to the rural areas and connection between these and the main market centres.

2.2.2 The road network of Zimbabwe comprises 15,486 km or 17 % bitumen paved roads, 47,370 km or 52 % gravel roads, and 28,243 km or 31 % earth roads.

2.2.3 The public road network consists of some 76,000km of roads. About 15,000 km of roads are under the authority of the MLA and the MNRT. The public road network is classified into State Roads (24%) under the Department of State Roads linking provincial and district centres, Rural District Council Roads (69%) serving the commercial farming areas, and Urban Council Roads (7%).

2.2.4 The public road network comprises bitumen paved, gravel and earth roads as shown in Table 2.1 below:

Table 2.1
Public Road Network (1994)

<i>Road Type</i>	<i>State</i>	<i>Rural District Council</i>	<i>Urban Council</i>	<i>total</i>	<i>percent (%)</i>
<i>Earth</i>	3,728	13,823	0	17,551	23
<i>Gravel</i>	6,445	36,779	1,153	44,377	58
<i>Surfaced</i>	8,261	1,755	4,134	14,150	19
<i>Total</i>	18,434	52,357	5,287	76,078	100
<i>Percent (%)</i>	24	69	7	100	

2.2.5 The State and Council Rural Roads carry most traffic and provide adequate geographical coverage. However, Rural District Council Roads are mostly gravel with a small proportion (3%) of paved roads. The State Roads still comprise 35% gravel and 20% earth roads.

2.2.6 Since 1985 the level of investment in road maintenance shows a declining trend if the net present value is considered on Road maintenance budget allocations. Furthermore, since 1992/93 the amounts allocated to road maintenance only represent one third of the requests by the DSR (Annex 3 and Table 2.2 below).

Table 2.2
Road Maintenance Funding: Comparison of Amount Requested and Provided
(Z\$ million)

<i>Financial Year</i>	<i>1990/91</i>	<i>1991/92</i>	<i>1992/93</i>	<i>1993/94</i>	<i>1994/95</i>	<i>1995/96</i>
<i>Bid</i>	76.6	95.0	378.9	416.0	405.0	367.2
<i>Provision</i>	74.5	93.7	139.8	148.0	150.0	

2.2.7 The problem of raising the revenue required for funding upgrading, rehabilitation and maintenance of the road network is to be addressed by a road levy fund and the problem of a right balance between capital investment and maintenance should be addressed by a road maintenance management system.

2.2.8 The GOZ and the DSR are progressing in the right direction. The DSR is carrying out of concurrent studies on road re-classification, roads act, and road fund. These studies are expected to result into the creation of a road fund and autonomous road authorities which will be responsible for specified categories of roads and the creation of a Road Fund that will generate sufficient funds for the maintenance of the road network.

2.3 History of Operations

2.3.1 To date, the Bank Group has approved twenty three loans and five grants for the financing of twelve projects, three lines of credit, one policy based operation and four studies. The share of the roads sub-sector comprised two projects and one study.

2.3.2 The share of the transport sector in the Bank Group's commitments to Zimbabwe amounts to UA 72.07 million or 14.9% of total commitment as at 24 September 1996. The Bank Group's assistance in the transport sector consists of Rural Roads Project I and II, Rural Roads Studies, and Railways Project I.

2.3.3 Of the twelve projects, eight were completed and three have been subject of project performance audit reports.

2.4 Project Formulation

2.4.1 The Government of Zimbabwe had embarked on a programme of improving existing and creating new growth centres all over the country for the rapid and steady resettlement of the rural population which was uprooted from their normal habitat by the war of independence. The Bank Group had already granted two successive loans for the accomplishment of this programme. The programme was dependent on the provision of adequate all weather rural roads to connect the growth centres to main roads of the national network and the GOZ opted for the reconstruction of the priority rural gravel roads to low cost bitumen standards.

2.4.2 Hence the existing gravel roads R330 Seke -Zvipadze, R659 Gwanda - Guyo, R517 Mvuma - Gweru, and R847 Kwekwe - Gokwe were programmed by the GOZ for upgrading to bitumen paved standards. With support from SIDA, the GOZ hired consultants to prepare detailed designs and tender documents in 1984-85.

2.4.3 Meanwhile the GOZ addressed a formal request to the Bank in 1984 for financial assistance to implement reconstruction of priority rural roads. Project appraisal was carried out by the Bank.

2.4.4 The project appraisal was conducted in a satisfactory manner and the appraisal report provided a detailed implementation schedule of five years (from May 1985 to March 1990) illustrated by a bar chart.

2.4.5 The appraisal report also evaluated the cost of the works and the economic internal rate of return for each road using updated costs of similar works carried out by contractors and the construction units of the Ministry of Transport and Energy.

2.4.6 The appraisal report mentioned that the existing designs were based on standards developed and successfully tested in Zimbabwe but did not elaborate further on the appropriateness of these designs. The report did not mention that the existing detailed design of Kwekwe - Gokwe or Gokwe - Sikimbola section (88 km) of the Gokwe - Kwekwe road only concerned a length of 58.5 km from chainage 80+000 to 139+500.

2.4.7 Since three of the roads were to be constructed on a direct labour force base, the report investigated the availability of plant and equipment with the CMED and recommended that the loan conditions should include one on provision and maintenance of equipment by CMED or any private sector entity.

2.5 **Project Rationale**

2.5.1 The four rural roads constitute penetration or access roads to villages, farms and areas of great agricultural and mineral potential. Thus, the impact area of Kwekwe - Gokwe comprises commercial farms, communal lands with potential for maize and cotton production, and coal deposits in Sengwa. The impact area of Mvuma - Gweru comprises large-scale commercial farms, and the chrome mines at Lalapanzi. This road also constitutes an alternative route for long distance traffic plying between Harare, Gweru and Bulawayo. The impact area of Seke - Zvipadze comprises the growth centre of Seke that provides labour force to Harare, as well as two commercial areas. The impact area of Gwanda - Guyo is dominated by traditional agriculture and cattle herding.

2.5.2. The project roads were prioritised by the programme for resettlement and development of the rural population after independence.

2.5.3. Traffic counts and projections indicated relatively high volumes of traffic and traffic growth rates.

2.5.4. Economic analysis and feasibility studies carried out by consultant firms indicated that the reconstruction of the four roads was viable and economically justified. These indications were confirmed by the appraisal mission.

2.6 **Project Objectives and Scope at Appraisal**

2.6.1 The principal objective of the project as stated at appraisal was to upgrade and construct the existing gravel/earth roads to bitumen standards in order to link the four growth points within the impact areas to the main arteries of the highway network and thereby to bring these areas into the main economic and social fabric of the country. The main project objective was attained and specific

objectives were also attained for the single roads.

2.6.2 The Kwekwe - Gokwe road has provided improved access and connection with the national network to the western part of the Midlands Province which was isolated for many years and has boosted agricultural and livestock production in this part of the country. It serves the Kwekwe commercial area, the Zhombe communal land, the Chemagora purchase land and the Gokwe communal lands, as well as the coal deposits at Sengwa.

2.6.3 The Mvuma - Gweru links A4 (Masvingo- Mvuma - Harare) to A5 (Bulawayo - Gweru - Harare) and provides alternative routes between Bulawayo and Harare, Gweru and Harare and Gweru and Masvingo. The road facilitates commercialisation of the large-scale commercial farms of its area of influence and also provides improved access to the chrome mines at Lalapanzi.

2.6.4 The Seke -Zvipadze has provided improved access to the Seke township which was one of the largest dormitory towns of the country for labour force employed in the factories of Harare. After completion of the road, the township developed to a well-equipped large town that is now integrated in the Chitungwiza town. From Zvipadze R330 is connected to A3 Harare - Mutare and to Hwedza. There is an important traffic increase partly due to diverted traffic coming from Hwedza and Marondera on A3. The Project road created a new access to southern Harare. The project also provided improved access to small farms and about twenty large-scale commercial farms and several commercial centres.

2.6.5 The Gwanda - Guyo links A6 Bulawayo - Gwanda - Beitbridge (southern border) to the southern areas of the province of Matabeleland South. After Guyo R659 reaches Thuli with its safari area. The paved road with its four bridges provided all weather access to the planned growth pole of Guyo and better income to the homesteads which depend on agriculture.

2.7 **Financing Arrangements**

2.7.1 The project was financed by the ADB and the GOZ. According to the original estimate, the total cost of the project was UA 42.86 million with a foreign exchange cost of UA 30.00 million or 70%. The ADB had a contribution of 100% of the foreign exchange and no contribution on local costs. The GOZ had to meet the total local costs representing 30% of the total cost.

2.7.2 The final cost of the project was UA 22.44 million. The actual ADB disbursement was limited to the amount of UA 15.71 million or 70 % of the total cost and the GOZ financed the actual local cost of UA 6.73. Therefore the funding proportions did not change from appraisal estimates but a large proportion of 48 % of the loan remained as idle balance and was cancelled.

2.7.3 The causes of the project cost underrun and the large loan balance are easy to identify but the impact of each cause cannot be easily quantified. The first reason was a weak accounting system in the MTE. Actually the Government purchased equipment, materials and supplies in bulk for use by the Construction Units of the DSR, and some project expenditures could not be properly identified for reimbursement purposes due to the global nature of the suppliers' invoices which could not be honoured by the Bank. The second cause was the frequent devaluations of the Zimbabwe dollar during project implementation: the rate of exchange was UA 1.00 = Z\$ 1.473 at the time of the appraisal and Z\$ 7.096 at the date of last disbursement and the Zimbabwe dollar lost about 70 % of its value during project implementation. The third reason could have been some cost overestimation at appraisal especially as direct labour force construction is concerned. Actually the overall conclusion of the consultant's final construction supervision report was that «a force account unit can carry out construction work of the scope covered by the project much more economically than a private

contractor».

2.7.4 According to the Borrower payments made to the contractor and consultant were net of taxes, since they were exempted from direct taxes and import duties on plant equipment, spare parts, construction materials and salaries.

2.7.5 The appraisal and actual project financing plans are shown in table 2.3 below:

Table 2.3
Financing Plan (UA million)

<u>Source</u>	<u>Appraisal</u>				<u>Actual</u>			
	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>
ADF	30.00	0.00	30.00	70	15.71	0.00	15.71	70
GOZ	<u>0.00</u>	<u>12.86</u>	<u>12.86</u>	<u>30</u>	<u>0.00</u>	<u>6.73</u>	<u>6.73</u>	<u>30</u>
Total	<u>30.00</u>	<u>12.86</u>	<u>42.86</u>	<u>100</u>	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>	<u>100</u>

2.8 Evaluation Methodology and Approach

2.8.1 The present project performance evaluation report was prepared following (i) a desk review of the project documents and information available in Bank files; and (ii) a post evaluation mission to Zimbabwe, undertaken from 10 to 24 July 1998. The documents reviewed included the appraisal report, the project completion report, the economic and engineering studies, monthly progress reports and the final construction report by the Consultants, as well as the completion report by the Executing Agency and the correspondences available in the Bank files. In the course of the field mission, additional information was collected and visits to the project sites were effected; a detailed inspection of the roads was carried out. Discussions were held with staff of the Executing Agency and with officials of other government agencies.

