PD-BBC-819

SOUTHERN AFRICA REGIONAL

MALAWI NORTHERN CORRIDOR

(690-0237)

PROJECT PAPER SUPPLEMENT

DATE: JANUARY, 1988

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: C (A = Add, C = Change, D = Delete) — Amendment Number 1

DOCUMENT CODE 3

2. COUNTRY/ENTITY: SOUTHERN AFRICA REGIONAL

3. PROJECT NUMBER: 690-0237

4. BUREAU/OFFICE: AFR — 06

5. PROJECT TITLE (maximum 40 characters): MALAWI NORTHERN CORRIDOR

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 06 DD 30 YY 91

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 86 B. Quarter 4 C. Final FY 88

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(7,231)	(3,269)	( )	(13,812)	(5,316)	(19,128)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country						
Other Donor(s)						
TOTALS	7,231	3,269		13,812	5,316	19,128

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
SADCC	823			10,500		8,628		19,128	
TOTALS				10,500		8,628		19,128	

SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

PROJECT PURPOSE (maximum 480 characters)

To improve Malawi's access to the coastal port of Dar es Salaam by providing, in conjunction with other donors, a comprehensive northern transport corridor through Malawi and Tanzania, along with the necessary linkages with road, lake and rail transit systems. The AID-funded portion of the overall project will concentrate on the upgrading of port services on Lake Malawi and will finance some mobile equipment for the two Malawi Cargo Centers in Tanzania.

14. SCHEDULED EVALUATIONS

Interim MM 01 YY 89 MM YY Final MM 02 YY 91

15. SOURCE/ORIGIN OF GOODS AND SERVICES

☐ 000 ☒ 941 ☒ Local ☒ Other (Specify) 935

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment)

1. Increase in project budget.
2. Minor shifts in the allocation of the project budget.
3. Extension of PACD:

Clearance: USAID/Zimbabwe Controller: Maryl. Baw 2-24-88

17. APPROVED BY

Signature: A B Herrick

Title: Allison B. Herrick, Director, USAID/Zimbabwe

Date Signed: MM 02 DD 27 YY 88

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

AID 1330-4 (8-79)

DRAFT PROJECT AUTHORIZATION AMENDMENT

NAME OF COUNTRY/ENTITY: Government of Malawi (GOM)
Southern Africa Regional Program

NAME OF PROJECT: Malawi Northern Corridor

NUMBER OF PROJECT: 690-0237

Pursuant to the SADCC Special Appropriation of the Foreign Assistance and Related Programs Appropriations Act of 1988, the Malawi Northern Corridor Project, authorized on July 1, 1986, is hereby amended as follows:

a. In paragraph 1, the words "U.S. $10,500,000 ($10.5 million)" are deleted and the words "nineteen million, one hundred twenty-eight thousand United States Dollars ($19,128,000)" are inserted in lieu thereof.

b. In the last sentence of paragraph 1, the words "three (3) years and three (3) months" are deleted and the words five (5) years are inserted in lieu thereof.

c. In papragraph 4(c) add the following covenant, "(3) examine and arrange for the financial resources to adequately cover the recurrent costs associated with the project".

Allison Herrick
Director, USAID/Zimbabwe

February 27, 1988
Date

ACTION MEMORANDUM FOR THE DIRECTOR, USAID/ZIMBABWE

FROM: Janet Schulman, PDO
THRU: Eugene Morris, CPDO

SUBJECT: Malawi Northern Corridor Project (690-0237)
Amended Project Authorization

PROBLEM: Your approval is requested to: a) increase life of project funding for the Malawi Northern Corridor Project by $8,628,000 from $10,500,000 to a total life of project funding of $19,128,000; and b) extend the PACD from September 30, 1989 to June 30, 1991.

DISCUSSION: This project, which is part of the larger, multi-donor Northern Transport Corridor (NTC) Project was originally authorized on July 1, 1986 at a life of project funding level of $10,500,000. Ten million of that amount was obligated in the Project Grant Agreement dated July 24, 1986 and the remainder was obligated via Amendment No. 1 dated August 28, 1986.

Since project authorization and obligation, the Northern Corridor Project has experienced substantial implementation delays and increases in costs. The increased costs are due to the fact that the design engineer significantly underestimated the complexity and costs of the project. Further, a less competitive and more costly construction environment has developed in Malawi since the Project Paper was written. Project delays were due to the need for the consultant to modify preliminary designs, and the unexpected need to find an alternative site for the Malawi Cargo Center at Dar es Salaam, which caused a delay in the Malawi Government's ability to meet Conditions Precedent.

As described in the attached Project Paper Supplement, the original project purpose and outputs are unchanged. A new financial and economic analysis was conducted to reflect the increased costs and the passage of time. That analysis found that AID's component of the project's internal rate of return had declined from 32.1% to 11.6%, but that the project was still economically sound and financially viable. The revised rate of return was calculated using the most conservative assumptions. The calculation excludes unquantifiable significant economic benefits; it also optimistically assumes that the Nacala line will reopen in the near term. The rate of return as originally calculated, which is highly optimistic, was based on limited information and preliminary, underestimated, costs of construction and building material. Information on the physical and technical site problems, which have now become evident, were not available at the time of calculation of rates of return for the entire

4

project and for the AID component. The rate of return for the multi-donor project as a whole, including AID's component, is now reduced to 21%. The 11.6% rate of return for the AID component is a reasonable return for authorization of the project supplement.

The issue of the government of Malawi's ability to cover the recurrent cost of the total project was not discussed in the original Project Paper. However, the issue is raised by the Economic Analysis in the Project Paper Supplement. Considering the total donor project cost of over $113 million, it was agreed at the mission review that the issue should be raised with the Government of Malawi officials and discussed with the other donors. A covenant is added to the Project Authorization Amendment to encourage the Government of Malawi to examine and arrange for the financial resources to adequately cover the recurrent costs associated with the project.

The design consultant (GITEC) has completed the detailed quantity and cost surveys, soil tests, final designs and specifications and contract documents. These have been reviewed by USAID's regional engineer and found to be complete and reasonable, satisfying all 611(a) requirements. Fixed Amount Reimbursement (FAR) levels were set based on those final cost estimates plus reasonable allowances for physical contingencies and price increases. Construction bids for Monkey Bay, Chipoka and Chilumba have been received and are within 2% of GITEC's cost estimates. The Supplement design team has confidence in the revised cost estimates, particularly for the AID-financed elements.

As of January 20, 1988, all Conditions Precedent had been satisfied. Disbursements for AID-financed construction and procurement may now technically proceed. All AID-financed construction contracts have already been bid, and contractors have been selected. The Government of Malawi has been advised that they may now sign the construction contracts for Monkey Bay and Chipoka. However, the funding requested in this Project Paper Supplement must be available before the Chilumba construction and all commodity contracts can be signed. The extended validity of the bid for Chilumba will expire on March 4, 1988. As a result of the January 16, 1988 devaluation of the Malawi Kwacha, a further extension of the validity of the bid is unlikely. A revised project implementation schedule has been prepared. Allowing for delays, a revised PACD of June 30, 1991 is reasonable.

Project management, monitoring, administrative and procurement procedures remain as described in the original Project Paper.

5

Financial Plan

The summary revised plan for AID inputs is as follows:

ITEM	($000)
1. Host Country Construction Contracts (FAR)	
a) Monkey Bay	$ 3,290
b) Chipoka	2,919
c) Chilumba	4,785
2. Commodity Procurement	7,934
3. Project Assistant, Evaluations and Audit	200
TOTAL	$19,128

The project continues to meet all statutory criteria. A country statutory checklist is included. There is no project checklist because there has been no changes in the statutes since the project was authorized. The Supplement was reviewed and approved by the Mission Project Review Committee on February 11, 1988 with a representative of USAID/ Malawi attending. In addition, all project documents have received clearance from the Regional Legal Advisor, REDSO/ESA. A notification regarding the increase in LOP funding was sent to Congress on February 12.

RECOMMENDATION: That you sign the attached Project Authorization Amendment thereby: a) increasing life of project funding by $8,628,000 from $10,500,000 to $19,128,000; and b) extending the PACD from September 30, 1989 to June 30, 1991.

APPROVED: A B Herrick
Allison B. Herrick, Director

DISAPPROVED: _____
Allison B. Herrick, Director

DATE: 27 February 1988

Attachments:
Project Authorization Amendment
Project Paper Supplement

Clearances: USAID/Malawi:SNorton:PDO (Phone)
REDSO:KHansen:RLA (Phone)

6

Malawi Northern Corridor Project (690-0237)
Project Paper Supplement

TABLE OF CONTENTS

		PAGE
Cover		
Project Data Sheet		
Draft Revised Project Authorization		
Table of Contents		
List of Acronyms		
PART I.	Executive Summary	1
PART II.	Project Rational and Description	
	Background	3
	Revisions to Project Elements	3
PART III.	Revised Cost Estimate and Financing Plan	6
	Overall Project	8
	AID-Financed Components	9
PART IV.	Revisions to Project Implementation Plan	14
	Revised Implementation Schedule	14
	Method Of Implementation & Financing	18
	Additional Procurement Waiver	19
	Clarification of Monitoring/Evaluation	19
PART V.	Revised Summary Project Analyses	
	Reaffirmation of Technical, Social, Administrative & Environmental Analyses	20
	Financial Analysis	20
	Economic Analysis	21
	Conclusion	23
	Evaluation	23
PART VI.	ANNEXES	
	A. Revised Logframe	
	B. Revised Country Checklist	
	C. Revised Financial and Economic Analysis	
TABLES		
1.	Overall NTC Financing Plan	7
2.	Estimate of Base Cost, Escalated Totals and Comparison with PP	10
3.	Financial Plan by Year of Disbursement	11
4.	Implementation Schedule	14/15
5.	AID-funded Assistance	22

7

LIST OF ACRONYMS

EDF	European Development Fund
EIRR	Economic Internal Rate of Return
FAR	Fixed Amount Reimbursement
GOM	Government of Malawi
GOT	Government of Tanzania
IDA	International Development Agency (World Bank)
IRR	Internal Rate of Return
KfW	Kreditanstalt fur Wiederaufbau
MCC	Malawi Cargo Center
MK	Malawi Kwacha
MR	Malawi Railways
MRHC	Malawi Railways Holding Company
NTC	Northern Transport Corridor
ODA	Overseas Development Administration (UK)
PACD	Project Assistance Completion Date
PP	Project Paper
PPS	Project Paper Supplement
RSA	Republic of South Africa
SADCC	Southern Africa Development Coordination Conference
TANZAM	Tanzania-Zambia Highway
TAZARA	Tanzania-Zambia Railway Authority
UK	United Kingdom
USAID	United States Agency for International Development

PART I

EXECUTIVE SUMMARY

This Project Paper Supplement (PPS) supports a $8,628,000 increase in Life of Project funding from $10,500,000 to $19,128,000 for the Malawi Northern Corridor project. It also requests an extension of the Project Assistance Completion Date (PACD) from September 30, 1989 to June 30, 1991 and a procurement waiver permitting approximately $1,475,000 in construction materials and equipment to be purchased from countries in Geographic Code 935.