2.8.2 The PPER presents a retrospective evaluation of the project. In particular, it assesses the degree of achievement of objectives, as well as the operational, economic, institutional and sustainability aspects of the project. It supplements the PCR, draws additional conclusions and lessons, and puts forward recommendations for both the Bank and the Government.

3. PROJECT IMPLEMENTATION

3.1 Loan Effectiveness

3.1.1 The loan for the project was approved by the ADB Board on 26 August 1985. The Loan Agreement was signed two months later, on 23 October 1985. It became effective four months after signature on 20 February 1986.

3.1.2 The conditions precedent to the first disbursement given in section 6.01 of the Loan Agreement were formulated as follows:

«Further to the provisions of Section 5.02 of the General Conditions the Bank shall be under no obligation to make the first disbursement unless and until the Borrower has:

- (i) given an undertaking to make regularly adequate allocations in its annual budget to finance its share of the cost of the project as set out in the financing plan;

- (ii) given an undertaking to assume the responsibility to meet all cost overruns of the project;
- (iii) given an undertaking that the construction equipment required by the Ministry of Transport and Construction Units will be made available to the project and maintained by the Central Mechanic Equipment Department or by an appropriate private sector entity;
- (iv) ensure the drawing up and submission to the ADB of a satisfactory programme for the rehabilitation, the routine and periodic maintenance of the classified road network. The said programme shall define the roads to be covered by the aforementioned categories of work and shall contain detailed method statements showing, in particular: (a) the specific tasks to be performed; (b) the schedules for the performance of such tasks; c) the agencies responsible for carrying out the individual categories of work; (d) an itemised budget for the entire work programme; and (e) an indication of definite sources of finance of the requirements of the entire programme;
- (v) have given an undertaking that, upon approval by the ADB of the programme referred to in (iv) above, it shall ensure proper implementation of same in strict accordance with the approved schedules, budget and plans, and the timely provision of the facilities and funds required for that purpose;
- (vi) given an undertaking to increase the budget referred to in the preceding condition to cover any increase in the road network;
- (vii) satisfied the Bank that a suitably qualified and experienced engineer from the Ministry of Transport has been assigned to act as the Project Coordinator;
- (viii) given an undertaking to cause the supervising engineers to prepare and submit directly to MOT and the Bank monthly and quarterly reports on the progress of work by both the contractor and the construction units of the Ministry of Transport.

As an additional loan condition, the Borrower was to ensure that no local taxes, custom duties or levies of any kind whatsoever would be financed out of the proceeds of the loan.

3.1.3 Conditions (i), (ii), (iii), (v), (vi) and (viii) above were formally fulfilled by giving the appropriate undertakings. Conditions (i), (ii), and (viii) were subsequently enforced until project completion and the GOZ not only financed its share of the cost of the project as set out in the financing plan but also met cost overruns in Zimbabwe dollars. The undertaking given under condition (iii) was also satisfactorily enforced but resulted in some delays and higher costs when the Borrower had to hire plant from private companies because CMED was not responding to project work requirements.

3.1.4 Regarding the project roads, the formal fulfilment of conditions (v) and (vi) was followed by appropriate routine maintenance. Periodic maintenance is due in the short term. Regarding the whole network, the Executing Agency has shown (Annex 3) that funds available are far below the minimum requirements. This brings about concerns on the timely provision of periodic maintenance to the project roads. It is to be noted however that the Department of Roads has so far used available funds optimally and efficiently; as a result, the road network is always in a fairly good condition.

3.1.5 Conditions (vi), (v), and (vii) were actually important and reflected concerns on critical problems facing the GOZ in the road sub-sector. The Bank was right in raising such important questions, but the GOZ is either not in a position or does not have the appropriate means to raise and allocate sufficient funds for road maintenance and implement the undertakings under (v) and (vii).

3.1.6 The GOZ is contemplating new structures to deal with the road maintenance problem as a whole. However, periodic maintenance must be timely provided to the four project roads independently of progress achieved towards the general goal.

3.2 Changes in Project Design

3.2.1 Substantial changes in project design and design scope were made during construction. The design scope was extended and quantities of works increased. But in spite of these changes, there was no corresponding increase in project cost.

R847 Kwekwe - Gokwe

3.2.2 The appraisal report defined this road as the Gokwe - Sikimbola section (88 km) of the Gokwe - Kwekwe road. The preliminary and detailed design of this road as carried out by a consulting firm in 1985 only concerned Section I from chainage 81+120 to 139+500 which is only 58.5 km long and considered a double lane, 7 m wide carriageway with two 1.5 m wide shoulders. The design was revised in 1986 to a 6 m wide carriageway with two 0.5 m wide shoulders. The funds thus saved were used for the construction of an additional road section (Section II from chainage 51+800 to 62+000), which comprised two box culverts, twenty one pipe culverts, and 2.3 km of access roads. The design changes were made during construction that was carried out by the Construction Unit N° 3 of the MTE.

3.2.3 Section III from the intersection with the Harare - Kwekwe road to chainage 22 was added to the Project. It was first designed as a 6 m wide, double carriageway with two 0.5 m wide shoulders but later upgraded to a 7 m wide, double carriageway with two 1.5 m wide shoulders from the intersection to chainage 4+600. Three additional bridges were designed by the MTE and included in the works of this section with their approaches. Two access roads approximately 9 km long. were also added. Construction was carried out by Construction Unit N° 8 of the MTE.

R517 Mvuma - Gweru

3.2.4 A road over rail bridge with approaches and two access roads of a total length of 2 km were added to the project during construction. Construction was carried out by Construction Unit N° 7.

R330 Seke -Zvipadze

3.2.5 The detailed design from chainage 25+800 to 64+337 was carried out by a consultant. The road was then reconstructed by the Construction Unit N° 8 and the following works were added during construction: Manyame river bridge with approaches and 5.5 km long Dema access road.

R659 Gwanda - Guyo

3.2.6 The pavement sealing was changed from a single to a double surface dressing. The detailed design already included the construction of two bridges and for this reason it was considered difficult and a tender was called. The road was constructed by a contractor. Two other bridges were added during construction.

3.3 Implementation Schedule

3.3.1 The Loan was negotiated from 5 to 9 August 1985, approved two weeks later and signed on 23 October 1985. It was declared effective four months later after fulfilment by the Borrower of the conditions precedent to first disbursement. This period taken to achieve effectiveness is reasonable and within the six-month maximum delay now enforced by the Bank.

3.3.2 A comparison between the appraisal and actual implementation schedules for the project shows that the start of construction was delayed on three of the roads; there was a delay of 9 months on Gwanda - Guyo (private contractor), a 3.3 months delay on Mvuma - Gweru, and a 2.5 month delay on Seke - Zvipadze.

3.3.3 The construction period envisaged at appraisal was largely exceeded on three of the roads. Thus Gwanda - Guyo (private contractor) took 29 months to construct instead of 24 months, Mvuma - Gweru took 43 instead of 24 months, and Kwekwe - Gokwe took 61 instead of 41 months. Only works on Seke - Zvipadze were completed within the 24 months as envisaged at appraisal.

3.3.4 The causes of delays in starting construction of the Gwanda – Guyo road were related to the fact that the lowest evaluated bidder declined to extend the validity of his bid and the contract was awarded to the second lowest bidder. The causes of delays in construction were mainly because the selected contractor experienced serious financial difficulties, was not conveniently supported by his headquarters in Europe and was using defective equipment. Bitumen shortages, under estimation of rock excavation and change of seal coat from single to double surface dressing also played a role.

3.3.5. Additional works on the other three roads also caused delays. Thus, a road over rail bridge and its approaches designed by the Ministry of Transport and two access roads demanded extra construction time to Mvuma - Gweru. The scope of the works on Kwekwe - Gokwe was also modified by an additional 22 km long main road section, revision of geometric and pavement design standards of certain other sections, as well as different access roads and bridges. However, modifications of the scope of the works on Seke - Zvipadze including a 20m single span bridge with approaches and an access road did not result in construction time overrun.

3.3.6 The delays of the Construction Units also had some structural causes. The first structural cause of delays and also cost increase was the low availability of plant, equipment and spare parts from CMED. Plant and equipment had to be hired from private firms at higher cost.

3.3.7 The second structural cause was the centralised and cumbersome procurement procedures for materials and supplies. The works of Seke - Zvipadze in the vicinity of Harare were not delayed largely because the site engineer and his staff had the possibility to closely monitor and speed up procurement procedures in Harare.

3.4 **Reporting**

3.4.1 The construction works were adequately supervised. The Consultant in charge of construction supervision of Gwanda - Guyo prepared 27 monthly reports and a construction completion report. The Consultant in charge of construction supervision of the three other roads prepared 58 monthly reports for Kwekwe - Gokwe, 37 monthly reports for Mvuma - Gweru, 20 monthly reports for Seke - Zvipadze, and a construction completion report. These reports were regularly sent to the Bank by the Government and contained sufficient detailed information to enable monitoring of project implementation.

3.4.2 The Executing Agency did not prepare quarterly reports. However, the Executing Agency submitted a well documented project completion report dated January 1993.

3.4.3 Despite reminders from the Bank, the Borrower did not submit any annual audit reports. The submission of audited financial statements is a requirement of the general conditions of loan agreements and ought to have been complied with.

3.4.4 The reasons for reporting shortcomings by the Executing Agency and lack of annual audits could not be determined but is probably related to shortage of senior staff in the Department of Roads.

3.4.5 The non-submission of annual audit reports appears to be a common deficiency affecting many Bank funded road projects and is being addressed by the inclusion of an audit component on new projects whenever considered necessary.

3.5 **Procurement**

3.5.1 All goods and services were procured in accordance with the Bank rules and procedures. The construction works of Gwanda - Guyo were entrusted to a private Contractor who delivered a satisfactory product in spite of financial and equipment problems.

3.5.2 The reconstruction works of Kwekwe - Gokwe, Mvuma - Gweru, and Seke - Zvipadze were awarded on a direct labour force account basis to Construction Units N° 3, 7, and 8 of the MTE. The Construction Units were not familiar with performing as contractors but delivered satisfactory products at low cost in spite of low availability of plant and equipment from CMED and difficulties in procurement of supplies and materials. The overall conclusion of the consultant's final construction supervision report was that «a force account unit can carry out construction work of the scope covered by the project much more economically than a private contractor» -- given appropriate logistical support and supervision.

3.5.3 The award of the consultancy services contracts was also made in accordance with the Bank procedures. The selected consultants provided appropriate contract management and played an important role in the quality of the project output.