This Supplement reaffirms the basic project design and analyses contained in the original Project Paper dated July 1, 1986. The purpose of the project remains "to improve Malawi's access to the coastal port of Dar es Salaam by providing a comprehensive northern transport corridor through Malawi and Tanzania, along with the necessary linkages with road, lake and rail transit systems." The project is still a multi-donor activity involving AID, the World Bank (IDA), the European Development Fund (EDF), the Kreditanstalt fur Wiederaufbau (KfW), the British Overseas Development Administration (ODA) and Holland. The major AID-funded project outputs continue to be upgraded dry goods and fuel facilities at the ports of Chipoka and Chilumba, upgraded ship repair and maintenance facilities at Monkey Bay, selected movable equipment for the Malawi Cargo Centers at Dar es Salaam and Mbeya and the provision of fuel tanktainers and railway tankers.

The increased project cost is due to the fact that the design consultant significantly underestimated the complexity and costs of the project. Further, a less competitive and more costly construction environment has developed. An extension of the PACD is needed because of delays in project start-up, due to preliminary design modifications, site changes and difficulty in meeting Conditions Precedent. The new construction and procurement schedules extend past the original PACD. The recommended new project life is five years.

As a result of the project cost increases, a new financial and economic analysis was conducted. The analysis found that the rate of return of the project had declined from 32.1% to 11.6% but that the project was still economically sound and financially viable. The analysis also confirmed the importance of the financial management assistance to be provided by IDA under the overall project. In addition to the quantified economic benefits, the project will help save scarce foreign exchange, provide lower prices on imported products, make Malawian export prices more competitive and assist in the economic and political development and integration of northern Malawi.

The Northern Corridor Project gives Malawi an alternative to the currently inoperative Nacala line through Mozambique. The only other alternative route is the lengthy, circuitous route through Zambia, Zimbabwe and South Africa. The latter route has the additional disadvantage of reinforcing Malawi's dependency on South Africa. The Northern Corridor Project Supplement thus further facilitates and rationalizes a natural and logical development process already underway.

PART II

PROJECT RATIONALE AND DESCRIPTION

A. Background

While foreign donor attention is increasingly focused on the problem of transportation in Malawi, the situation regarding external trade has changed very little since the Project Paper was initially authorized in the summer of 1986. The vast majority of Malawi's external trade continues to move through long southern routes to the South African port of Durban at financial and time costs greatly in excess of those on the traditional trade routes through Mozambique. These costs have adversely effected Malawi's export earnings, import prices, balance of payments and other economic indicators.

Prospects for the Beira and Nacala rail corridors to be opened to substantial Malawian traffic in the near future are slim. Donor-funded rehabilitation of the line to Nacala has begun and has been completed between Nacala and Nampula, but is continuously disrupted by civil war. Although occasional trains may get through in the future, it is not expected to be a reliable route as long as disruptions continue. With assistance from AID and other donors, and with the support of the Zimbabwe Army, the rail line, road and pipeline between Beira and the Zimbabwean border have been kept open. However, these are used predominantly for Zimbabwean traffic. The rail line between Beira and the Malawi border has been neglected for several years and is severely damaged by guerrilla activity; it is unlikely to be restored to reliable working order in the near future.

The Northern Transport Corridor (NTC) remains Malawi's primary insurance policy in the event that the southern routes are closed as well and is the major viable method for reducing the time and costs of its external trade. As a result of this project and other activities, including the Tanzania-Zambia Railway Authority (TAZARA) Project supported by AID, the NTC is now the focus of substantial international donor support. For some donors, including the EEC, Denmark, Australia and Japan, the NTC is the only route to Malawi since they have recently mandated that none of the commodities they finance can be shipped through South Africa. Indications are that this trend will continue and expand. The justification for the project is at least as strong if not stronger, than it was in July of 1986.

B. Revisions to Project Elements

This Project Paper Supplement supports:

1. An increase in the project budget from $10.5 million to $19.128 million;

11

2. Minor shifts in the allocation of the project budget;

3. An extension of the Project Assistance Completion Date from September 30, 1989 to June 30, 1991; and

4. A source and origin waiver permitting procurement of approximately $1,475,000 in construction materials and supplies from countries in Geographic Code 935.

Except for an increase in inputs and some modifications to outputs, major project elements remain unchanged from the original Project Paper. The Project Purpose remains "to improve Malawi's access to the coastal port of Dar es Salaam by providing a comprehensive northern transport corridor through Malawi and Tanzania, along with the necessary linkages with road, lake and rail transit systems." As shown in the revised Project Logframe (Annex A), the End of Project Status indicators have been changed slightly to incorporate revised cargo traffic estimates, to build in improvements in efficiency which can be measured by the PACD, such as container loading time and total transit time between Blantyre and Dar es Salaam, and to add a positive cash flow for the Lake Services as a measure of project success.

The primary outputs of the overall NTC project are listed in Table 1 (page 7), and the AID-financed outputs are listed in Table 3 (page 11). The major project outputs financed by AID are still upgraded dry goods and fuel facilities at the ports of Chilumba and Chipoka, upgraded ship repair and maintenance facilities at Monkey Bay, selected movable equipment for the Malawi Cargo Centers at Dar es Salaam and Mbeya and the provision of fuel tanktainers and railway tankers.

As the technical design process unfolded, a number of changes in the preliminary designs were judged necessary to obtain the same project outputs as described in the Project Paper. Functionally, however, the most significant change in the outputs has been to provide gantry cranes for Chilumba and Chipoka, as well as to the Malawi Cargo Centers in Dar es Salaam and Mbeya. Each is to be capable of handling 40 foot containers, as well as 20 foot containers. Containerized cargo is a rapidly growing element of both domestic and international shipping services. Container handling is expected to comprise a significant percentage of Malawi Railways' and Lake Service's future revenues. The Government of Malawi and project donors have determined that it is reasonable to design the NTC system to handle the larger 40 foot containers which are increasingly the standard for international trade.

Other changes to project inputs are:

1. Modification to the pontoon boat "Viphya" was determined to be unnecessary;

2. Railway tankers have been increased in size from 45,000 liters to 60,000 liters;

12

3. Forklifts for Chipoka and Chilumba will now be financed by ODA; and

4. Where necessary, pallet wagons and wooden pallets will be purchased by Malawi Railways.

Further discussion of the inputs is contained in the Revised Cost Estimate and Financing Plan which follows.

The major project modification has been the increase in project funding needed to finance the originally planned project outputs. That is further discussed in the section which immediately follows.

Part III

REVISED COST ESTIMATE AND FINANCING PLAN

Since the project was originally authorized in July 1986, the estimated cost of the combined donor project has increased by 35% from $83.89 million to $113.49 million. The estimated cost of the AID-financed portions of the project has increased by 82% from $10.50 million to $19.13 million. There are two primary reasons for such large cost increases. First, the preliminary designs prepared by the engineering consultants, GITEC, in June 1986, significantly underestimated both the complexity and costs of the project. As more detailed and final designs were prepared, prior inaccurate or omitted costs and unfavorable physical conditions were discovered. The Malawi Cargo Center in Dar es Salaam had to be switched to a more costly location. Except for design modifications to allow the gantry cranes to handle 40 foot (as opposed to 20 foot) containers, a 30% increase in the size of the railway tankers and the elimination of pontoon vessel modification, the basic capacities and capabilities of the AID portion of the project remain as intended in July 1986.

The second major reason for cost increases is the tremendous change which has taken place in the construction environment in Malawi since this project was originally designed and authorized. Since the construction is a relatively complex hybrid of engineering and construction, the pool of firms qualified to do the work is small. Moreover, due to a recent increase in large construction projects in Tanzania and Malawi (most of which are donor funded), these contractors are not as hungry for business as they were 18 months ago. As an illustration of this, from the nine qualified firms approached to bid on the construction for this project, five bids were received for Monkey Bay and three each for Chipoka and Chilumba. In addition, according to sources at the Ministry of Works and Supplies, a series of Kwacha devaluations and limitation on import allocations have resulted in an increase in the price of construction materials of approximately 100% over the past 18 months. As examples, during the first six months of 1987 the price of galvanized pipe rose 246% and PVA paint was up 44%. Even the price of locally-produced bricks rose 80%, due primarily to higher transport costs. Finally, because of the devaluations, contractors are raising their prices to reduce their financial risk. As a result of these factors, construction jobs in Malawi are less competitive and significantly more expensive than at the time the original PP was prepared.

Tables 1 and 2 identify the major differences which are discussed below.

Table 1: OVERALL NTC FINANCING PLAN

($ Million)

ITEM	AID	IDA	EDF	KfW	ODA	HOLLAND	GOM	TOTAL	PP
1. Road Construction									
a) Karonga-Songwe (51km)								17.08	22.77
b) Ibanda-Uyole (98km)						16.40		16.40	6.88
c) Salima-Jct. M18 (63km)				7.20			0.80	8.00	11.29
d) Chipoka Access (2.5km)				0.20			0.02	0.22	
e) Jct. M18-Balaka (82km)		7.04					1.26	8.30	14.62
SUBTOTAL		7.04	17.08	7.40		16.40	2.08	50.00	55.56
2. Malawi Cargo Center									
a) Dar Dry Cargo	1.26				10.51			11.77	4.00
b) Mbeya Dry Cargo	1.26				5.49			6.75	3.45
c) Squatter Resettlement					0.86			0.86	
SUBTOTAL	2.52				16.86			19.38	7.45
3. Fuel Handling									
a) Dar Fuel Storage				5.94				5.94	0.90
b) Mbeya Fuel Storage				2.69				2.69	1.13
SUBTOTAL				8.63				8.63	2.03
4. Fuel Transport									
a) Tanktainers	0.53							0.53	0.41
b) Railway Tankers	1.40							1.40	0.82
SUBTOTAL	1.93							1.93	1.23
5. Lake Facilities									
a) Vessels				5.44				5.44	2.62
b)Chipoka	4.52				0.31			4.83	1.96
c) Chilumba	6.38				0.50			6.88	3.13
d) Monkey Bay	3.58				0.67			4.25	2.34
SUBTOTAL	14.48			5.44	1.48			21.40	10.05
6. Border Post & Weigh Bridge		0.59	0.18				0.10	0.87	0.72
7. Consulting Services									
a) TA - Coordinator		0.39					0.06	0.45	0.34
b) TA - Financial Cont.		0.39					0.06	0.45	0.99
c) TA - Lake Services		0.90					0.16	1.06	0.99
d) Construction Supervis.	0.20	2.59	2.69		1.00	0.91	0.43	7.82	4.53
e) Supplementary Engin.		1.50						1.50	
SUBTOTAL	0.20	5.77	2.69		1.00	0.91	0.71	11.28	6.58
TOTAL PROJECT COST	19.13	13.40	19.95	21.47	19.34	17.31	2.89	113.49	83.89

15

A. Overall Northern Transport Corridor Project

Taken together, construction of the various road components funded by other donors have currently begun at contracted costs of $5.6 million less than estimated in 1986. As shown in Table 1, all other project elements are significantly above the earlier estimates. The estimated cost of the Malawi Cargo Centers has increased by two and one-half times. The original site in Dar es Salaam was clean, conveniently located and had an existing useable warehouse worth about $2 million. Unfortunately, that site, owned by the Tanzania-Zambia Railway Authority (TAZARA), was ultimately not available because Zambia refused to agree to release it. The new site is harder to develop and requires laying of new rail lines and the resettlement of a number of residents (squatters), involving additional costs for physical and social infrastructure and compensation. At the Mbeya site, the design engineer made a poor preliminary observation of the sloping land and underestimated the work necessary to bring rail and road levels into alignment.

The costs of the fuel-handling facilities in Dar es Salaam and Mbeya have increased more than four fold. This is due partially to the fact that GITEC grossly underestimated the need for control and safety systems and partially because a potential arrangement to share development costs with a private petroleum company was rejected by the Government of Malawi. The estimated cost of the border post and weighbridge have increased only slightly since the 1986 estimate. The price of consulting services, however, is up 72% because additional work is needed to modify the Malawi Cargo Center sites in Tanzania. The KfW is proposing to finance a new 600-ton lake vessel at an estimated cost of $5.4 million, which is more than double the previous price. The fuel transport and lake facilities components are primarily funded by AID and are discussed below.

In addition to the change in the overall project budget, AID and ODA swapped some components to facilitate maintenance or standardization with existing equipment. ODA financed the fork lifts, previously to be covered by AID, and AID financed diesel generators, previously left out of the design.

Detailed design is still continuing on some project components to be funded by other donors. Some further cost adjustments are therefore to be expected. Despite the cost increases, however, all donors have remained convinced of the value of the project and committed to its funding. Roadwork funded by the EEC, the Netherlands and West Germany is fully funded and under construction. The United Kingdom has just provided its final approval to fund the dry cargo centers at Dar es Salaam and Mbeya, together with minor elements of the lake facilities. World Bank funding, primarily for roads and consulting services, is scheduled for final review by the Board of Directors in February 1988. West Germany is presently appraising plans to fund fuel facilities and a new lake vessel. Only funding for the lake vessels is in

question, and that is not considered crucial to project success. Moreover, as the final vessel design may be for container use rather than for both container and fuel, the cost of the vessel may be lowered.

Government of Malawi funding is limited to the tax components of IDA and part of the KfW contribution and to the contributions in kind (personnel, facilities and operating expenses) described in the Project Paper (page 12).

B. AID-Financed Components

In addition to the base price cost of the AID-financed activities, Table 2 shows the change in escalated AID-financed costs between the original Project Paper and now. Table 3 shows the escalated costs by anticipated year of disbursement.

All of the construction elements have increased drastically. GITEC's preliminary plans for the Monkey Bay repair and maintenance facility's would not have efficiently met the facilities' future requirements. It was found that the existing slipway had a substantial number of cracks in both the concrete and tracks. Redesign was necessary to handle vessels up to 400-tons deadweight. The existing winches were also later found to be old, inoperable and in need of replacement. Other needed changes not identified in the preliminary design included providing easier vehicle access to various dock operations and separating passenger movement from the repair operation.

At Chipoka Port, GITEC's presumption that the existing facilities could be used with only minor modifications was disproved during the detailed design process. Existing storage areas have to be increased and strengthened, substantially more concrete work is required to facilitate vehicle access and to separate passengers from port activities. Soil borings revealed that pile supports would be needed to strengthen the foundation for the gantry crane which will now be capable of handling 40 foot as well as 20 foot containers. Finally, inadequate fire fighting and fuel control systems must be greatly improved and expanded.

At Chilumba Port, it was determined that very little of the existing facility could be used. The current jetty will remain and be used as a passenger area, but the rest of the port (including storage sheds, access areas, etc.) will have to be built from scratch. Soil borings revealed rock which prevented the normal construction method (pile-sheeting walls) from being used. Instead, the method had to be changed to massive and costly retaining walls. As at Chipoka, conversion to 40-foot gantry cranes mandated strengthened crane-supports.

TABLE 2: ESTIMATE OF BASE COST, ESCALATED TOTALS AND COMPARISON WITH PP
(All costs in $ 000)

ITEM	FX	LC	BASE TOTAL	ESCALATED TOTAL	PP	INCREASE
1. Monkey Bay Civil Works	367	245	612	696	701	-5
2. Monkey Bay Buildings	337	225	562	639	440	199
3. Monkey Bay Jetty and Pontoon	874	582	1456	1656	677	979
					334	-334 1/
4. Chipoka Fuel Facilities	343	228	571	648	356	292
5. Chipoka Dry Goods	650	433	1083	1232	191	1041
6. Chipoka Crane Foundations	259	172	431	491	315	176
7. Chipoka Buildings	149	100	249	283	84	199
8. Chilumba Fuel Facilities	546	364	910	1053	496	539
9. Chilumba Dry Goods	683	455	1138	1294	403	891
10. Chilumba Crane Foundation and Harbor	649	432	1081	1228	423	805
11. Chilumba Buildings	418	278	696	792	94	698
12. Gantry Cranes at Chipoka and Chilumba	2127	236	2363	2582	1565	1017
13. Gantry Cranes at Dar and Mbeya	1554	173	1727	1986	1341	645
14. Diesel Generators at Chipoka/Chilumba	265	30	295	325	0	325
					243	-243 2/
15. Diesel Generators at Dar and Mbeya	246	27	273	301	0	301
					258	-258 3/
16. Slipway Winches at Monkey Bay	200	50	250	265	0	265
17. 22 60,000 litre railway tankers	1080	120	1200	1272	847	425
18. 32 16,000 litre tanktainers	410	45	455	482	400	82
19. Evaluations and Audit	60	0	60	68	66	2
20. AID Project Assistant/Engineer	20	80	100	114	253	-139
Subtotal	11237	4275	15512	17389	9487	7902
Contingencies (10%)	1124	428	1551	1739	1013	726 4/
TOTAL	12361	4705	17063	19128	10500	8628

Base Cost are as of October 1987. Escalated costs include 8% annual inflation
PP costs as of June 1986 include 8% annual inflation
1/ pontoon modification dropped. 2/ ODA paying for forklifts
3/ MR paying for pallets and pallet wagons. Firefighting equipment now in construction contracts
4/ Contingencies rounded.

TABLE 3: FINANCIAL PLAN BY YEAR OF DISBURSEMENT
(All costs in $ 000)

ITEM	FY 88 FX	FY 88 LC	FY 89 FX	FY 89 LC	FY 90 FX	FY 90 LC	TOTAL FX	TOTAL LC	GROSS TOTAL FX + LC
1. Monkey Bay Civil Works	97	65	144	96	176	118	417	279	696
2. Monkey Bay Buildings	89	60	132	88	162	108	383	256	639
3. Monkey Bay Jetty and Pontoon	232	154	343	228	420	279	995	661	1656
4. Chipoka Fuel Facilities	91	60	134	89	165	109	390	258	648
5. Chipoka Dry Goods	172	115	255	170	312	208	739	493	1232
6. Chipoka Crane Foundations	69	46	102	67	124	83	295	196	491
7. Chipoka Buildings	39	27	58	39	72	48	169	114	283
8. Chilumba Fuel Facilities	145	96	214	143	262	175	621	414	1035
9. Chilumba Dry Goods	181	121	268	178	328	218	777	517	1294
10. Chilumba Crane Foundation & Harbor	172	114	254	169	312	207	738	490	1228
11. Chilumba Buildings	111	74	164	109	201	133	476	316	792
12. Gantry Cranes at Chipoka/Chilumba	0	0	569	63	1755	195	2324	258	2582
13. Gantry Cranes at Dar and Mbeya	0	0	862	96	925	103	1787	199	1986
14. Diesel Generators at Chipoka/Chil.	0	0	292	33	0	0	292	33	325
15. Diesel Generators at Dar & Mbeya	0	0	271	30	0	0	271	30	301
16. Slipway Winches at Monkey Bay	105	26	107	27	0	0	212	53	265
17. 22 60,000 litre railway tankers	567	63	578	64	0	0	1145	127	1272
18. 32 16,000 litre tanktainers	215	24	219	24	0	0	434	48	482
19. Evaluations and Audit	0	0	33	0	35	0	68	0	68
20. AID Project Assistant/Engineer	5	21	8	31	10	39	23	91	114
SUBTOTAL	2290	1066	5007	1744	5259	2023	12556	4833	17389
Contingencies (10%)	229	107	501	174	526	202	1256	483	1739
TOTAL	2519	1173	5508	1918	5785	2225	13812	5316	19128

Costs are based on October 1987 prices plus inflation at an annual rate of 8 percent based on construction schedules and estimated procurement time.

The fire fighting system and fuel facilities at Chilumba also have to be substantially expanded and improved.

Regarding AID-funded commodities, the increased cost of the gantry cranes is most significant. GITEC initially planned to install gantry cranes to handle 20 foot containers with the presumption that any 40-foot containers used would be reconstituted into the 20-foot ones. After substantial discussion, it was determined that the project should focus on developing the capacity to handle 40 foot containers, the prevailing standard for the future. The crane designs also had to be modified to increase the span between the truck/track and vessel as well as the operational speed. At the lake, the overhang over vessels will be substantial and will necessitate heavy counterweights.

The diesel generators were not included in the earlier project costs because they were totally overlooked by the design contractors. They are essential at Dar, Mbeya, Chipoka and Chilumba, either as primary power sources or to back-up the unreliable grid supply. Electrical designs in general were substantially ignored during preliminary project design.

As noted above, the five winches at Monkey Bay, used to raise ships onto the slipway and originally thought to be adequate, were later found to be obsolete and inoperable.

As far as the railway tankers are concerned, while 45,000 liter tankers are currently standard on the Malawi Railway, the larger 60,000 liter containers are the standard on the TAZARA where they will be used. Heavier track is now being laid on the Malawi Railway lines and the line to Nacala to permit the larger tankers and those purchased under this project to be used on those lines in the future. The 32 tanktainers dedicated for aviation fuel have increased in price by 20% since the earlier cost estimates were made.

Indicated in the footnotes of Table 2 are a few project changes which resulted in cost reductions for AID. Planned modifications to the pontoon vessel "Viphya" were deemed unnecessary and dropped. ODA agreed to pick up the cost of the forklifts for Chipoka and Chilumba. Additional pallets and pallet wagons will now be provided by Malawi Railways. The fire fighting equipment is now included in the construction contracts. Finally, USAID now plans to finance a local Project Assistant Engineer at considerable cost savings over an expatriate.