3.6 **Project Costs**

3.6.1 Table 3.1 below shows a summary of project expenditure schedule in Zimbabwe dollars as appraised and actual:

Table 3.1
Project Expenditure Schedule (Z\$ million)

A. <u>Appraisal Forecast</u>							
	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>Total</u>
Construction	2.17	21.41	23.24	10.80	2.63	0.06	60.31
Supervision	<u>0.28</u>	<u>0.56</u>	<u>0.56</u>	<u>0.56</u>	<u>0.56</u>	<u>0.28</u>	<u>2.80</u>
Total	2.45	21.97	23.80	11.36	3.19	0.34	63.11

B. <u>Actual</u>							
	<u>85/86</u>	<u>86/87</u>	<u>87/88</u>	<u>88/89</u>	<u>89/90</u>	<u>90/91</u>	<u>Total</u>
Construction	3.06	12.64	20.13	14.00	8.74	3.74	62.31
Supervision	<u>0.32</u>	<u>1.23</u>	<u>1.90</u>	<u>1.29</u>	<u>0.85</u>	<u>0.33</u>	<u>5.92</u>
Total	3.38	13.87	22.03	15.29	9.59	4.07	68.23

3.6.2 The total project cost in Zimbabwe dollars was only 8.11 % higher than appraised. Since the scope of works was extended and work quantities increased this slight difference does not indicate that the appraisal estimate was accurate and simply denotes satisfactory financial management of the works.

3.6.3 In terms of UA, the total project costs at appraisal and completion are shown in table 3.2 below:

Table 3.2
Project Costs (UA million)

<u>Component</u>	<u>Appraisal</u>				<u>Actual</u>			
	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	<u>%</u>
Construction	28.67	12.29	40.96	70	14.08	6.36	20.44	70
Supervision	<u>1.33</u>	<u>0.57</u>	<u>1.90</u>	<u>30</u>	<u>1.63</u>	<u>0.37</u>	<u>2.00</u>	<u>30</u>
Total	30.00	12.86	42.86	100	15.71	6.73	22.44	100

3.7 Disbursements

3.7.1 Table 3.3 below shows the annual disbursements of the ADB loan as appraised and actual:

Table 3.3
Loan Disbursements (UA million)

<u>Year</u>	<u>Appraisal Forecast</u>	<u>Actual</u>
1985	1.13	0.16
1986	10.45	3.40
1987	11.32	5.70
1988	5.41	2.80
1989	1.52	1.98
1990	0.17	1.43
1991		<u>0.24</u>
Total	30.00	15.71

3.7.2 The actual loan disbursement was lower than the appraisal forecast, leaving a balance of 47.63% (Annex 7). This was due to depreciation of the Zimbabwe dollar but also to weak accounting of expenditures for the Construction Units, some of which could not be reimbursed by the Bank because specific invoices were not produced by the Borrower. Since the Zimbabwe dollar was devaluing during project implementation, delays in commencement and completion of the works and late reimbursement claims increased the difference between appraisal and actual disbursements.

3.7.3 The idle loan balance amounting to UA 14.29 million was only cancelled in February 1993, which was relatively late as its partial use for the subsequent Rural Roads Project II was being contemplated .

3.8 Compliance with Loan Conditions and Covenants

3.8.1 All loan conditions were fulfilled without long delays and the loan became effective on 20 February 1986 within four months of its signature. The loan conditions themselves were relatively easy to fulfil as most of them were mere undertakings. Some of the conditions were subsequently enforced, and others not.

3.8.2 The GOZ not only financed its share of the cost of the project as set out in the financing plan but also met the cost overruns in Zimbabwe dollars.

3.8.3 The undertaking on availability of construction equipment was also satisfactorily enforced but resulted in some delays and higher costs when the Borrower had to hire plant from private companies because CMED was not responding to project work requirements.

3.8.4 Appropriate routine maintenance has been provided to the project roads. However, periodic maintenance is due in the short term and there are serious concerns on the timely provision of periodic maintenance to the project roads, since funds made available for the road network are far below the minimum requirements.

3.8.5 Although the Government made an undertaking to increase the budgetary allocation for road maintenance, this was not done during project implementation and further action still needs to be taken on this condition to ensure the viability of the country's road network.

3.8.6 Finally, it is to be noted that the annual financial audit reports required in Section 7.03 (c) of the loan agreement were not submitted by the Borrower.

4. PERFORMANCE EVALUATION

4.1 Operating Performance

4.1.1 The four roads constructed under the project were opened to traffic at different times between seven and ten years ago. The road construction generated important volumes of traffic, mainly on Seke-Zvipadze, and the traffic is increasing at the pace of economic growth (Annex 8).

4.1.2 The roads were generally constructed to good engineering standards and detailed inspection indicates satisfactory operating performance under increasing volumes of traffic. Cracking of carriageways has not been reported and the rut depth under the 2 metre long straight edge is well below 15 mm.

4.1.3 The Seke - Zvipadze provided a new access to the southern part of the capital and is carrying over 1,000 vehicles a day including 30 % heavy vehicles. Its shoulders are constantly being repaired. This road will require upgrading in the near future. Its pavement should also be tested for overlay/strengthening requirements.

4.1.4 The continuation of the satisfactory operating performance of the roads is dependent adequate maintenance. So far, routine maintenance has been regularly provided. Periodic maintenance should be programmed in the short term. Actually the seal coats of the roads already have between seven and ten years age and their resealing should not be delayed. The good operating performance could be hampered if quick actions are not taken to reseal the roads.

4.1.5 The DSR has been struggling with shortage of maintenance funds and there is no formal assurance that the resealing of the four roads will take place timely.

4.2 Financial Performance

4.2.1 Since appraisal, the national currency which is the Zimbabwe dollar was being devalued every quarter. The average yearly rate of devaluation between appraisal in 1985 and completion 1992 was 25%. In 1985 the exchange rate was UA1.00 = Z\$1.473 and in 1992 it was Z\$ 7.096.

4.2.2 This devaluation trend introduced considerable fluctuations in the project cost and increased the Borrower's contribution to the project. Devaluation was also responsible for an important idle loan balance (section 2.7.3 above).

4.3 Economic Performance

4.3.1 The project was designed to stimulate the local economy through provision of all-weather bitumen road links.

4.3.2 The economic evaluation, as carried out at appraisal, showed the roads to be timely with rates of return of 25, 16, 19, and 19% respectively for Kwekwe - Gokwe, Mvuma - Gweru, Seke - Zvipadze, and Gwanda - Guyo. The evaluation involved a comparison of the costs of implementing the project with the expected benefits arising from: savings in vehicle operating costs and maintenance cost savings. Non-quantifiable benefits were also expected to arise with the implementation of the project, and these included: direct and indirect job creation during construction, improved accessibility to health, educational, administrative and market centres and time saving for passengers.

4.3.3 The project costs expressed in Zimbabwe dollars included the total investment expenditures undertaken under the project. The actual cost of implementing the project was not much different from the appraisal estimate of the economic cost. Based on revised traffic estimates the PCR recalculated the economic internal rates of return and found the values of 13, 14, 42, and 20% for Kwekwe - Gokwe, Mvuma - Gweru, Seke - Zvipadze, and Gwanda - Guyo respectively.

4.3.4 In this report, traffic count results from 1984 to 1997 have been used to forecast future traffic (Annex 8). Compared with the PAR, traffic figures of this PPER are much higher for Seke - Zvipadze and comparable for the other roads.

4.3.5 Annex 9 shows the vehicle operating costs on gravel and paved roads resulting from recent research in Zimbabwe and the project benefits derived from decreased VOC.

4.3.6 The costs of maintenance and the salvage value of the roads were also considered and are also shown in Annex 9.

4.3.7 Annex 11 shows the streams of costs and benefits. The benefit streams are limited to 20 years. On this assumption, and on the basis of the data presented in Annexes 9, 10 and 11, it is estimated that the project yields rates of return of 15, 15, 33, and 12% for Kwekwe - Gokwe, Mvuma-Gweru, Seke-Zvipadze, and Gwanda-Guyo respectively. These rates of return are satisfactory.

4.4 **Institutional and Social Performance**

Institutional Development

4.4.1 The Department of State Roads (DSR) was the Executing Agency. However, the unit directly dealing with the project comprised the Director of Roads, a Project Coordinator, as well as the Resident Engineers and their staff supplied by supervision consultants.

4.4.2 This unit was adequately staffed and performed satisfactorily as far as supervision of the project execution was concerned.

4.4.3 From the beginning of project implementation, the DSR has suffered from staffing problems following retirement of qualified and experienced engineers and technicians. Furthermore, the GOZ is facing difficulties in keeping technical staff, as a result of better remuneration in the private sector and in South Africa. The DSR still has about 20% vacant positions of senior staff. However, project implementation was not affected by such problems.

4.4.4 The crucial problem which the DSR is presently facing is insufficient funding for maintenance of the road network (Section 3.1.5 and Annex 3). It is expected that this problem will find a solution with the creation of a Road Fund.

4.4.5 Unlike some other regional member countries, Zimbabwe has an efficient and well equipped road management system with fully operational road maintenance and construction units under the MTE. The reconstruction of three of the roads or about eighty percent of the works was carried out on a direct labour force account basis by three construction units acting as contractors. The experience was overall positive and the works were completed to quite satisfactory quality standards at a much lower cost than if they had been carried out by private contractors.

4.4.6 The problems that affected project implementation were related to centralized and cumbersome procurement procedures that caused most delays in the work of the construction units.

4.4.7 The experience of this project indicates that the direct labour construction units are a valuable tool that should be supported and improved. However, full efficiency of the construction units requires progress and development in the following areas:

- (i) detailed planning of construction and implementation programmes to be prepared well in advance;
- (ii) more responsibility and autonomy to be given to site supervisory staff (Site Agents) for direct procurement of spare parts and minor materials and equipment;
- (iii) timely availability of plant, equipment and materials.

4.4.8 The last point is related to the operational efficiency of CMED which requires appropriate investigation and solutions beyond the scope of this report. Actually commercialisation of CMED is currently being considered.

4.4.9 Based on positive experience of other countries, namely the United Kingdom, it can be predicted that Government construction units would be able to perform on a commercial basis and withstand the competition of private contractors if a suitable policy is adopted and implemented in that direction.

Socio-economic Impact

4.4.10 The roads under the project were designed to connect designated growth poles to the main national road network and to pass through rural communal areas with economic growth potential.

4.4.11 Since completion of the construction works, village settlements have grown up along the alignments of the roads, except Mvuma - Gweru which traverses commercial ranching areas.

4.4.12 The roads are supporting a wide range of economic activities, including agriculture, commerce, and mining. In particular they are enabling traditional farmers to bring their agricultural products and livestock to market centres. The roads are also providing improved access to administrative, health and educational centres.

4.4.13 Although specific development programmes have not been designed in the project impact areas, the roads are contributing to the social-economic development of the areas. This contribution cannot be easily quantified, except indirectly by traffic growth (Annex 8).

4.4.14 The Seke - Zvipadze created a new access to the southern urban areas of Harare and diverted important volumes of traffic originating in rural areas to the southeast of this city. The average daily traffic of the road is over one thousand vehicles a day and the average growth rate is above 10%.

4.4.15 The Mvuma - Gweru also attracted long distance traffic. Along this road, traffic volumes have substantially increased after construction with average growth rates higher than 7%.