The PP Supplement design team has confidence in the revised cost estimates, particularly for the AID-financed elements. GITEC, the design consultant, has completed the detailed quantity and cost surveys, soil tests, final designs and specifications and contract documents. These have been reviewed by AID's regional engineer and found to be complete and reasonable, satisfying all 611(a) requirements. Modified Fixed Amount Reimbursement (FAR) levels were set based on final cost estimates plus allowances for

physical contingencies and price increases. Construction bids for Monkey Bay, Chipoka and Chilumba have been received and are within 2% of GITEC's cost estimates. The contracts for Monkey Bay and Chipoka were signed in mid-February 1988, and the contract for Chilumba will be signed as soon as the funds provided for under this Supplement are made available. The risk of additional increases to the AID-financed construction elements, therefore, is minimal. In addition, under the FAR procedures any risk of costs above the FAR amount is assumed by the Government of Malawi.

On the commodity procurement side, estimates for the diesel generators, winches, railway tankers and tanktainers are based upon prices obtained by GITEC from equipment manufacturers in October 1987. The estimates for the gantry cranes (26% of total AID-financed costs) are based upon discussions with potential manufacturers in October 1987. The design team has verified the reasonableness of these prices.

PART IV

REVISIONS TO PROJECT IMPLEMENTATION PLAN

Aside from the implementation schedule and an additional procurement waiver, discussed below, all other elements of the implementation plan contained in the original Project Paper are unchanged and still applicable (see particularly pgs. 13-16 and Annex G3 of the Project Paper). That is, the host country, acting through the Ministry of Works and Supplies and Malawi Railways, will be responsible for all contracting and commodity procurement. For construction, the Government of Malawi will utilize its normal tendering procedures with payment made by AID to the Government of Malawi according to Modified Fixed Amount Reimbursement (FAR) procedures. The Government of Malawi will also be responsible for all commodity procurement actions, though payment of commodities will be made through AID Direct Letters of Commitment. USAID/Malawi's experience with the Government of Malawi since this project was originally authorized continues to reinforce its confidence in these implementation procedures.

A. Revised Implementation Schedule

Table 4 parallels the style of and can be compared to the Implementation Schedule found on page 17 of the PP. This section discusses the reasons for and the impact of project delays.

Table 4

Implementation Schedule

Action	Start	End
A. Overall Multi-donor Project		
Karonga - Ibanda Road designed		June 86
Karonga - Ibanda Road tenders issued	Jan. 87	
Karonga - Songwe Road construction	April 88	April 91
Songwe - Ibanda Road construction	April 88	April 90
Ibanda - Uyole Road designed		April 87
Ibanda - Uyole Road tenders issued		April 88
Ibanda - Uyole Road construction	July 88	June 90
Salima - Balaka Road designed		July 86
Salima - Balaka Road tenders issued	Dec. 87	
Salima - M 18 Junction Road construction	April 88	Oct. 91
M 18 Junction - Balaka Road construction	April 88	Oct. 91
Dar-es-Salaam Dry Goods Facilities designed	Nov. 87	Aug. 88
Dar-es-Salaam DG Facilities tenders issued	Aug. 88	
Dar-es-Salaam DG Facilities construction	Nov. 88	Feb. 90
Dar-es-Salaam Fuel Facilities designed		June 88
Dar-es-Salaam Fuel Facilities tenders issued	July 88	
Dar-es-Salaam Fuel Facilities construction	Nov. 88	March 90

22

Mbeya Dry Goods Facilities designed	Nov. 88	
Mbeya Dry Goods Facilities tenders issued	Jan. 89	
Mbeya Dry Goods Facilities construction	March 89	Sept. 90
Mbeya Fuel Facilities designed	Nov. 88	
Mbeya Fuel Facilities tenders issued	Nov. 88	
Mbeya Fuel Facilities construction	March 89	March 90
Tenders for ODA MCC equipment issued	July 88	
Self Propelled Pontoon construction	July 91	Dec. 92
Monkey Bay construction	April 88	April 90
Chipoka Port construction	April 88	May 90
Chilumba Port construction	May 88	June 90

B. USAID Project

Action	Date	Responsible
Preliminary design and costs completed	June 86	GITEC
Project Authorized	June 86	AID/Z
Grant Agreement signed	July 86	AID/M GOM
Monkey Bay/Chipoka/Chilumba design/docs completed (CP)	July 87	GITEC
Monkey Bay bid documents advertized	July 87	AID/M GOM
Chipoka bid documents advertized	Aug 87	AID/M GOM
Agreement to establish MCCs signed (CP)	Aug 87	GOM/GOT
Chilumba Port bid documents advertized	Sept 87	AID/M GOM
Monkey Bay bids received and FAR amount set	Sept 87	AID/M GOM
Land Allocation letter for MCCs signed (CP)	Oct 87	GOM/GOT
Chipoka bids received and FAR amount set	Oct 87	AID/M GOM
Chilumba bids received and FAR amount set	Dec 87	AID/M GOM
Procurement documents completed for gantry cranes, rail tank cars, tanktainers, diesel generators, Monkey Bay slipway winches	Jan 88	AID/M GOM
Financial commitment from ODA (UK) (CP)	Jan 88	ODA/GOM
PP Supplement prepared	Jan 88	AID/M
PP Supplement approved	Feb 88	AID/M
Construction contract signed Monkey Bay	Feb 88	Contractor GOM
Construction contract signed Chipoka	Feb 88	Contractor GOM
Congressional waiting period expires	Feb 88	AID/M AID/W
Project Assistant hired	Feb 88	AID/M
Grant Agreement Amendment No. 2 signed	March 88	AID/M GOM
Blanket CBD notice for procurement issued	March 88	AID/M GOM
Construction contract signed Chilumba Port	March 88	Contractor GOM
Monkey Bay construction begins	April 88	Contractor GOM
Chipoka Port construction begins	April 88	Contractor GOM
Chilumba Port construction begins	May 88	Contractor GOM
Quotations received on procurement items	May 88	AID/M GOM
Chipoka/Chilumba gantry crane contracts awarded	July 88	AID/M GOM
Contracts awarded for railway tank cars, tanktainers and slipway winches	Aug 88	AID/M GOM
Mid Project Evaluation	Jan 89	AID/Z/M GOM
Contracts awarded for diesel generators	Jan 89	AID/M GOM
Railway tank cars, tanktainers and slipway winches delivered	Jan 89	Contractor

23

Dar/Mbeya gantry crane contracts awarded	July 89	AID/M GOM
Chipoka/Chilumba gantry cranes delivered and installed	July 89	Contractor GOM
Diesel generators delivered	July 89	Contractor GOM
Monkey Bay completed	April 90	Contractor GOM
Chipoka Port completed	May 90	Contractor GOM
Chilumba Port completed	June 90	Contractor GOM
Dar/Mbeya Gantry cranes delivered and installed	Oct 90	AID/M GOM
End of Project Evaluation	Feb 91	AID/M GOM
PACD	June 30, 1991	

The Project Grant Agreement dated July 24, 1986 included three "Additional Conditions Precedent to Disbursement" for elements other than the Project Assistant. These were:

1. Evidence that the Government of Malawi has executed an agreement with the Government of Tanzania governing the operations of the Northern Transport Corridor. This agreement was to include:

   a) an agreement between Malawi Railways and the Tanzania Zambia Railway Authority (TAZARA) for the establishment and operation of the MCCs in Tanzania; and

   b) signed lease agreements for the two MCC sites;

2. Evidence that the ODA or other donor would finance the MCCs and tools and equipment needed for the Monkey Bay repair and maintenance facility; and

3. Final designs and specifications for AID-financed construction and works.

A number of interrelated factors conspired to delay satisfaction of these Conditions Precedent and, therefore, project implementation. As noted in the above sections on revised project description and costs, substantial modifications had to be made to the preliminary designs prepared by GITEC in June 1986 because equipment or site requirements had not been fully understood, complex or unfavorable physical conditions had been overlooked or underestimated or standards had been changed. Further, GITEC's attention was diverted by the major problem caused by changing the Malawi Cargo Center site in Dar es Salaam. Nevertheless, final designs and specifications were submitted in July 1987, satisfying the conditions number 3.

The agreements on the Malawi Cargo Centers in Tanzania were delayed by changes in the Malawi Cargo Center sites and by bureaucratic delays within the Government of Malawi as well as within the Government of Tanzania. Though it was never opposed to the concept, with minimal incentive to act quickly, the Government of Tanzania dragged its feet on the agreement, and the Government of Malawi was reluctant to push hard. With the passage of time, the attention of other donors and other officials within the

24

Government of Malawi was focused on the problem. The two governments signed an agreement covering the Malawi-Tanzania Corridor Transport System on August 15, 1987. In October 1987, the Government of Tanzania and TAZARA authorities signed documents allocating specific land for the Dar es Salaam and Mbeya Malawi Cargo Center sites. USAID confirmed that certificates of occupancy would soon be granted but that lease agreements could not be signed until the Dar es Salaam site's current occupants are compensated. After consultation with USAID/SARP and the Regional Legal Advisor from REDSO, USAID issued PIL No. 9 on January 6, 1988, accepting the land allocation documents in lieu of signed lease agreements, thereby satisfying that Condition Precedent.

The final Condition Precedent was satisfied on January 20, 1988, when ODA gave its final approval to provide its planned project financing. In total, the Terminal Date for Conditions Precedent was extended three times. USAID extended it by 90 days from October 22, 1986 to January 20, 1987. AID's Assistant Administrator for Africa approved two subsequent extensions to December 31, 1987 and to June 30, 1988.

In retrospect, the original PP design team underestimated the complexity of the project and overestimated the speed with which other donor financing, coordination and the two governments' agreements would be finalized. Through the process, costs have increased substantially, thereby necessitating the additional funding requested in this PP Supplement. Nevertheless, by already having an approved project, AID provided considerable incentive and momentum for the other project participants to act favorably and more expeditiously than they otherwise might have.

While the overall multi-donor project is now 18 months to two years behind the schedule proposed in the PP, the AID-financed elements are only about one year behind schedule. Whereas the AID-financed construction was initially to be completed six months after other project elements, it should now be completed at approximately the same time.

All AID-financed construction contracts have already been bid on and contractors have been selected, though not notified. With all Conditions Precedent satisfied, AID-financed construction and procurement may now technically proceed. The Government of Malawi has been authorized to immediately sign the construction contracts for Monkey Bay and Chipoka since the bid validity on those contracts has already been extended and expires on February 4, 1988. However, the funding requested in this Supplement must be available before the Chilumba construction and commodity procurement contracts can be signed. The bid validity for Chilumba expires on March 4, 1988. Construction time periods for Monkey Bay, Chipoka and Chilumba have each been established at 18 months. Allowing for delays and the fact that AID procurement items will have to mesh with construction, a revised PACD of June 30, 1991, is considered reasonable and is recommended.

METHOD OF IMPLEMENTATION AND FINANCING

CATEGORY	IMPLEMENTATION METHOD	FINANCING METHOD
1. Monkey Bay Civil Works commodities and construction	Ministry of Works and Supplies Malawi (MOWS) HB 11 Contract.	Modified Fixed Amount Contract (FAR)
2. Chipoka fuel station and crane foundations/ fuel tanks and construction commodities	MOWS HB 11 Contract	modified FAR
3. Chilumba fuel station, crane foundation, harbor improvements, pumping equipment and construction commodities	MOWS HB 11 Contract	modified FAR
4. Procurement of gantry cranes diesel generators, slipway winches and firefighting equipment	MOWS HB 11 Contract	Direct Letter of Commitment by AID/W
5. Fuel Transportation equipment (tanktainers and railway tankers)	MOWS HB 11 Contract	Direct Letter of Commitment by AID/W
6. Technical Assistance for project monitoring and construction supervision	USAID/Malawi Personal Contract (PSC)	Direct payment by USAID/Malawi

B. Additional Procurement Waiver

Geographic Code 941 (Selected Free World) and Malawi remains the authorized source and origin of project goods and services. One procurement waiver was included in the original Project Paper, justifying the purchase of fuel pumping station equipment from countries in Geographic Code 935. A similar waiver is attached in Annex D of this Supplement, justifying the purchase of construction materials and equipment from countries in Geographic Code 935.

C. Clarification of Monitoring and Evaluation Arrangements

All project management and monitoring will be the responsibility of USAID/Malawi. The USAID Project Officer will be assisted by a full-time, local-hire Project Assistant who will handle most routine tasks. Additional technical support will be obtained from monthly visits by the Southern Africa Regional Engineer in Harare and, as appropriate, from the Regional Legal Advisor and the Regional Commodity Management Officer, both in Nairobi.

In keeping with the revised Implementation Schedule, the mid-project evaluation has been pushed back to January 1989 and the end-of-project evaluation to February 1991. The purposes of the joint evaluations will be as stated in the PP (pg. 30). Detailed scopes of work and final team composition will be determined jointly by USAID/Malawi and the Government of Malawi. It should be noted that the PACD for AID-financed activities (June 30, 1991) falls well before the date when lake traffic is supposed to demonstrate success of the overall project. The end-of-project evaluation, therefore, will focus on verification of project outputs, examine traffic trends at that time and look at efficiency measures such as improvements in container loading time and total through-put time between Blantyre and Dar es Salaam. USAID is of course free to participate in a later multi-donor project evaluation using non-project funding. Financial provisions have been made for an end-of-project audit.

Part V

REVISED SUMMARY PROJECT ANALYSES

The Project Paper Supplement design team has reviewed all project analyses. Given the minimal changes in project design (with the exception of cost increases), the technical, social, administrative and environmental analyses were found to be still valid and applicable. The cost increases did, however, mandate a new economic and financial analysis. A summary of that analysis follows and the complete analysis is found in Annex C.

A. Financial and Economic Analysis

The financial and economic analysis contained in the 1986 Project Paper is revised to reflect increases in project costs, shifts in planned expenditures and the passage of time. AID's assistance is considered in the broader context of the multi-donor Northern Transport Corridor Project. Emphasis is placed on the lake facilities component which accounts for 76% of AID's financing.

1. Financial Assessment

Upon review of the financial performance and prospects of the several public and private entities integrally involved in the Northern Corridor transportation route, it was deemed that the project is financially viable. However, certain financial risks and institutional weaknesses were identified.

AID is providing assistance through other projects to both TAZARA and the private trucking industry. TAZARA and the trucking industry are considered to be sufficiently stable financially so as to pose no threat to the project.

Malawi Cargo Centers will be established in Dar es Salaam and Mbeya by bilateral donors, including the AID-funded Physical assets will be sold on concessional terms by the Government of Malawi to the Malawi Railways Holding Company. Assets, in turn, will be leased to a new Malawi Cargo Center Company which will manage the Malawi Cargo Center operations. On the basis of current cost and traffic projections, Malawi Cargo Centers operations should provide adequate returns to the Malawi Cargo Centers Company and Malawi Railways Holding Company.

Lake transportation services are provided by the Lake Service Department of Malawi Railways. Although Lake Service's accounts cannot be entirely separated from those of Malawi Railways, data on operating revenues and expenditures clearly indicate that the Lake Service has been operating at a loss during the 1980s. Losses are attributed primarily to passenger services, whereas the cargo operations have been near the break-even point. Based on an extrapolation of current operating costs and on expected revenues,

Lake Service's operations are projected to be financially viable in the medium-to long-term. However, the department will require financial backing from Malawi Railways during the first two to three years of the project.

Malawi Railways' profit from international freight have declined in the 1980s due to the closure of the Nacala and Beira routes and rising debt service resulting from capital investment in the early 1980s. Managerial and technical assistance to Malawi Railways has previously been provided by ODA and will in the future be funded under the project by IDA, including retraining for Malawi Railway personnel. Improved financial performance will depend on increases in domestic cargo traffic and profits from the Lake Service operations. As a result, it is likely that Malawi Railways will remain financially weak for the near future and that it will seek temporary financial support from the Government of Malawi.

The project has significant budgetary implications for the Government of Malawi: no provision has been made for financial support of Malawi Railways, for servicing the IDA Credit, or for financing recurrent costs associated with project investments, such as road maintenance. These priorities must be reconciled with other planned expenditures through the national budget and macroeconomic policies.

2. Economic Analysis

Although increases in costs have eroded the high estimates of economic returns cited in the 1986 Project Paper, the Northern Transport Corridor Project remains fundamentally sound. AID co-financed project components promise moderately low, but acceptable, economic rates of return, i.e., Malawi Lake Facilities 11.6%; Malawi Cargo Center 31%; Fuel Hanld and Transport 32%.

Malawi will benefit from the implementation of the multi-donor Northern Transport Corridor Project in three fundamental respects. First, it will realize savings through diversion of import and export traffic from the more costly southern routes to the Northern Corridor; as a result, scarce foreign exchange will be saved. Second, Malawi will have greater economic security in the face of the political and strategic threats to its supply routes through Mozambique, the Republic of South Africa, Zimbabwe, and Zambia. Third, the project will stimulate the economic development of northern Malawi.

With the loss of access to Mozambican ports in the early 1980s, most of Malawi's international cargo traffic was diverted to southern routes using the port of Durban. Trade through the Northern Corridor commenced in 1984. Dry cargo and fuel movement through the Northern Corridor is projected to reach 376,000 metric tons, or more than 40% of total trade, by 1995. If access to Mozambique's ports remains cut-off, actual trade volumes could be 50% higher.

The Economic Internal Rate of Return for the entire multi-donor project is now estimated to be 21%, from a previous estimate of 35%. The most serious risks to success of the multi-donor program are further escalations in costs and large shortfalls in Northern Corridor traffic.

Quantitative estimates of the benefits to be derived from the lake facilities sub-project are based on projections of freight traffic diverted from trucking routes and associated unit costs savings. Secondary benefits are not quantified but include: savings on normal domestic lake transport; greater efficiency and reduced costs on alternate routes resulting from increased competition; and, economic development of the lake region.

Cost savings are estimated to be MK53 per MT for dry cargo and MK128 per MT for fuel. Cargo traffic on the lake is projected to grow to 200,000 MT in 1998, led by increases in container traffic and in fuel. Estimated capital cost and transport-cost savings streams over the 20 year economic life of the project yield an Economic Internal Rate of Return of 11.6%.

As available information on road transport costs is weak, any analysis based on these estimates of cost savings should be viewed with caution. The greatest risk faced by the lake facilities sub-project is that projected cost savings will not be realized. This could occur if the cost differential between lake and road transportation is smaller than expected, or if lake traffic projections are not met.

Table 5: Lake Facilities Sensitivity Analysis

Scenario	Economic Internal Rate of Return
O. Base Projections	11.6%
A. 10% Shortfall in Savings	10.0
B. 20% Shortfall in Savings	8.3
C. 10% Increase in Capital Costs	10.2
D. No new vessel	10.3
E. New vessel delayed 2 years	11.2
X. July 1986 Project Paper	32.1

3. Conclusions

Despite significant increases in project costs, the project is judged to be financially viable and economically sound. At the same time, the analysis identifies serious concerns and project risks:

-- First, it is noted that the project has significant budgetar implications for the Government of Malawi which merit further attention.

-- Second, Malawi Railways is likely to encounter financial difficulties during the next few years which, in the absence of corrective action, are likely to devolve on the Government of Malawi.

-- Third, the greatest single economic risk to the project is that cost savings, particularly on the Lake Malawi route, will fall short of expectations;

-- An additional risk is that the large projected increases in Northern Corridor traffic will fail to materialize, perhaps because of a resumption of trade through Mozambique.

These concerns and risks should be considered against the probability that true savings and increases in transportation efficiency will accrue to Malawi, that economic security will be enhanced and that the project will promote the economic development along the Northern Corridor through Malawi and Tanzania.

Evaluation

Two formal evaluations of the AID project are planned. The first is scheduled for January 1989, roughly the mid-point of the project, when all construction contracts are in operation and procurement is well underway. By this time, all components of the overall multi-donor project will also have started. The evaluation of the AID component should also include a brief progress summary of the overall project.

The evaluation will be a joint Government of Malawi/AID undertaking. The evaluation team should include appropriate Government of Malawi officials and an AID Project Development Officer, Engineer and Transport Economist for a period of three weeks to permit site visits, discussions and report writing. The Project Development Officer and Transport Economist may be from the USAID/Zimbabwe Regional Office or REDSO/Nairobi, but it is anticipated that at least one senior team member will be from outside AID and the Government of Malawi. Evaluation funds have been provided in the project budget for this purpose.

The second formal evaluation is scheduled for February 1991, when the project will be virtually complete. The objective will be to

ensure that all planned inputs are in place and functioning as expected. The evaluation will also examine traffic trends at the time and look at efficiency measures such as improvement in container loading time and total through-put time between Blantyre and Dar es Salaam. Again, the evaluation team will consist of a combination of AID and Government of Malawi personnel familiar with the project, and one or more outside experts.

LOGFRAME

GOAL	MEASURE OF GOAL AGREEMENT	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
To provide Malawi with a more reliable and cost effective option for international transport	-- Increase in exports -- Decrease in transport cost of imports and exports -- Decrease in transport time of imports and exports	Malawi national level trade statistics	Development of a northern corridor transport route will continue to be a high priority with GOM

PURPOSE	END OF PROJECT STATUS (EOPS)	MEANS OF VERIFICATION	ASSUMPTIONS
To improve Malawi's access to the coastal port of Dar es Salaam by providing a comprehensive northern transport corridor through Malawi and Tanzania, along with the necessary linkages with road, lake and rail transit systems. (The AID-funded portion of the overall project will concentrate on the upgrading of port services on Lake Malawi and some equipment for the two Malawi Cargo Centers at transhipment points in Tanzania).	-- Volume of cargo shipped on Lake Malawi ports reaches: 70,000 MT break bulk, 86,000 MT container and 27,000 MT fuel by 1995. -- Malawi cargo centers at Mbeya and Dar es Salaam handle at least 376,000 Mt of cargo per year by 1995. -- Revenues generated on Lake Service to cover expenses and depreciation. -- Efficiency measures such as through-put time between Blantyre and Dar es Salaam improve significantly. -- Increase in repair and maintenance capacity at Monkey Bay of at least 50%.	MOTC records Malawi Railways records on tonnage shipped by rail and lake vessels Records of private transporters.	-- Mozambique corridor will not be viable transport option for Malawi for the next five years. -- Commitments by other donors will be forthcoming to fund other elements of overall NTC network. -- Traffic flow will increase as NTC is completed and well maintain at a high level.