4.4.16 The Kwekwe - Gokwe witnessed a remarkable traffic growth with rates higher than 7%, which can only be explained by the economic growth of the impact area of this feeder road.

4.4.17 The Gwanda - Guyu is also a feeder road and its traffic although lower than in the other roads shows an appreciable growth.

4.5 Impact on Women

4.5.1 The women and economic active women constitute an important proportion of people taking benefit from the project. The road is helping women farmers and farmers co-operatives to enter the market economy.

4.5.2 In Zimbabwe, women are traditionally involved in agriculture although they experienced traditional restrictions on eligibility to inherit land. Unlike men who migrate to towns, mining and manufacturing centres for labour opportunities, they mostly work on traditional agricultural farms. They constitute therefore the large majority of the beneficiaries of the project.

4.6 Environmental Performance

4.6.1 There was no environmental impact assessment study for this project, but environmental considerations played an important role in design and negative impacts on soils and water were minimised during construction.

4.6.2 The roads were upgraded from gravel to bitumen standard. The gravel roads were a hazard to pedestrians and cyclists and to people living along the roads as passing vehicles raised heavy dust. Since the construction of the roads, these groups of people have been spared the hazards and discomfort of dust. During the rainy season, the roads were particularly slippery causing accidents to all types of vehicles. This hazard has also been minimised by bitumen paving.

4.6.3 The road designs did not vary much from already demarcated alignments; encroachment on existing agricultural lands or traverse virgin lands was minimised.

4.6.4 The road alignments do not exhibit safety hazards. Appropriate safety equipment has been provided. Borrow pits were rehabilitated after use. There is no evidence of environmental degradation along the roads.

4.7 **Performance of Contractors, Consultants and Borrower**

Contractors (private contractor and direct labour construction units)

4.7.1 In spite of all the changes introduced during construction and delays caused by procurement of plant and materials, the contractors worked expeditiously and provided satisfactory products. The contractors followed the instructions and orders given by the Resident Engineers.

4.7.2 The satisfactory quality of products delivered by the contractors is attested by the fact that no construction defects were identified during the maintenance period and thereafter. This fact is confirmed by the satisfactory road performance under traffic during the last seven to ten years.

Consultants

4.7.3 The performance of the consultants was in large measure satisfactory. The consultants kept the Executing Agency informed and involved with implementation problems and suggested adequate solutions. The consultants displayed good professional standards in the supervision of works, in dealing with design changes and technical problems and also, in settling the claims of the private contractor.

4.7.4 The Consultant in charge of supervision of direct labour force construction units also assisted these on cost-effective production and in operating as contractors. For this purpose, he recommended the implementation of a weekly work scheduling and a modified costing system. The Consultant prepared a report on incremental developments on cost/works management and performance monitoring, which summarises the experience and concludes that a force account unit, when properly supervised, can carry out construction work much more cheaply than a private contractor.

4.7.5 The financial management of the contracts by the consultants was satisfactory. In spite of delays, extensions of design scope and increased quantities of works, the final cost of the works exceeded the appraised cost by less than ten percent.

Borrower

4.7.6 With regard to the overall administration of the Project, the Borrower and Executing Agency performed satisfactorily although they could have been more effective in providing appropriate accounting documents for reimbursement by the Bank.

4.7.7 With regard to design and implementation, the Executing Agency should have adequately scrutinised and evaluated the detailed design and its appropriateness in order to avoid modifications of design scope during implementation.

4.7.8 The Borrower provided the needed funds to cover its part of costs and quite satisfactorily fulfilled his obligations under the loan agreement except those concerning maintenance funding and programming.

4.7.9 The Executing Agency provided adequate support and guidance both to the Consultants and the Contractors. The Executing Agency also kept close contact with the Bank submitting documents and requesting comments.

4.8 Bank Group Performance

4.8.1 The performance of the Bank was satisfactory in so far as project implementation were concerned. However, at project appraisal, the Bank failed to scrutinise and evaluate the existing detailed design and did not remark differences already obvious between the latter and the specification of the project roads, especially Kwekwe - Gokwe. The existing design was neither reviewed nor timely completed. The differences developed into changes in scope and quantities of works during construction, that could have been avoided.

4.8.2 The Bank was active during the construction works and sent one follow-up and eight supervision missions. The Bank organised its last mission in November 1993 and a Project Completion Report (PCR) was prepared.

5. PROJECT SUSTAINABILITY

5.1 The benefits from the four roads can only be sustained if the roads receive appropriate routine and periodic maintenance.

5.2 Conditions for project sustainability have not been optimal to this date. The roads have received adequate routine maintenance but there are uncertainties on resource allocation for periodic maintenance. The project roads are due for resealing after seven to ten years service under traffic.

5.3 The GOZ is taking steps towards the establishment of a Road Fund and a Road Authority. The Road Fund could be the right instrument to mobilise sufficient financial resources for the maintenance of the country's road network of Zimbabwe.

6. PERFORMANCE RATING

6.1 The Implementation Performance has a score of 2.25 which is satisfactory even though adherence to time schedule is rated highly unsatisfactory because of the delay in implementation which is 21 months.

6.2 The Bank's performance was just satisfactory. The Bank did not make any contribution to project preparation and did not conveniently evaluate the appropriateness of existing design at appraisal. For identification, 3 marks are given because the project was a good selection; it was a national priority strongly supported by both the Government and the Bank and its economic analysis indicated a satisfactory economic rate of return. For supervision 2 marks were given because although the Bank had not foreseen and avoided changes in design scope during construction, it was effective in supervision during the construction phase.

6.3 The assessment of the project shows a satisfactory overall project outcome. The performance ratings are shown in Annex 5.

7. **CONCLUSIONS, FEEDBACK AND RECOMMENDATIONS**

7.1. Conclusions

The present report accepts most of the conclusions of the PCR with the additions stated below:

- (i) The project has met its main objective which was to upgrade and construct the existing gravel/earth roads to bitumen standards in order to link the four growth points within the impact areas to the main arteries of the highway network and thereby to bring these areas closer to the main economic and social centres of the country.
- (ii) Following frequent foreign exchange rate changes during project implementation, lack of proper identification and reimbursement by the Bank of some expenditures in supplies, materials and equipment for the Construction Units and the low cost of direct labour force account works, the actual project cost was only 52% of its appraised cost, in spite of additional works. The recalculated values of the EIRR are comparable to the appraised values, except for Seke - Zvipadze which yields a much higher value of 33 % as a result of higher than expected volumes of traffic.
- (iii) Design scope changes during construction as proposed by the GOZ and agreed by the Bank resulted in considerable time overrun, except for Seke – Zvipadze which was completed on schedule in spite of an additional 20m single span bridge with approaches and an access road. However, the considerable changes in the scope of design did not result in appreciable cost overrun. The project roads were all completed according to the required technical standards and main design characteristics.
- (iv) Following design changes and delays in procurement of plant, supplies and aterials, the implementation of the project experienced delays during the construction phase which caused a maximum time overrun of 21 months.
- (v) The Department of State Roads as the Executing Agency for the project performed satisfactorily in overseeing project execution with construction supervision by two different consultant teams.
- (vi) The Bank's performance is on the whole rated to be satisfactory, although the Bank could have been more effective and active at the identification and preparation stages, namely in the evaluation of the appropriateness of the detailed design so as to avoid changes in design scope during construction.

- (vii) The roads have helped to boost crops production, (namely maize), mining and different industrial and commercial activities. The Seke-Zvipadze road has also largely contributed to better living conditions and development of the Seke township.
- (viii) The roads have received adequate routine maintenance. They should be programmed for resealing in the short term in order to avoid functional distress development. Because of particularly high volumes of traffic, the Seke-Zvipadze should be tested for overlay/strengthening requirements.
- (ix) The overall assessment shows a satisfactory project outcome.

7.2 Lessons

The following lessons can be drawn out of the project:

- (i) An implementation schedule should be monitored step by step, and target dates should be respected, and all parties, namely the Borrower, the Bank, Consultants and Contractors should be more concerned by time effectiveness (para. 3.3.3.).
- (ii) Where a detailed design is already available at appraisal, it should always be carefully checked, scrutinised and evaluated in order to make sure that it is comprehensive, site specific and appropriate for project implementation. If not, the existing design should be reviewed and completed and the cost estimate as well as feasibility indicators updated (Section 3.2).
- (iii) Lack of familiarity with the Bank procedures with respect to reimbursement can cause delays and rejection of payments, and can affect the completed project cost (para. 3.7.2).
- (iv) Important factors such as quantities, physical and price contingencies, unit prices, and currency exchange rates on which cost estimates are based, require careful consideration and need to be as realistic as possible. Attention should be drawn to the fact that unit prices tendered by private contractors can be quite different from those of direct labour force construction (para. 3.6.2).

7.3 Recommendations

The following recommendations are formulated for the consideration of the Government and the Bank:

For the Government

- (i) The Government should be required to keep detailed records of expenditures for supplies, materials and equipment used by the Construction Units and provide specific invoices for reimbursement by the Bank (para. 3.7.2).
- (ii) The Government should strive to reduce delays in processing disbursement applications through its own administration (para. 4.7.6).

- (iii) In order to minimise design modifications during construction, senior engineers should be assigned to scrutinise existing detailed designs and make sure that they are comprehensive, site specific and appropriate for project implementation (Section 3.2 and para. 4.7.7).
- (iv) Executing agencies should periodically prepare two different up to date lists of unit prices and cost escalation factors to be used in project cost estimates, namely one list for direct labour force construction and the other list for construction by private contractors (para. 3.7.2).
- (v) The Department of State Roads (DSR) should ensure that resealing of project roads is undertaken without delay. In particular, the Seke - Zvipadze should be tested and eventually programmed for overlay / strengthening requirements (para. 4.1.3).
- (vi) The DSR should forward to the Bank as from 1998, original audited financial statements and a signed copy of the Auditor's report on on-going road projects (para. 3.4.4).

For the Bank

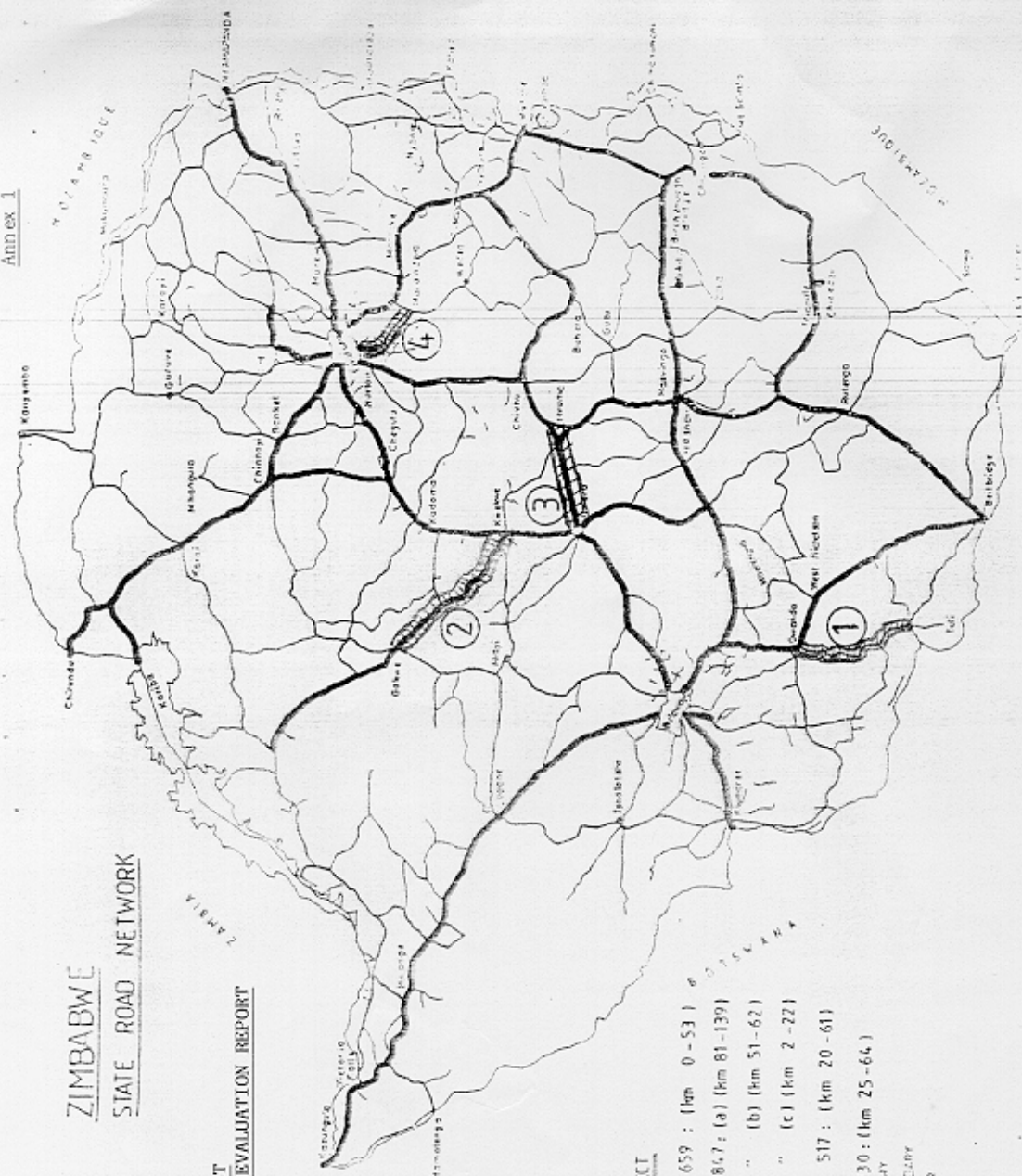
- (i) The Bank should closely supervise and/or check the adequacy of project preparation so that changes in design during project execution can be avoided as far as possible (Section 3.2).
- (ii) At appraisal, the Bank should always carry out a detailed inspection of the project site(s) and thereafter carefully analyse, scrutinise and evaluate existing designs to make sure that they are comprehensive, site specific and appropriate for implementation. If this is not the case, the Bank should require that the existing design be reviewed and completed and the cost estimate as well as feasibility indicators updated (para. 3.2.1).
- (iii) Procurement issues should be given careful consideration at the project preparation stage and be resolved at project appraisal or at loan negotiations stage (paras. 3.3.4 and 3.5.1).
- (iv) The most realistic unit price rates, physical and price contingency allowances should be studied and adopted during project preparation. Prices and costs of works by contract should be distinguished from prices and costs of direct labour force construction (para. 3.5.2).
- (v) Disbursement schedules based on detailed and realistic project execution schedules should be included in project appraisal reports. In this regard, guidelines on preparation of disbursement schedules should be developed to assist project officers.
- (vi) The Bank should follow-up the routine maintenance and resealing programmes for the project roads (para. 5.2).
- (vii) The Bank has to ensure that as from 1998, the Roads Department will forward to the Bank, the original audited financial statements and signed copies of the Auditor's reports on on-going road projects (para. 3.4.4).

7.4. **Follow-up Action Matrix**

A summary of the follow-up actions is presented in Annex 2.

ZIMBABWE
STATE ROAD NETWORK

ZIMBABWE
RURAL ROADS I PROJECT
PROJECT PERFORMANCE EVALUATION REPORT



RURAL ROADS I PROJECT

- ① GWANDA - GUYO : (km 0 - 53) (a) (b) (c)
- ② KWEKWE - GOKWE : (a) (km 81 - 139) (b) (km 51 - 62) (c) (km 2 - 22)
- ③ MVUMA - GWERU : 517 : (km 20 - 61)
- ④ SEKE - ZVIPADZE : 330 : (km 25 - 64)

PRIMARY
SECONDARY
FEEDER

ZIMBABWE
RURAL ROADS PROJECT I
PROJECT PERFORMANCE EVALUATION REPORT

RECOMMENDATIONS AND FOLLOW-UP ACTION MATRIX

MAIN FINDINGS & CONCLUSIONS	RECOMMENDATIONS	FOLLOW-UP ACTIONS	RESPONSIBILITY
<p><u>Project formulation and rationale</u></p> <p>Project formulation was undertaken without Bank's contribution</p>	<p>The Bank should always be satisfied with project identification and preparation before deciding to appraise a project. In so doing, the appraisal team will avoid overlooking or oversimplifying some crucial issues.</p>	<p>Project officers should check that the project is adequately processed through identification and preparation stages before appraisal</p>	<p>Country Departments</p>
<p><u>Project Implementation</u> A) <u>Implementation Schedule</u></p> <p>The project implementation schedule was realistic and covered the main project activities. The schedule was relatively detailed, indicated target dates to be observed by both the Bank and the Borrower and comprised a disbursement schedule.</p>	<p>Project officers should always give proper consideration to project implementation and disbursement schedules at project feasibility and/or preparation stage.</p>	<p>A standard and detailed project implementation schedule should be designed and included in the guidelines for project preparation</p>	<p>Country Departments</p>
<p>B) <u>Loan Effectiveness</u></p> <p>Conditions precedent to first disbursement were fulfilled without excessively long delays.</p>	<p>a) Whenever feasible, crucial issues should be resolved at preparation, appraisal, or negotiation stage rather than being established as conditions precedent to first disbursement.</p> <p>b) Conditions of Loan effectiveness which are unrealistic or inappropriate or which may block project implementation should be avoided or reformulated.</p> <p>c) The Bank should introduce a "Launching Mission" as a normal regular function after a Loan is signed in order to assist Borrowers in the fulfilment of conditions of Loan effectiveness.</p>	<p>a) Crucial project issues should be highlighted in the project preparation report and should be made known to the Borrower as early as possible.</p> <p>b) The Bank should always scrutinise Loan conditions critically.</p> <p>c) Define the functions and composition of a Launching Mission and take action to introduce it as a normal Bank procedure</p>	

<p>C) <u>Other Conditions</u></p> <p>"Other Conditions" and Covenants are often not fulfilled</p>	<p>Follow-up on the fulfilment of "Other Conditions" and Covenants should be always undertaken.</p>	<p>Supervision and Launching Missions should ensure that the conditions and covenants are fulfilled.</p>	<p>Country Departments</p>
<p>D) <u>Procurement</u></p> <p>Wrong applications of Bank's rules of procedure for procurement may cause considerable delays in project implementation.</p>	<p>a) Procurement issues should be given careful consideration at project preparation stage and be resolved at project appraisal or at the loan negotiations stage. b) Launching missions should assist Borrowers in procurement activities. c) Frequent procurement seminars should be provided to staff of Executing Agencies.</p>	<p>TORs for project preparation and appraisal should include detailed procurement considerations. TORs of Launching missions should include procurement activities. Design seminars programme.</p>	<p>Operations Departments</p>
<p>E) <u>Project Cost</u></p> <p>Project cost overrun was due to uncontrolled design review.</p>	<p>a) Updating of project cost estimates when necessary should not be confounded with design review. b) The Bank should only contemplate a design review if the existing detailed design is technically inadequate or when the scope of the project has been modified. c) The Bank should carefully monitor the implementation of any design review in order to avoid uncontrolled departures from the agreed design scope and standards.</p>	<p>Guidelines on the preparation and updating of cost estimates should be provided in order to assist project officers. Guidelines on design review should be prepared and the situations where a design review is necessary or justified should be strictly identified. The TOR of a design review should always include analysis and reappraisal of economic indicators.</p>	<p>Country Departments</p>
<p>F) <u>Disbursement</u></p> <p>Reimbursement applications by the Borrower could not be honoured by the Bank because specific invoices were not produced.</p>	<p>a) Disbursement schedules based on detailed and realistic project implementation schedules should be included in project appraisal reports. b) The Bank should make sure that the Borrower is familiar with reimbursement procedures and has adequate accounting capability. c) Launching and supervision missions should always deal with this subject.</p>	<p>Guidelines on the preparation of disbursement schedules should be provided to assist project officers. Launching and Supervision missions should deal with this issue.</p>	<p>Operations Departments</p>

<p>G) <u>Communication</u></p> <p>Communication difficulties and slowness may cause considerable time overrun during project implementation.</p>	<p>Quick responses should always be given to all Borrower's, Contractor's and Consultant's submissions.</p> <p>The Bank, the Borrower and the Contractors should be more deeply concerned with time effectiveness.</p>	<p>Speedy actions should be taken analyse documents and reply to correspondences.</p> <p>A schedule of standard times of response for the different types of submissions should be established and enforced.</p>	<p>Borrower and the Bank Departments</p>
<p>H) <u>Changes in design and unforeseen conditions</u></p> <p>Changes in design and / or design scope during construction can affect the progress of project implementation and cause additional cost and delays.</p>	<p>Project scope should be carefully identified and strictly specified at appraisal.</p> <p>As far as possible, changes in design should be avoided by appropriate investigations and studies during the phase of detailed design.</p>	<p>The Borrower and the Bank should closely supervise project preparation and be satisfied that project scope as well as type and scope of investigations is well adapted to site conditions and project objectives.</p>	<p>Borrower and the Bank</p>
<p>I) <u>Sustainability</u></p> <p>Financial resources for periodic maintenance are far short of requirements and there is no assurance that the roads will be timely resealed.</p>	<p>The Bank should always monitor maintenance activities on completed road projects.</p>	<p>Future supervision missions should ensure that the road has been resealed to agreed standards.</p>	<p>Borrower Country Departments</p>
<p>J) <u>Impact on environment</u></p> <p>No evidence of negative environmental impact has been found since construction.</p>	<p>The Executing Agency should include monitoring and repair of possible environmental harms, namely soil erosion in the routine maintenance programme of the Project road.</p>	<p>The Bank should promote vegetation and plantations as cost effective measures for mitigation of negative impacts and improvement of positive impacts on environment of road projects.</p>	<p>Borrower Country Departments</p>