OUTPUTS	MAGNITUDE	VERIFIABLE INDICATORS	ASSUMPTIONS
1. Upgraded dry goods and fuel facilities at the port of Chilumba.	Construction of a harbor wall, concrete container storage area, and access road. Installation of a gantry crane for 40ft. containers, diesel generators, fuel facilities control system and fire fighting systems.	-- Records of lake facilities --Contract documents and payment certificates. -- On-site inspection and reports from supervisory engineer and AID regional engineer.	
2. Upgraded dry goods and fuel facilities at the port of Chipoka.	Installation of a gantry crane for 40 ft. containers, concrete container storage area, warehouse, workshop and access road, diesel generators, diesel and petrol storage tanks, control system and fire fighting systems.		
3. Upgraded facilities for ship repair and maintenace at Monkey Bay.	New floating platforms for berthing two ships, machine shop, workshop, gatehouse and repair of slipway.		
4. Selected movable equipment for Malawi Cargo Centers at Dar es Salaam and Mbeya and provision of fuel transport.	--Installation of diesel generators and gantry cranes at each site for 40 ft. containers. -- 22 60,000 litre rail tankers. -- 32 16,000 litre tank-tainers		

INPUTS	FUNDING TARGETS ($000)		VERIFIABLE INDICATORS	ASSUMPTIONS
1. Host Country construction contract.	Monkey Bay	$ 3290	-- Procurement documents.	
	Chipoka	2919	-- Procurement and Construction records of MOWS	
	Chilumba	4785		
2. Commodity Procurement		7934		
3. Project assistant, evaluation and audit		200		
TOTAL		$19128		

FY 1988 PROJECT STATUTORY CHECKLISTS

5C(1) - COUNTRY CHECKLIST

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

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481(h) (1): FY 1988 Continuing Resolution Sec. 527. Has it been determined or certified to the Congress by the President that the government of the recipient country has failed to take adequate measures or steps to prevent narcotic and psychotropic drugs or other controlled substances (as listed in the schedules in section 202 of the Comprehensive Drug Abuse and Prevention Control Act of 1971) which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to United States Government personnel or their dependents or from entering the United States unlawfully?

   No such determination has been made.

2. FAA Sec. 481(h) (4). Has the President determined that the recipient country has not taken adequate steps to prevent (a) the processing, in whole or in part, in such country of narcotic and psychotropic drugs or other controlled substances, (b) the transportation through such country of narcotic and psychotropic drugs or other controlled substances, and (c) the use of such country as a refuge for illegal drug traffickers?

   No such determination has been made.

3. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?

   The GOM is not so liable.

4. FAA Sec. 620(e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

The GOM, its agencies or subdivisions have taken no such action.

5. FAA Sec.620(a), 620(f), 620D; FY 1988 Continuing Resolution Sec. 512. Is recipient country a Communist country? If so, has the President determined that assistance to the country is important to the national interests of the United States? Will assistance be provided to Angola, Cambodia, Cuba, Iraq, Syria, Vietnam, Libya, or South Yemen? Will assistance be provided to Afghanistan without a certification?

Malawi is not a communist country.

6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property?

No.

7. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC?

No.

8. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5.

(a) Has the country seized, or imposed any penalty or sanction against any U.S., fishing activities in international waters?

No.

(b) If so, has any deduction required by the Fishermen's Protective Act been made?

N/A.

9. FAA Sec. 620(q); FY 1987 Continuing Resolution Sec. 518. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country? (b) Has the country been in default for more than one year on interest under a program for which the appropriation bill (or continuing resolution) appropriates funds?

(a) No.

(b) No.

10. FAA Sec 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

N/A.

11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

No. Malawi maintains good diplomatic relations with the United States. The A.I.D. Bilateral Agreement between the GOM and USG was signed on January 8, 1987.

12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.)

Malawi is not in arrears in its UN obligations.

18. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken into account? (Reference may be made to the Taking into Consideration memo.)

Malawi was not represented at the meeting, and was not associated with the communique.

19. FY 1988 Continuing Resolution Sec. 540. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions?

No.

Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilization?

No.

Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?

No.

20. FY 1988 Continuing Resolution. Is the assistance being made available to any organization or program which has been determined as supporting or participating in the management of a program of coercive abortion on involuntary sterilization?

No.

If assistance is from the population functional account, are any of the funds to be made available to family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?

No.

21. FY 1988 Continuing Resolution Sec. 528. Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States?

No such determination has been made.

22. FY 1988 Continuing Resolution Sec. 513. Has the duly elected Head of Government of the country been deposed by military coup or decree?

No.

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria.

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

No such determination has been made.

2. Economic Support Fund Country Criteria

FAA Sec.502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

No such determination is presently in effect.

ANNEX C

ECONOMIC ANALYSIS OF THE

THERN CORRIDOR PROJECT
(690-0237)

to revise the financial and economic
ly 1986 Project Paper for the Malawi
90-0237) in order to reflect
shifts in planned expenditures and
proach taken will be to analyze
roader context of the multi-donor
Project. Emphasis will be placed on
d to improve the capacity and
on Lake Malawi.

ort (NTC) Project is financed by
sed of seven major components (see
Reports, September 1987 and January

een Karonga, Malawi and Uyole,

Centers (MCCs) in Dar es Salaam and

and transport capacity between

een Balaka and Salima, Malawi;

ost and weigh bridge on the
; and,

-donor project is expected to be
lion; MK2.30 equals $1.00), compared
51.0 million; MK1.80 equals $1.00)
ct Paper. Substantial increases have
tes for the MCC, fuel handling and

project is presented in the Project
If the present Project Paper
.D. will provide 17% of project
through Southern Africa Regional
rticipation in the multi-donor project
Corridor Project will be limited to
s, fuel transport, and lake
ities component will account for 76%
l be analyzed at length below.

ests in turn on
the financial
te entities involved
mmarized below.

asis except for IDA
The IDA funding is
is made for servicing
NTC project, although
om concessional sales
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will be included in
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aining the roads
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This will require
in 1988, the budget

he costs of providing
freight and handling
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e trucking industry
icient flexibility to
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41

financial performance in the 1980's has been marred by declining profits from international freight resulting from the closure of the Mozambican lines, and increases in debt service arising from capital investments in the early 1980's. MR's liquidity problems were eased by a 1985 agreement with the Government of Malawi to restructure its debt.

MR's future performance will depend on: a) increases in domestic freight traffic; b) performance of the Lake Services operation (see b low); and c) sound financial management. ODA has provided management and technical assistance to MR in order to improve its financial performance and this effort will be continued under IDA funding.

3. Financial Performance of Malawi Cargo Centers

The MCCs, consisting of handling and storage facilities for dry cargo and fuel, will be financed primarily by a grant from the U.K. A.I.D. will provide cofinancing for gantry cranes and diesel generators. The Government of Malawi, in turn, will transfer ownership of the MCC's physical assets to the Malawi Railways Holding Company (MRHC) in exchange for a debt obligation equivalent to 60% of the assets' value. Operation of the MCCs will be managed by a new MCC Company which will lease the assets from MRHC. For the project to be financially viable, MRHC's revenues must cover its debt service obligations and a reasonable return on investment, and the MCC must cover its operating costs including lease payments, and offer a sufficient return to investors.

The 1988 World Bank appraisal finds that the MCC sub-project is financially viable. Financial projections are based on the following assumptions:

-- NTC traffic levels correspond to the projections in Table 7 below;

-- handling and storage charges for fuel cover the MCC Company's costs, plus a 4% commission;

-- breakbulk handling charges are MK36 per metric ton (1987 prices); and,

-- container handling charges are MK450 per container with a 20% premium for containerized jet fuel.

Projected financial performance of the breakbulk, container and fuel handling elements of the MCC operations is found to be satisfactory, with the container element projected to be the most profitable. The MCC Company's revenues are projected to be sufficient to cover lease payments structured to provide MRHC with net returns of 5% and 12% on its dry cargo and fuel handling

assets, respectively, over the lives of these assets. The gross rate of return on equity for MRHC is estimated at 11% over 30 years; MRHC revenues would be adequate to cover its debt service obligations. Moreover, the Financial IRR for the MCC subproject is an estimated 12%.

Both the MRHC and the MCC Company will share in the risks of the MCC investments. Principal risks are: that MCC handling charges will be forced downwards by competitive pressure, although this is unlikely for the container and fuel elements; or, that projected dry cargo traffic will fail to materialize. There is less market risk in fuel trade because of the Government's policy to import 50% of domestic fuel requirements through Dar es Salaam. Table 1 illustrates the sensitivity of the MCCs' Financial IRR and the MRHC's return on equity to varying assumptions on charges and traffic.

Table 1: MCC Sensitivity Analysis

Assumption	Financial IRR	Gross Return on Equity to MRHC
Base Projection	12%	11%
30 % Shortfall in Breakbulk Traffic	11	8
30 % Shortfall in Container Traffic	10	7
30 % Shortfall in Dry Cargo Traffic	9	4
25% Reduction in Breakbulk Charges	11	6

Source: World Bank, 1987.

4. Financial Performance of Lake Services

Lake Services is a distinct operating unit within Malawi Railways, providing passenger and cargo transportation services on the 570 km Lake Malawi. Although financial data for Lake Services cannot be completely disentangled from Malawi Railways accounts, available data are presented in Table 2. These figures tend to underestimate costs by calculating depreciation based on historical rather than replacement costs, and by omitting certain overhead and debt servicing costs borne by Malawi Railways.

Despite the fact that revenues for cargo services increased significantly in 1985/86 and 1986/87, financial data indicate clearly that Lake Services has been operated at a loss since 1981. Passenger services have been unprofitable and are a major cause of Lake Services poor financial performance. There is limited scope for increasing passenger tariffs because of

Table 2: Lake Service Financial Performance

	1979	1980	1981	1982/83	1983/84	1984/85	1985/86	1986/87
Volume of Traffic								
Cargo Service:								
Tonnage (1000)	35.4	31.2	29.4	40.3	39.2	33.2	36.9	44.4
Net Tons/km (1000)	12434	10691	9695	13807	9143	12148	12511	14735
Passenger Service:								
Passengers (1000)	104.9	105.1	132.7	182	191.2	187.9	203	198
Passenger km (1000)	16801	16155	18334	23105	23197	21289	23492	21625
Financial Data (MK 1000)								
Revenues:								
Cargo	1216	1351	1159	1824	1236	1482	1517	1966
Passenger/parcels	229	221	312	495	489	456	584	641
Other	172	351	344	452	772	871	1160	794
TOTAL	1617	1923	1815	2771	2497	2809	3261	3401
Working Expenditures	1291	1713	2009	2914	2819	3017	3582	3655
Working Income	326	210	-194	-143	-322	-208	-321	-254
Depreciation	-37	-37	-207	-255	-243	-300	-300	-300
Operating Income	289	173	-401	-398	-565	-508	-621	-554

Source: Malawi Railways

Notes: 1982/83 is a 15 month period
Depreciation is estimated for 1984/85 through 1986/87

competition from bus services. In addition, recent losses are attributed to increases in fuel prices which have out-paced increases in cargo tariffs. On the whole, cargo services have been profitable. The growing container traffic has been particularly lucrative. Considerable scope remains for increasing capacity utilization in the near term, and for selective tariff increases.