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

Road Maintenance Budget Allocations

Year	Revised Budget Est.	Inflation Factor	Cum Inflation Factor	Present Net Value
1980/81	12,899			
1981/82	15,895			
1982/83	16,295			
1983/84	17,395			
1984/85	17,500			
1985/86	20,560			
1986/87	21,545			
1987/88	30,800			
1988/89	31,150			
1989/90	57,826			
1990/91	74,525	Base year	1.00	74.525
1991/92	<u>93,700</u>	1.232	1.23	76.05519
1992/93	139,846	1.421	1.75	79.88133
1993/94	148,015	1.276	2.23	66.25982
1994/95	129,000	1.223	2.73	47.21802
1995/96	182,000	1.226	3.35	54.33742
1996/97	218,450	1.214	4.07	53.72309
1997/98	330,885	1.375	5.59	59.18114
1999	304,775	1.25	6.99	43.60894

ZIMBABWE
RURAL ROADS I PROJECT
PROJECT PERFORMANCE EVALUATION REPORT

Performance Rating

Implementation Performance

COMPONENT INDICATORS	SCORE (1-4)	REMARKS
1. Adherence to Time Schedule	1.0	The implementation schedule was not adhered to; there was a 21 months delay representing 36% of the original time span.
2. Adherence to Cost Schedule	3.0	Actual cost was 8.1% above the appraisal estimate.
3. Compliance with Covenants	2.0	There was substantial compliance with the loan conditions. With regard to road maintenance funding, loan conditions could not be enforced.
4. Adequacy of Supervision and Reporting	3.0	The works were adequately supervised and progress reports prepared; the audited financial statements were not prepared.
5. Satisfactory Operations (if applicable)	3.0	The performance of the road was good end they are receiving adequate routine maintenance.
Overall assessment of Implementation Performance	2.25	Satisfactory

Bank Performance

COMPONENT INDICATORS	SCORE (1-4)	REMARKS
1. At Identification	3	The Project roads were accorded priority in the national development plan; feasibility studies and detailed designs were available. No identification mission was undertaken.
2. At Preparation	1	Desk review led to few recommendations, and only modest actions were taken before project appraisal.
3. At Appraisal	2	The appraisal report was satisfactory; basic assumptions were properly analysed. A realistic and detailed time schedule with target dates was provided. However it failed recognise differences between the existing design and the Project roads as specified and did not evaluate the appropriateness of the Project scope.
4. At Supervision	2	Supervision was effective. The design scope and standards changed during construction. There were eight supervision missions.
Overall Assessment of Bank Performance	2.0	Satisfactory

ZIMBABWE
RURAL ROADS PROJECT I
PROJECT PERFORMANCE EVALUATION REPORT

Performance Rating

Project Outcome

COMPONENT INDICATORS		SCORE (1-4)	REMARKS
1.	Relevance of Achievement of Objectives	2.5	The main objective was met.
i)	Macro-economic Policy	2	The project was to contribute to development of agriculture in communal lands as well as large scale farms. Agriculture occupies the first place in the growth of the economy of Zimbabwe.
ii)	Sector Policy	2	Project was in line with sectorial policy of improving the condition of the road network and facilitating access to growth poles.
iii)	Physical (including production)	3	Reconstruction of the roads to an improved standard removed major transport constraint in the project impact areas.
iv)	Financial	N/A	
v)	Poverty alleviation, social and gender	3	Project brought benefits to urban and rural population and growth poles. It promoted commercialisation of crops and livestock of its impact areas and facilitated access of labourers to factories.
vi)	Environment	3	Negative short and long term environmental impacts were minimised. Since construction there is no evidence of environmental harm.
vii)	Private Sector Development	2	Following construction of the road to bitumen standard, new settlements and small scale farming and industrial type activities have been established in the area of influence of the road.
viii)	Other (Specify)	N/A	
2	Institutional Development	2	Institutional Development was satisfactory; it had some impact on the Project.
i)	Institutional Framework, including restructuring	2	Institutional weaknesses adversely affected project implementation and caused time overrun. Procurement procedures for the construction units were cumbersome and delayed availability of plant, materials and supplies. Project documents were not properly checked and evaluated by the Executing Agency, resulting in design changes and cost increase during Project implementation.
ii)	Financial and Management Information Systems, including Audit Systems	2	Project accounts were kept but week and appropriate invoices were not provided for reimbursement by the Bank. No audit reports were prepared.
iii)	Transfer of Technology	2	There were some weaknesses in Project design. However, construction was quite satisfactory.

iv)	Staffing by qualified persons (including turnover), training and counterpart staff	2	Senior and qualified staff are departing from the DSR and Government service for better pays in the private sector. Major reorganisation and staff motivation plans are needed for sustainable development of the Department.
3	Sustainability	2.3	Project achievements and benefits will be sustained when periodic resealing is insured.
i)	Continued Borrower commitment	2	GOZ is not providing insufficient budgetary allocations for the road sector and its maintenance. The establishment of the Road Fund is believed to bring better conditions for removing this constraint in the near future.
ii)	Environmental Policy	3	DSR will incorporate environmental concerns into project studies and designs, and ensure their implementation.
iii)	Institutional Framework	2	Institutional framework is rather weak, but is believed to become stronger with the establishment of the Road Authority.
iv)	Technical viability and staffing	3	The Project was executed to an improved technical standard and resulted viable.
v)	Financial viability, including cost recovery systems	N/A	
vi)	Economic viability	2	The project is viable: the ERR at re-evaluation vary between 12 and 33 %.
vii)	Environmental viability	2	The maintenance plans for the road should include provision for vegetation and plantation in order to avoid long term environmental damage.
Viii)	Operating and Maintenance facilities (availability of recurrent funding, foreign exchange, spare parts, workshop facilities etc.)	2	Fund allocation for road maintenance are inadequate but this situation is expected to improve in the medium term thanks to the creation of the Road Fund and Road Authority.
4	Economic Internal Rate of Return	2.5	The EIRR at PCR and at re-evaluation are comparable or higher than those at appraisal, and demonstrate the viability of the Project as implemented.
	Overall Assessment of Outcome	2.3	Project Performance is satisfactory.

RETROSPECTIVE LOGICAL FRAMEWORK MATRIX

Project : Rural Roads Project I
 Completion Date : July, 1994
 PCR Date : February, 1996
 Date of Evaluation : July, 1998
 Post-Evaluation Team : W. Byaruhanga, José Carlos Horta

Hierarchy of Objectives	Objectively Verifiable Indicators		Means of Verification	Assumptions / Risks
	At Appraisal	At Evaluation		
<u>Sectoral Objectives</u> 1. To improve and rehabilitate existing road infrastructure. 2. Improvement of traffic flows along the most heavily trafficked roads through the construction of links.	1 Increase in the total length of the bitumen paved road network 2 Overall growth in traffic	1. Increase in total length of the bitumen paved road network and relative increase in road maintenance expenditures 2. Overall growth in traffic	1.1 Annual road construction statistics from the DSR 1.2 Annual accounts from DSR 2 Traffic Statistics	Sustained budgetary provisions for road rehabilitation, construction and maintenance
<u>Project Objectives</u> To upgrade and construct the existing gravel / earth roads to bitumen standards in order to link the four growth points within the impact areas to the main arteries of the highway network and thereby to bring these areas into the main economic and social fabric of the country.	1.1 Reduction in VOC 1.2 Growth in road transit traffic 2. Statistics of agricultural activity, mining and commerce and social amenity in the Project area	1.1 Reduced VOC 1.2. Traffic counts show that the flows have increased since completion of the works and keep increasing at relatively high rates. 2.1 Statistics unsuitable for local evaluation 2.2 Improved access for mining and agricultural outputs unanimously recognised 2.3 New settlements and activities along the roads	1.1 Recalculation of VOC 1.2 Annual traffic counts 2 Inspections, inquiries and interviews	Traffic growth rates sufficiently high 2.1 Enhanced economic and agricultural activities in Project area 2.2 Sustained demand from national and international market 2.3 Favourable weather conditions

<u>Outputs</u>																																												
1. Four reconstructed bitumen surfaced roads	1. Four reconstructed bitumen surfaced roads (88 + 40 + 40 + 53 = 265 km) including two bridges.	1. Four reconstructed bitumen surfaced roads (132 + 40 + 40 + 53 = 265 km) with seven bridges and 16.5 km access roads	1. Completion certificates issued in August 1988, March 1989 and March 1991	External factors were favourable.																																								
<u>Activities / Components</u>	Inputs/Resources:		Project completion reports and disbursement schedules.	No risks, no negative external factors																																								
1. Procurement of consultancy services for supervision	<u>Appraisal Cost Estimate (UA million)</u>	<u>Actual Project Costs</u>																																										
2. Procurement of contractor for road construction	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Component</u></th> <th style="text-align: right;"><u>FE</u></th> <th style="text-align: right;"><u>LC</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>Works</td> <td style="text-align: right;">32.63</td> <td style="text-align: right;">13.98</td> <td style="text-align: right;">46.61</td> </tr> <tr> <td>Supervision</td> <td style="text-align: right;">1.96</td> <td style="text-align: right;">0.84</td> <td style="text-align: right;">2.80</td> </tr> <tr> <td>Contingencies</td> <td style="text-align: right;">3.20</td> <td style="text-align: right;">1.40</td> <td style="text-align: right;">4.57</td> </tr> <tr> <td>Price escalation</td> <td style="text-align: right;"><u>6.38</u></td> <td style="text-align: right;"><u>2.75</u></td> <td style="text-align: right;"><u>9.13</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;"><u>44.17</u></td> <td style="text-align: right;"><u>18.94</u></td> <td style="text-align: right;"><u>63.11</u></td> </tr> </tbody> </table>	<u>Component</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	Works	32.63	13.98	46.61	Supervision	1.96	0.84	2.80	Contingencies	3.20	1.40	4.57	Price escalation	<u>6.38</u>	<u>2.75</u>	<u>9.13</u>	Total	<u>44.17</u>	<u>18.94</u>	<u>63.11</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Component</u></th> <th style="text-align: right;"><u>FE</u></th> <th style="text-align: right;"><u>LC</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>Works</td> <td style="text-align: right;">14.08</td> <td style="text-align: right;">6.36</td> <td style="text-align: right;">20.44</td> </tr> <tr> <td>Supervision</td> <td style="text-align: right;">1.63</td> <td style="text-align: right;">0.37</td> <td style="text-align: right;">2.00</td> </tr> <tr> <td>Total</td> <td style="text-align: right;"><u>15.71</u></td> <td style="text-align: right;"><u>6.73</u></td> <td style="text-align: right;"><u>22.44</u></td> </tr> </tbody> </table>	<u>Component</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	Works	14.08	6.36	20.44	Supervision	1.63	0.37	2.00	Total	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>		
<u>Component</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>																																									
Works	32.63	13.98	46.61																																									
Supervision	1.96	0.84	2.80																																									
Contingencies	3.20	1.40	4.57																																									
Price escalation	<u>6.38</u>	<u>2.75</u>	<u>9.13</u>																																									
Total	<u>44.17</u>	<u>18.94</u>	<u>63.11</u>																																									
<u>Component</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>																																									
Works	14.08	6.36	20.44																																									
Supervision	1.63	0.37	2.00																																									
Total	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>																																									
3. Actual construction of the Project road and its supervision	<u>Appraisal Financing Plan</u>	<u>Actual Financing Plan</u>																																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Source</u></th> <th style="text-align: right;"><u>FE</u></th> <th style="text-align: right;"><u>LC</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>ADB</td> <td style="text-align: right;">30.00</td> <td style="text-align: right;">0</td> <td style="text-align: right;">30.00</td> </tr> <tr> <td>GOZ</td> <td style="text-align: right;"><u>0</u></td> <td style="text-align: right;"><u>12.86</u></td> <td style="text-align: right;"><u>12.86</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;"><u>30.00</u></td> <td style="text-align: right;"><u>12.86</u></td> <td style="text-align: right;"><u>42.86</u></td> </tr> </tbody> </table>	<u>Source</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	ADB	30.00	0	30.00	GOZ	<u>0</u>	<u>12.86</u>	<u>12.86</u>	Total	<u>30.00</u>	<u>12.86</u>	<u>42.86</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Source</u></th> <th style="text-align: right;"><u>FE</u></th> <th style="text-align: right;"><u>LC</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>ADB</td> <td style="text-align: right;">15.71</td> <td style="text-align: right;">0</td> <td style="text-align: right;">15.71</td> </tr> <tr> <td>GOZ</td> <td style="text-align: right;"><u>0</u></td> <td style="text-align: right;"><u>6.73</u></td> <td style="text-align: right;"><u>6.73</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;"><u>15.71</u></td> <td style="text-align: right;"><u>6.73</u></td> <td style="text-align: right;"><u>22.44</u></td> </tr> </tbody> </table>	<u>Source</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>	ADB	15.71	0	15.71	GOZ	<u>0</u>	<u>6.73</u>	<u>6.73</u>	Total	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>										
<u>Source</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>																																									
ADB	30.00	0	30.00																																									
GOZ	<u>0</u>	<u>12.86</u>	<u>12.86</u>																																									
Total	<u>30.00</u>	<u>12.86</u>	<u>42.86</u>																																									
<u>Source</u>	<u>FE</u>	<u>LC</u>	<u>Total</u>																																									
ADB	15.71	0	15.71																																									
GOZ	<u>0</u>	<u>6.73</u>	<u>6.73</u>																																									
Total	<u>15.71</u>	<u>6.73</u>	<u>22.44</u>																																									