The World Bank has generated financial projections for the Lake Service based on the following key assumptions:

-- all elements of the lake facilities component of the NTC project are implemented;

-- the project induces significant increases in cargo traffic (see Table 10, page 14);

-- passenger traffic remains constant at 1985 levels;

-- operating costs and passenger, breakbulk and fuel tariffs remain constant in real terms;

-- debt obligations are incurred on 60% of the value of project investments (see also, World Bank, 1986 and 1987).

These projections support a favorable assessment of financial performance under the lake facilities sub-project: Financial IRR of the lake facilities investments will be 10%. Lake Services operations are likely to require financial support from Malawi Railways in 1989 and 1990, but, beginning in 1991 or 1992, may begin to permit net cash transfers to Malawi Railways even after debt service obligations are met (see Technical Note 1).

In addition to the increase in capital costs, the financial returns from the project are highly sensitive to increases in fuel prices and shortfalls in container traffic. A further 10% increase in capital costs would reduce the Financial IRR to 9%, as would a 10% decrease in container traffic. In the event of a 10% increase in fuel prices, the Financial IRR would drop to 5%, but only if increased costs are not compensated by higher tariffs. Conversely, Lake Service's financial performance would benefit from higher than expected traffic, reductions in passenger service, and improvements in efficiency and financial management.

5. Conclusions

The foregoing assessment supports the following conclusions:

-- TAZARA and the private trucking industry are being strengthened through projects financed by A.I.D. and other

donors and are sufficiently stable financially as to pose no threat to the NTC project;

-- MCC operations should provide adequate financial returns to the MCC Company and MRHC, provided traffic projections are realized;

-- Lake Service's cargo operations are financially viable in the medium to long term; however, LS will require cash infusions from Malawi Railways during the first 2 to 3 years of the project; continuing operating losses on passenger service are likely;

-- Malawi Railways is a weak financial entity and is likely to require further Government financial assistance, at least during the implementation of the NTC project;

-- The NTC project has significant fiscal implications for the Government of Malawi; no provision has been made for subsidies to Malawi Railways, for servicing the IDA Credit, and for financing recurrent costs associated with the project investments; these priorities must be reconciled with other expenditures through the National Budget and macroeconomic policies.

B. Economic Analysis

Malawi will benefit from the implementation of the multi-donor Northern Transportation Corridor Project in three fundamental respects. First, it will realize savings through diversion of import and export traffic from the more costly southern routes to the Northern Corridor; as a result, scarce foreign exchange will be saved, and increases in imports may be generated. Second, development of the Northern Corridor will increase Malawi's economic security in the face of the political and strategic threats to its supply routes through Mozambique, the Republic of South Africa, Zimbabwe, and Zambia. Third, an indirect contribution of the Project will be to speed the economic development of northern Malawi.

1. Northern Corridor Tariffs and Traffic

The most direct and lowest cost trading routes for Malawi are by rail through the Mozambican ports of Nacala and Beira, but these routes are currently closed. The NTC Project is predicated on two critical assumptions: First, that Mozambican routes, if and when opened, will not operate with sufficient capacity to meet all of Malawi's import and export requirements; and second, that significant savings will be realized through use of a northern route as an alternative to established routes via Durban.

a) Tariffs

Interviews with public and private sector officials in Malawi and recent consultants' reports confirm the essential conclusion of the 1985 GITEC Consult report that differences in overland freight tariffs for many commodities are sufficient to induce a shift in traffic from Durban to Dar es Salaam. Strict comparison of tariffs is rendered difficult because of significant variations in contracted tariffs associated with differences in commodities and packaging, sizes of contracts, modes of transportation, and load factors. One freight forwarder cited a dry cargo tariff of Mk5564 per 20 foot container, exclusive of port charges, on the Durban-Blantyre route. By contrast, the tariff for the Dar es Salaam-Blantyre rail/lake route is Mk3000 per container for fertilizer imports and Mk3850 per container for certain agricultural exports. Road tariffs in the Northern Corridor are higher, ranging from Mk3750 per container with a 90 to 100% load factor up to Mk4650 for agricultural exports with a 50-70% load factor. Similarly, fuel tariffs are estimated by the World Bank to be Mk 179/MT via the Northern Corridor versus Mk 257/MT on the Southern route.

b) Traffic

Although increased efficiencies and lower tariffs on the northern route may induce marginal increases in Malawi's external trade over time, the principal source of growth in Northern Corridor traffic will be diversions from other routes. Table 3 summarizes historical trade volumes and routing. With the closure of Nacala and Beira rail lines, most traffic shifted to the Durban/Harare route. In addition, some goods still travel to and from Dar es Salaam via Lusaka. The Northern Corridor was established, effectively in 1984, and use of the route is growing rapidly.

Table 3: Distribution of External Trade by Route
(1000 MT)

Route	1980	1984	1985	1986	1987
Beira/Nacala	742	139	6	2	NA
Durban	...	634	827	635	NA
Dar es Salaam	...	...	27	23	40

Source: Malawi Government, Economic Report, 1987, and interview, Ministry of Transportation and Communications, January 1988.

The revised external trade projections presented in Table 4 are indicative of expected trends. Accordingly, the estimate of Malawi's total trade volume in 1990 has been reduced to 838,000 metric tons from the 932,000 metric tons cited in the PP, reflecting Malawi slow economic growth.

Table 4: Projections of Total Exports and Imports
(1000 MT)

	1990	1995	2000
Exports	309	328	339
of which:			
Tobacco	80	95	100
Tea	44	48	51
Sugar	100	100	100
Other	85	85	88
Imports	529	554	552
of which:			
Fuel	125	135	150
Fertilizer	120	120	90
Coal	20	10	10
Other	264	289	302
Total	838	882	891

Source: SADCC estimates cited by Douglas Rasbash, 1987.

Northern Corridor traffic projections are contained in Table 5. These estimates are based on the following assumptions:

-- all NTC project components will be funded and implemented;

-- traffic will be shifted to the Northern route because of differences in freight tariffs making the Northern Corridor route more attractive than the southern route from Durban

48

and because some bilateral donors are beginning to prohibit the use of South African ports for the import of aid commodities; and,

-- trade along the Nacala rail line will resume and increase gradually between 1988 and 1993 until reaching half of the line's potential capacity.

Alternately, if it is assumed that the Nacala line will remain closed indefinitely, traffic on the Northern Corridor is likely to be 50% higher (see World Bank, 1987).

Table 5: Projections of Northern Corridor Traffic: Half-Open Scenario (1000 MT)

	1990	1995	2000
Exports	111	118	135
of which:			
Tobacco	26	29	30
Tea	15	15	17
Other	66	77	89
Imports	144	158	177
of which:			
Fuel	43	47	52
Fertilizer	57	63	70
Other	44	48	55
Total	255	276	312

Source: GITEC Consult, 1985, pp. 4-7 and 4-9.

2. Cost-Benefit Analysis

The contributions of A.I.D.'s assistance are best considered in the context of the larger multi-donor project. The MCC and fuel transport components are parts of the larger effort to establish a link between Dar es Salaam and Malawi via TAZARA and connecting roads. The success of the lake facilities component rests largely on the increased flow of traffic through the Northern Corridor resulting from other multi-donor project components.

For the purposes of the cost-benefit analysis in this annex, physical investments are valued at their base price plus a 10% allowance for physical contingencies. Capital costs include those physical investments provided by the project (see PP Supplement, Table 1) and the costs of replacing worn-out equipment during the 20 year economic life of the project.

Table 6: Summary of Costs and Benefits for The Malawi Northern Transport Corridor Project (MK million)

	Capital Costs	Benefits to Diverted Traffic Dry Cargo	Balaka-Salima[a]/	Savings of Lake Trans. vgs Road Trans.	Benefits to Diverted Fuel Traffic	Net Benefits
1988	58.8					-58.8
1989	98.0					-98.0
1990	39.1	11.9	3.0	1.8	-	-22.4
1991	4.6	23.8	5.4	4.7	8.3	37.6
1992		24.5	5.9	5.0	8.8	44.2
1993		25.3	6.2	5.5	9.4	46.4
1994		26.1	6.4	6.0	10.0	48.5
1995		26.8	6.7	6.6	10.6	50.7
1996		27.6	7.1	6.9	11.1	52.7
1997	19.3	28.2	7.3	7.3	11.6	35.1
1998		29.3	7.7	7.6	12.2	56.8
1999		30.2	8.1	7.6	12.8	58.7
2000		31.1	8.5	7.6	13.4	60.6
2001		32.0	8.9	7.6	13.4	62.0
2002		33.0	9.2	7.6	13.4	3.3
2003		34.0	9.6	7.6	13.4	64.8
2004	19.3	35.0	10.1	7.6	13.4	46.8
2005		36.1	10.5	7.6	13.4	67.6
2006		37.2	11.0	7.6	13.4	69.2
2007		38.3	11.5	7.6	13.4	70.8
2008		39.3	12.0	7.6	13.4	72.3

3.5-year Implementation ERR = 21%
6-year Implementation ERR = 16%

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a/ Primarily savings in vehicle operating cost on normal traffic.

Source: World Bank, 1988

50

A 15% devaluation of the Malawian Kwacha on January 16, 1988 in conjunction with IMF and World Bank macroeconomic adjustment programs is expected to alleviate the downward pressure on the currency resulting from its overvaluation. In the analysis below, it is assumed that the exchange rate will remain stable during 1988 at or near the rate of MK2.30 per $US1.00. A further decline in the value of the Kwacha would tend to increase project capital costs relative to expected benefits.

a) Overall Assessment

Previous analyses attest to the economic viability of the NTC and its individual components. The World Bank reports a 21% Economic Internal Rate of Return for the total project between 1988 and 2007, based on a 3.5 year implementation schedule. Savings in transport costs made possible by the combination of the Karonga-Uyole road and MCC project components are the most important element of the project's benefits (see Table 6). The Bank's sensitivity analysis concludes that the entire project would be viable even with a 15% increase in construction costs or a 40% shortfall in NTC traffic. The latter scenario, yielding an Economic IRR of 10% would be relevant in the unlikely event that rail traffic through to the Mozambican ports of Nacala and Beira resumes promptly.

b) Malawi Cargo Centers

A.I.D. will provide $2.7 million to the MCC sub-project to complement $16.9 million in British ODA assistance. The full benefits of the MCC component cannot be realized without the completion of the Karonga-Uyole road component. Thus, the benefits attributable to the MCC component alone are derived from an analysis of the the contributions of the road component, with and without the MCC component. The Economic IRR based on the net costs and benefits attributed to the MCC component alone is 31%, according to the World Bank's January 1988 estimates. The essential contributions of the MCCs are improved facilities for handling and storing freight. The MCCs are expected to reduce shipping delays and losses and to reduce handling losses, thereby attracting additional traffic to the TAZARA-Northern Corridor route.

c) Fuel Handling and Transport

An A.I.D. contribution of $1.8 million for fuel tank containers and rail tank wagons is linked to $8.6 million in German-financed investments in fuel pumping and storage facilities in Dar es Salaam and Mbeya. The A.I.D. contribution is only significant if the German fuel handling and the Karonga-Uyole road components are put in place. Table 7 indicates expected increases in fuel traffic and savings attributable to these project components for selected years. The Economic IRR for this component was estimated in January 1988 to be 32%.