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

Loan and GOZ Disbursements

Year	Loan Disbursements			GOZ Disbursements		
	Appraisal forecast (UA million)	Actual Disbursements (UA million)	Percentage disbursed (%)	Appraisal Forecast (UA million)	Actual Disbursements* (UA million)	Percentage disbursed (%)
1985	1,13	0,16	0,53	0,48	0,07	0,54
1986	10,45	3,40	11,33	4,48	1,46	11,35
1987	11,32	5,70	19,00	4,85	2,44	18,97
1988	5,41	2,80	9,33	2,32	1,20	9,33
1989	1,52	1,98	6,60	0,65	0,85	6,61
1990	0,17	1,43	4,77	0,07	0,61	4,74
1991		0,24	0,80		0,10	0,78
Total	30,00	15,71	52,37	12,86	6,73	52,32
Loan Balance		14,29	47,63		6,13	47,68

*: Derived on basis of actual disbursements by the Bank.

Source: PPAR Mission

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

TRAFFIC FORECAST
R847: Kwekwe – Gokwe

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1984	24	6	7	62	32	131
1985	25	6	7	63	29	130
1986	32	7	8	67	32	146
1987	22	6	7	64	29	128
1988	47	9	11	93	32	192
1989	73	11	14	123	34	255
1990	73	10	12	92	33	220
1991	44	10	12	105	42	212
1992	16	9	11	118	51	205
1993	60	12	14	125	52	263
1994	33	8	10	93	43	188
1995	24	8	10	80	57	178
1996	94	11	13	93	32	243
1997	74	17	21	180	88	380
1998	95	16	19	170	50	350
1999	100	17	20	179	53	368
2000	105	17	21	187	55	386
2001	110	18	22	197	58	405
2002	115	19	23	207	61	425
2003	121	20	25	217	64	447
2004	127	21	26	228	67	469
2005	134	22	27	239	70	492
2006	140	23	28	251	74	517
2007	147	24	30	264	78	543
2008	155	26	31	277	81	570
2009	162	27	33	291	86	599
2010	171	28	35	305	90	629
2011	179	30	36	321	94	660

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

TRAFFIC FORECAST
R177: Mvuma – Gweru

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1984	99	27	33	102	39	300
1985	86	31	38	146	44	345
1986	186	39	48	116	46	436
1987	170	41	51	144	54	460
1988	198	46	56	151	58	509
1989	225	50	61	158	62	557
1990	203	46	57	147	62	516
1991	173	43	52	144	62	474
1992	142	39	47	141	62	431
1993	103	25	31	94	25	278
1994	436	89	109	270	84	987
1995	190	62	76	247	116	691
1996	262	67	82	248	89	749
1997	333	73	89	249	63	807
1998	240	68	83	300	60	750
1999	252	71	87	315	63	788
2000	265	74	91	331	66	827
2001	278	78	96	347	69	868
2002	292	82	100	365	73	912
2003	306	86	105	383	77	957
2004	322	90	111	402	80	1 005
2005	338	95	116	422	84	1 055
2006	355	100	122	443	89	1 108
2007	372	105	128	465	93	1 163
2008	391	110	134	489	98	1 222
2009	410	115	141	513	103	1 283
2010	431	121	148	539	108	1 347

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

TRAFFIC FORECAST
R330: Seke - Zvipadze

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1984	415	134	201	561	363	1 673
1985	706	156	235	601	258	1 956
1986	770	151	227	453	288	1 889
1987	891	186	279	576	390	2 321
1988	589	120	180	381	226	1 496
1989	288	54	81	187	62	671
1990	277	52	77	177	62	645
1991	209	43	65	159	62	538
1992	142	34	52	141	62	431
1993	271	54	81	213	55	674
1994	277	70	105	327	95	873
1995	402	79	118	280	106	985
1996	420	81	121	297	91	1 009
1997	438	83	124	313	76	1 034
1998	110	32	48	150	60	400
1999	115	33	49	153	62	412
2000	120	34	51	156	64	424
2001	125	35	52	159	66	437
2002	130	36	54	162	68	450
2003	136	37	56	166	70	464
2004	142	38	57	169	72	478
2005	147	39	59	172	74	492
2006	154	41	61	176	76	507
2007	160	42	63	179	78	522
2008	167	43	65	183	81	538
2009	173	44	66	187	83	554
2010	180	46	68	190	86	570

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

TRAFFIC FORECAST
R659: Gwanda – Guyu

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1984	8	15	21	36	10	90
1985	13	13	18	28	6	79
1986	3	4	5	16	7	35
1987	1	3	4	7	3	18
1988	1	6	8	15	5	35
1989	1	9	12	22	7	51
1990	1	11	15	26	13	67
1991	37	15	20	11	4	87
1992	8	17	23	36	17	101
1993	26	31	42	66	18	183
1994	24	24	33	47	14	143
1995	23	17	24	28	11	103
1996	29	23	30	38	13	132
1997	32	28	38	51	16	166
1998	35	34	46	65	20	200
1999	39	37	51	72	22	220
2000	42	41	56	79	24	242
2001	47	45	61	87	27	266
2002	51	50	67	95	29	293
2003	56	55	74	105	32	322
2004	62	60	81	115	35	354
2005	68	66	90	127	39	390
2006	75	73	99	139	43	429
2007	83	80	108	153	47	472
2008	91	88	119	169	52	519
2009	100	97	131	185	57	571
2010	110	107	144	204	63	628

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

VEHICLE OPERATING COSTS
 Zimbabwe dollar (Z\$) per vehicle per km, June 1996

Vehicle Class	Roughness (mm/km)						Project Savings for prices of					
	2500	4000	6000	8000	10000	14000	June 1996	1985	1988	1989	1990	1991
Cars and LGV	1,35	1,46	1,68	2,11	2,56	3,29	0,64	0,09	0,11	0,12	0,14	0,17
MGV and HGV	4,48	5,31	4,88	6,99	8,15	10,79	1,67	0,24	0,28	0,31	0,36	0,45
Buses	4,76	5,29	6,14	7,34	8,43	10,34	2,05	0,29	0,35	0,39	0,44	0,55

MAINTENANCE SAVINGS:

Routine Maintenance (1996): 7.354 - 5.691 = 1 663 Z\$ / km x year

Periodic Maintenance (1985): 30.000-11.000= 19 000 Z\$ at 10 year intervals

Source: Ministry of Transport & Energy and PPAR Mission

Zimbabwe:
Rural Roads I Project
Project Performance Evaluation Report

SAVINGS IN VOC
R847: Kwekwe - Gokwe, 132 km

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1991	363 302	78 352	253 492	2 274 103	1 114 994	4 084 244
1992	127 041	75 610	244 621	2 560 110	1 352 375	4 359 757
1993	490 469	96 968	313 720	2 714 298	1 370 116	4 985 570
1994	270 405	69 269	224 106	2 014 162	1 145 522	3 723 464
1995	194 510	65 791	212 853	1 727 484	1 516 385	3 717 021
1996	769 507	89 675	290 126	2 019 104	845 152	4 013 565
1997	606 520	140 155	453 443	3 905 253	2 333 509	7 438 880
1998	778 640	129 090	417 645	3 688 295	1 325 858	6 339 527
1999	817 572	135 545	438 527	3 872 709	1 392 150	6 656 504
2000	858 451	142 322	460 454	4 066 345	1 461 758	6 989 329
2001	901 373	149 438	483 476	4 269 662	1 534 846	7 338 795
2002	946 442	156 910	507 650	4 483 145	1 611 588	7 705 735
2003	993 764	164 756	533 033	4 707 302	1 692 167	8 091 022
2004	1 043 452	172 993	559 684	4 942 667	1 776 776	8 495 573
2005	1 095 625	181 643	587 669	5 189 801	1 865 615	8 920 352
2006	1 150 406	190 725	617 052	5 449 291	1 958 895	9 366 369
2007	1 207 926	200 261	647 905	5 721 755	2 056 840	9 834 688
2008	1 268 322	210 275	680 300	6 007 843	2 159 682	10 326 422
2009	1 331 739	220 788	714 315	6 308 235	2 267 666	10 842 743
2010	1 398 325	231 828	750 031	6 623 647	2 381 050	11 384 880

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

SAVINGS IN VOC

R177: Mvuma - Gweru, 40 km

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1990	416 167	95 045	298 714	773 729	401 613	1 985 268
1991	353 102	87 193	274 036	757 666	400 087	1 872 084
1992	290 038	79 341	249 358	741 604	398 561	1 758 901
1993	209 943	51 106	160 618	496 067	161 589	1 079 323
1994	892 339	181 696	571 043	1 418 503	537 719	3 601 300
1995	389 306	127 243	399 907	1 298 818	743 752	2 959 027
1996	535 599	137 910	433 430	1 305 043	574 347	2 986 329
1997	681 892	148 576	466 953	1 311 267	404 943	3 013 632
1998	490 896	138 065	433 917	1 577 880	385 704	3 026 462
1999	515 441	144 968	455 613	1 656 774	404 989	3 177 785
2000	541 213	152 216	478 393	1 739 613	425 239	3 336 674
2001	568 273	159 827	502 313	1 826 593	446 501	3 503 507
2002	596 687	167 818	527 429	1 917 923	468 826	3 678 683
2003	626 522	176 209	553 800	2 013 819	492 267	3 862 617
2004	657 848	185 020	581 490	2 114 510	516 880	4 055 748
2005	690 740	194 271	610 565	2 220 236	542 724	4 258 535
2006	725 277	203 984	641 093	2 331 247	569 860	4 471 462
2007	761 541	214 183	673 148	2 447 810	598 353	4 695 035
2008	799 618	224 893	706 805	2 570 200	628 271	4 929 787
2009	839 599	236 137	742 145	2 698 710	659 685	5 176 276

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

SAVINGS IN VOC
R330: Seke - Zvipadze, 40 km

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1988	774 951	157 374	629 495	1 337 501	957 720	3 857 041
1989	378 934	70 573	282 293	654 990	261 571	1 648 361
1990	364 121	67 850	271 402	621 883	261 571	1 586 828
1991	275 287	56 594	226 376	558 143	262 129	1 378 530
1992	186 453	45 338	181 351	494 402	262 688	1 170 232
1993	356 438	70 863	283 451	746 292	233 062	1 690 106
1994	363 656	91 823	367 291	1 146 702	401 356	2 370 828
1995	528 378	103 626	414 502	982 444	449 374	2 478 324
1996	552 104	106 173	424 692	1 040 653	384 671	2 508 293
1997	575 830	108 720	434 882	1 098 862	319 968	2 538 263
1998	144 639	42 077	168 307	525 960	254 214	1 135 197
1999	150 951	43 339	173 356	536 479	261 840	1 165 966
2000	157 491	44 639	178 557	547 209	269 696	1 197 592
2001	164 268	45 978	183 914	558 153	277 787	1 230 099
2002	171 289	47 358	189 431	569 316	286 120	1 263 514
2003	178 562	48 779	195 114	580 702	294 704	1 297 861
2004	186 097	50 242	200 968	592 316	303 545	1 333 167
2005	193 901	51 749	206 997	604 163	312 651	1 369 461
2006	201 984	53 302	213 207	616 246	322 031	1 406 768
2007	210 354	54 901	219 603	628 571	331 692	1 445 120

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

SAVINGS IN VOC
R659: Gwanda - Guyu, 53 km

Year	Cars	Light Goods Vehicles LGV	Medium Goods Vehicles MGV	Heavy Goods Vehicles HGV	Buses	Total
1990	2 623	37 392	133 914	226 019	142 240	542 189
1991	122 422	48 548	173 867	97 368	39 284	481 489
1992	25 011	56 505	202 361	313 604	181 000	778 480
1993	84 905	102 380	366 655	574 940	191 647	1 320 527
1994	79 557	79 901	286 152	410 779	152 913	1 009 302
1995	74 209	57 423	205 648	246 617	114 180	698 077
1996	94 746	74 049	265 193	329 782	135 946	899 716
1997	104 964	92 970	332 954	448 005	174 444	1 153 337
1998	115 182	111 891	400 716	566 229	212 941	1 406 958
1999	126 700	123 080	440 787	622 852	234 235	1 547 653
2000	139 370	135 388	484 866	685 137	257 658	1 702 419
2001	153 307	148 927	533 353	753 651	283 424	1 872 661
2002	168 637	163 819	586 688	829 016	311 767	2 059 927
2003	185 501	180 201	645 357	911 917	342 943	2 265 919
2004	204 051	198 221	709 892	1 003 109	377 238	2 492 511
2005	224 456	218 043	780 882	1 103 420	414 961	2 741 762
2006	246 902	239 848	858 970	1 213 762	456 457	3 015 939
2007	271 592	263 832	944 867	1 335 138	502 103	3 317 532
2008	298 751	290 216	1 039 354	1 468 652	552 313	3 649 286
2009	328 627	319 237	1 143 289	1 615 517	607 545	4 014 214

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

STREAMS OF COSTS AND BENEFITS
R847: Kwekwe - Gokwe, 132 km

Year	Investment Costs	Benefits			Net Benefits
		Maintenance	VOC	Total	
1986	620 500				-620 500
1987	5 023 500				-5 023 500
1988	8 457 500				-8 457 500
1989	6 732 000				-6 732 000
1990	6 290 000				-6 290 000
1991	6 715 607	219 516	4 084 244	4 303 760	-2 411 847
1992		219 516	4 359 757	4 579 273	4 579 273
1993		219 516	4 985 570	5 205 086	5 205 086
1994		219 516	3 723 464	3 942 980	3 942 980
1995		219 516	3 717 021	3 936 537	3 936 537
1996		219 516	4 013 565	4 233 081	4 233 081
1997		2 727 516	7 438 880	10 166 396	10 166 396
1998		219 516	6 339 527	6 559 043	6 559 043
1999		219 516	6 656 504	6 876 020	6 876 020
2000		219 516	6 989 329	7 208 845	7 208 845
2001		219 516	7 338 795	7 558 311	7 558 311
2002		219 516	7 705 735	7 925 251	7 925 251
2003		2 727 516	8 091 022	10 818 538	10 818 538
2004		219 516	8 495 573	8 715 089	8 715 089
2005		219 516	8 920 352	9 139 868	9 139 868
2006		219 516	9 366 369	9 585 885	9 585 885
2007		219 516	9 834 688	10 054 204	10 054 204
2008		219 516	10 326 422	10 545 938	10 545 938
2009		219 516	10 842 743	11 062 259	11 062 259
2010	-16 919 554	2 727 516	11 384 880	14 112 396	31 031 950
Economic Internal Rate of Return (%)				14,79	

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

STREAMS OF COSTS AND BENEFITS
R177: Mvuma - Gweru, 40 km

Year	Investment Costs	Benefits			Net Benefits
		Maintenance	VOC	Total	
1986	6 082 557				-6 082 557
1987	2 983 500				-2 983 500
1988	4 063 000				-4 063 000
1989	289 850				-289 850
1990	952 000	66 520	1 985 268	2 051 788	1 099 788
1991		66 520	1 872 084	1 938 604	1 938 604
1992		66 520	1 758 901	1 825 421	1 825 421
1993		66 520	1 079 323	1 145 843	1 145 843
1994		826 520	3 601 300	4 427 820	4 427 820
1995		66 520	2 959 027	3 025 547	3 025 547
1996		66 520	2 986 329	3 052 849	3 052 849
1997		66 520	3 013 632	3 080 152	3 080 152
1998		66 520	3 026 462	3 092 982	3 092 982
1999		826 520	3 177 785	4 004 305	4 004 305
2000		66 520	3 336 674	3 403 194	3 403 194
2001		66 520	3 503 507	3 570 027	3 570 027
2002		66 520	3 678 683	3 745 203	3 745 203
2003		66 520	3 862 617	3 929 137	3 929 137
2004		826 520	4 055 748	4 882 268	4 882 268
2005		66 520	4 258 535	4 325 055	4 325 055
2006		66 520	4 471 462	4 537 982	4 537 982
2007		66 520	4 695 035	4 761 555	4 761 555
2008		66 520	4 929 787	4 996 307	4 996 307
2009	-7 185 454	826 520	5 176 276	6 002 796	13 188 250
Economic Internal Rate of Return (%)				14,54	

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

STREAMS OF COSTS AND BENEFITS
R330: Seke – Zvipadze, 40 km

Year	Investment Costs	Benefits			Net Benefits
		Maintenance	VOC	Total	
1986	1 436 500				-1 436 500
1987	2 881 500				-2 881 500
1988	2 955 396	66 520	3 857 041	3 923 561	968 165
1989		66 520	1 648 361	1 714 881	1 714 881
1990		66 520	1 586 828	1 653 348	1 653 348
1991		66 520	1 378 530	1 445 050	1 445 050
1992		826 520	1 170 232	1 996 752	1 996 752
1993		66 520	1 690 106	1 756 626	1 756 626
1994		66 520	2 370 828	2 437 348	2 437 348
1995		66 520	2 478 324	2 544 844	2 544 844
1996		66 520	2 508 293	2 574 813	2 574 813
1997		826 520	2 538 263	3 364 783	3 364 783
1998		66 520	1 135 197	1 201 717	1 201 717
1999		66 520	1 165 966	1 232 486	1 232 486
2000		66 520	1 197 592	1 264 112	1 264 112
2001		66 520	1 230 099	1 296 619	1 296 619
2002		826 520	1 263 514	2 090 034	2 090 034
2003		66 520	1 297 861	1 364 381	1 364 381
2004		66 520	1 333 167	1 399 687	1 399 687
2005		66 520	1 369 461	1 435 981	1 435 981
2006		66 520	1 406 768	1 473 288	1 473 288
2007	-2 182 019	826 520	1 445 120	2 271 640	4 453 659
Economic Internal Rate of Return (%)				33,45	

Zimbabwe
Rural Roads I Project
Project Performance Evaluation Report

STREAMS OF COSTS AND BENEFITS
R659: Gwanda - Guyu, 53 km

Year	Investment Costs	Benefits			Net Benefits
		Maintenance	VOC	Total	
1987	901 000				-901 000
1988	3 867 500				-3 867 500
1989	3 366 000				-3 366 000
1990	2 506 853	88 139	542 189	630 328	-1 876 525
1991		88 139	481 489	569 628	569 628
1992		88 139	778 480	866 619	866 619
1993		88 139	1 320 527	1 408 666	1 408 666
1994		88 139	1 009 302	1 097 441	1 097 441
1995		88 139	698 077	786 216	786 216
1996		88 139	899 716	987 855	987 855
1997		88 139	1 153 337	1 241 476	1 241 476
1998		88 139	1 406 958	1 495 097	1 495 097
1999		1 095 139	1 547 653	2 642 792	2 642 792
2000		88 139	1 702 419	1 790 558	1 790 558
2001		88 139	1 872 661	1 960 800	1 960 800
2002		88 139	2 059 927	2 148 066	2 148 066
2003		88 139	2 265 919	2 354 058	2 354 058
2004		88 139	2 492 511	2 580 650	2 580 650
2005		88 139	2 741 762	2 829 901	2 829 901
2006		88 139	3 015 939	3 104 078	3 104 078
2007		88 139	3 317 532	3 405 671	3 405 671
2008		88 139	3 649 286	3 737 425	3 737 425
2009	-7 448 947	1 095 139	4 014 214	5 109 353	12 558 300
Economic Internal Rate of Return (%)				12,34	