57

Table 7: Projected Traffic and Savings: Fuel Handling and Transport Component

Year	Traffic (1000 MT)	Tariff Differential (MK/MT)	Savings (MK millions)
1990	43	192	8.3
1995	55	192	10.6
2000	70	192	13.4

Source: World Bank 1988.

d) Lake Facilities

The principal benefit to be derived from improvements to the transportation facilities on Lake Malawi is a reduction in shipping costs for goods moving through the Northern Corridor. Lower costs will result from increases in capacity and efficiency, as well as reductions in handling delays and losses. Malawi also will benefit indirectly: through savings on normal, domestic lake traffic; through greater efficiency and reduced costs on alternative routes resulting from increased competition; and, through economic development of the lake region.

In the past, transportation infrastructure and market development in Northern Malawi lagged behind that of the southern and central regions. Lake transportation was oriented towards the larger markets and international trade routes to the south. Planned improvements to the lake transportation system will help to increase the north's integration into the national economy. Access to markets will be improved for northern producers and consumers and demand for northern goods and services is likely to rise.

Quantitative estimates of economic benefits are based on projections of freight traffic diverted from trucking routes, and associated unit cost savings. Secondary economic benefits although sustantial are not quantified.

1) Cost Savings

The last systematic study of the costs of transportation services on and around Lake Malawi was completed by GITEC Consult in 1985. These estimates are adjusted for inflation and adopted in the present analysis (see Table 8).

Table 8: Comparison of Lake and Road Transport Costs Between Chilumba and Chipoka (MK per metric ton)

Commodity	Lake	Road	Difference
Dry Cargo	65	118	53
Fuel	65	193	128

Source: World Bank, 1987.

Cost estimates were compared with actual tariffs based on interviews with public and private sector officials and recent consultants reports. It is expected that Lake Service's costs are approximated by their tariffs, since the revenues and expenditures on its cargo operations are approximately in balance. Actual tariffs, currently ranging between MK55 and MK91 per ton on the Chilumba-Chipoka route inclusive of handling charges, tend to substantiate the MK 65 per metric ton (or approximately 14 tambala per ton-km) cost estimate.

In contrast, it was not possible to corroborate the road cost estimates in Table 8 (see Technical Note 2). Since Chilumba-Chipoka is not a standard truck route, lake and road tariff comparisons must be derived from data on other routes. Currently, international cargo shipped on the lake moves by road between Mbeya and Chilumba and by rail between Mbeya and Dar es Salaam, whereas, cargo shipped by road through northern Malawi tends to travel entirely by road. Estimates of tariff differences for containerized dry cargo on the route between Dar es Salaam and Lilongwe or Blantyre range from MK75 to MK93 per ton. Yet, part of this difference is explained by the use of TAZARA and there is anecdotal evidence that cost differentials are much lower. As a result, savings estimates contained in this report should be viewed with caution.

2) Traffic Projections

The projected effects of lake facilities improvements on lake cargo traffic are shown in Table 9. The figures reflect Malawi's plans to import 50% of its fuel requirements through the Northern Corridor, utilizing lake facilities, and the expectation that container traffic will grow significantly. Malawi Railways predicts that existing ship carrying capacity on the lake will be fully utilized by 1991.

Table 9: Cargo Traffic Projections for Lake Malawi (1000 MT)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
With Project:										
Breakbulk	39	42	63	65	66	68	70	71	73	75
Container	14	45	72	75	79	82	86	87	91	94
Fuel	8	9	11	20	22	24	27	28	29	31
Total	61	96	146	160	167	174	183	186	193	200
Without Project:										
Breakbulk	39	40	39	40	41	42	43	44	45	47
Container	14	17	17	17	17	17	17	17	17	17
Fuel	8	8	7	15	15	15	15	15	15	15
Total	61	65	63	72	73	74	75	76	77	79
Difference										
Total	0	31	83	88	94	100	108	110	116	121

Source: Based on World Bank, 1987.

3) Cost-Benefit Analysis

Estimates of economic costs and benefits are presented in Tables 10 and 11. Capital costs are derived from PP Supplement, Table 1, and include replacement of cargo handling and workshop equipment. It is assumed that the A.I.D. components will be fully implemented within three years and that the German-financed container vessel will be operational by 1991. Cost savings are derived from the projection of net traffic increases due to the lake facilities sub-project, and estimated unit cost savings. The Economic Internal Rate of Return estimated from these assumptions is 11.6%.

4) Risks and Sensitivity Analysis

The greatest risk faced by the lake facilities sub-project is that projected cost savings will not be realized. This will occur if the cost differential between lake and road transportation is smaller than expected, or if lake traffic projections are not met. Lower trucking costs may develop, potentially, because of increases in load factors, road improvements, and improved efficiency due to growth in the market for road transport in northern Malawi. Traffic shortfalls could result from the immediate opening of the Mozambican trade routes, lower-than-expected tariff savings on the northern route, or a downturn in Malawi's total external trade volumes. In addition, it will be essential for Malawi Railways/ Lake Services to keep shipping delays and losses to a minimum to meet the non-price competition of road haulers.

Table 10: Estimated Capital Costs by Year
(1988 $000)

	Donor	1988	1989	1990	1991	Total
	KfW	0	0	2050	2050	4100
	ODA	240	0	0	0	240
	A.I.D.	584	1259	1821	0	3664
Bay	ODA	530	0	0	0	530
	A.I.D.	782	1046	1053	0	2881
1		3493	4086	7340	2050	16969
ency 10%		349	409	734	205	1697
TOTAL		3842	4495	8074	2255	18666
1988 MK millions)		8.84	10.34	18.57	5.19	42.93

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from PP supplement, net of inflation

55

Costs and benefits were reappraised under altered assumptions regarding net savings from traffic diverted to the lake (see Table 12). Under scenarios A and B, savings are assumed to be 10% and 20% lower, respectively, than in the base projections cited above. Scenario A yields an Economic IRR of 10.0%.

Scenario B corresponds to combined traffic levels of under 160,000 tons in 1995, or road transport costs of MK107 per MT for dry cargo and MK167 per MT for fuel between Chilumba and Chipoka. Under this scenario, the EIRR drops to 8.3%. As a result, this situation represents a risk to the lake facilities sub-project.

Table 12: Lake Facilities Sensitivity Analysis

Scenario	Economic Internal Rate of Return
O. Base Projections	11.6%
A. 10% Shortfall in Savings	10.0
B. 20% Shortfall in Savings	8.3
C. 10% Increase in Capital Costs	10.2
D. No new vessel	10.3
E. New vessel delayed 2 years	11.2
X. July 1986 Project Paper	32.1

An additional source of risk is the possibility that capital costs will grow to exceed current estimates. This is considered unlikely since implementation is close at hand and a 10% continency for physical redesign is already built-in. However, scenario C is presented to illustrate the implications of a 10% across-the-board increase in capital costs. This yields an EIRR of 10.2%.

Since the status of the proposed new lake cargo vessel is not known pending deliberations by the German authorities, two additional scenarios are developed. In scenario D it is assumed that the new vessel is not introduced and traffic capacity is constrained to the projected 1991 level. In scenario E, a 2 year delay in introduction of the vessel is assumed and increases in traffic levels are delayed accordingly. Even with the cancellation or delay of the vessel project element, returns to the remaining lake facilities improvements would be acceptable,

provided other base assumptions hold. There is also a major possibility that the new vessel would be built to carry containers only rather than both containers and fuel. That would result in a cost savings in excess of $1 million and consequent minor increases in the IRR.

3. Conclusions

Although increases in costs have eroded the high estimates of economic returns, the Northern Corridor Transportation Project remains fundamentally sound. A.I.D. cofinanced project component are deemed to promise moderately low, but acceptable, economic rates of return. The greatest single economic risk to the A.I.D. project is that cost savings, particularly on the Lake Malawi route, will fall short of expectations. An additional risk is that the large projected increases in Northern Corridor traffic will fail to materialize, perhaps because of a resumption of trade through Mozambique. These risks must be counted against the probability that true savings and increases in transportation efficiency will accrue to Malawi, that economic security will be enhanced and that the project will promote the economic development along the Northern Corridor through Malawi and Tanzania.

4. Issues

The financial and economic analysis for this PPS raises a series of issues regarding the financial and operational roles of both the Government of Malawi and Malawi Railways in the transportation sector.

First, the analysis identifies serious financial implications of the NTC project for the Government of Malawi. The financing of recurrent costs associated with transportation investments, particularly for the maintenance of roads, merits further consideration. Similarly, servicing of the IDA Credit must be addressed.

Second, the financial relationship of Malawi Railways to the Government of Malawi is a concern. During the 1980's MR has already received significant financial relief from the Government. Means of eliminating or reducing and eliminating operating losses and Government subsidies must be pursued.

Third, MR's operation of Lake Service may be questioned. The problem of operating losses on passenger services suggests the need to reduce or eliminate this service. Moreover, to the extent that Lake Service is seen to be a viable operation in its own right, should it be privatized at higher levels of traffic volumes?

Fourth, what role should Malawi Railways or the Government play in providing or ensuring trucking services on the Mbeya-Chilumba route. MR and the Government have expressed concern that inadequate competition will lead to high prices and unreliable service. MR sees a role for itself to initially assume truck services on the route. The Ministry of Transportation and Communication sees a role for Government regulation in the market. And, the private freight forwarders with increasing availability of truck trailers have differing views based on their perceptions as to whether or not private trucking companies would serve them better in the near future.

Finally, the large stake that the Government of Malawi Railways have taken in the NTC project has serious national policy implications if demand and financial projections are not met. There is an immediate risk of excessive public sector intervention to increase lake and rail traffic beyond levels initially warranted by the play of market forces, for instance, through controls on the Mbeya-Chilumba truck route and on access to the MCC's in Mbeya and Dar es Salaam, or through pricing and licencing procedures.

The depth of USAID's involvement in the development of Malawi's transportation sector, and the critical importance of the issues identified above suggest that transportation policy is becoming increasingly important as an area for policy dialogue between USAID and the Government of Malawi.

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59