PD-ABM-613
XD-ABM-613-A

PROJECT TITLE: REGIONAL RAIL SYSTEMS SUPPORT PROJECT: MOZAMBIQUE COMPONENT

PROJECT #: 656-0247.56

TITLE OF PAPER: FINAL REPORT
SECOND EVALUATION
MOZAMBIQUE COMPONENT

DATE: JULY 1994

USAID/MOZAMBIQUE

A.I.D. EVALUATION SUMMARY - PART I PD-ABM-605

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT DOT MATRIX TYPE.

98727

IDENTIFICATION DATA

A. Reporting A.I.D. Unit:
Mission or AID/W Office USAID/Mozambique
(ES#)

B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan?
Yes [X] Slipped [ ] Ad Hoc [ ]
Evaluation Plan Submission Date: FY 92 Q 4th

C. Evaluation Timing
Interim [X] Final [ ]
Ex Post [ ] Other [ ]

D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date fo the evaluation report.)

Project No.	Project / Program	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
690-0247.56	Regional Rail Systems Support Project: Mozambique Component	FY 1988	12/96	$80,500	$70,500

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Allow Enge-Rio contract for Technical Assistance (TA) in the locomotive maintenance, inventory control, and accounting components of the project to expire in July 1994.	Luis Santos	August 1, 1994
2. Retain the Louis Berger contract for Finance and Accounting Managerial Level TA, at a reduced level, for one year until June 30, 1995	Robert McCarthy	July 1, 1994
3. Negotiate a design and construction supervision contract for the renovation of the CFM-S diesel shed concurrent with a phasing out and closing of the workshop.	Luis Santos	December, 1994
4. Procure additional computer equipment for the finance/accounting system.	Robert McCarthy	June, 1994
5. Initiate regular meetings with Technical Assistance and CFM counterparts and meetings with CFM Senior Management.	Diane Eames	July, 1994

APPROVALS

F. Date of Mission Or AID/W Office Review Of Evaluation: (Month) 12 (Day) 09 (Year) 1994

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission of AID/W Office Director
Name (Typed)	Albert Cates	Mario A. Dimande	Charles North	Roger D. Carlson
Signature	a L Pater	[signature]	[signature]	R Carlson
Date	1-3-95	11/27/95		5-20-95

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

The purpose of the Regional Rail Systems Support Project is to support the development of a stronger economic foundation for growth in Southern Africa. Implementation was undertaken with the assistance of USAID missions in Swaziland, Malawi, Zimbabwe, in addition to Mozambique. The INTERIM evaluation was conducted by Nathan Associates. The major findings and conclusions are:

1. The finance/accounting T.A. and CFM do not often function in step with each other. CFM is slow to react to suggestions from the T.A. team and will change suggestions to the point of diminishing the effectiveness of the suggestions. Various CFM line managers have indicated their desire to improve matters, but middle management does not appear willing to support, or lobby top management for, change.

Recommendation:
All remaining TA should be incorporated into the day-to-day line operations of CFM, and T.A. members should be granted line authority over both operations and staff.

2. Project management initiates major implementation actions without consistent discussion with the beneficiary.

Recommendation:
Project Management must have discussions and agreements in principle with CFM management prior to implementing activities. If agreements are not obtained, project management must request a written proposal from the beneficiary for further discussions, if required.

3. Lack of coordination often leads to overlaps and conflict in donor strategies with regard to CFM.

Recommendation:
USAID should encourage each donor and CFM to meet regularly, assess allocation of resources, and express strategies on the development process overall.

4. The right pressure is not placed at the right level.

Recommendation:
USAID must use its influence in instigating reforms in CFM at the government level rather than at the CFM top management level.

Lessons learned: While assistance in the mechanical area of this project has been an important element, it would behoove RRSS and similar transport projects throughout USAID to examine managerial reform and structural innovation as the major ingredients not merely for efficient use of USAID resources during the course of the project, but also for once the RRSS project has terminated.

COSTS

I. Evaluation Costs

1. Evaluation Team Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. $)	Source of Funds
Nathan Associates Contract		645-0247-C-00-1045	$826,098* * This amount is for all evaluations conducted for the Regional Rail Systems Support projects in Mozambique, Swaziland, and Malawi.	RRSS Project
Charles Vandervoort	Nathan Associates			
Dana Maryott	Burlington Northern			
Michael Newman	Burlington Northern			
IRM TDY				
Pedro Herrera	FA/IRM/CLS	10 TDY person days		656-0247-3-10107

2. Mission/Office Professional Staff Person-Days (Estimate) 12

3. Borrower/Grantee Professional Staff Person-Days (Estimate) 1

SUMMARY

J. Summary of Evaluation Findings - Conclusions and Recommendations (Try not to exceed the three (3) pages provided
Address the following Items:

- Purpose of evaluation and methodology used
- Purpose of activity(ies) evaluated
- Findings and conclusions (relate to questions
- Principal recommendations
- Lessons learned

Mission or Office	Date This Summary Prepared:	Title And Date Of Full Evaluation Report:
USAID/Mozambique	12/7/94	Final Report: Second Evaluation, Mozambique Component July 1994

I. Purpose and Methodiology

In addition to assessing the overall achievement of the project and noting lessons learned, the primary objectives of the evaluation team were to determine whether the 4 years of technical assistance had brought CFM-S to the point of being able to self-sustain the accounting and locomotive maintenance system provided under the project. The evaluation would assess whether techinical assistance should continue, for how long and at what level, and toward which objectives.

The original project paper called for two evaluations in the course of the RRSS project. This evaluation, the interim assessment, was conducted at this time because of the upcoming termination of two technical assistance contracts in financial and workshop areas. A detailed progress report was necessary to judge the direction of the T.A. thus far, whether extensions should be considered and, if so, the magnitude of continued T.A.

The Regional Rail projects in Swaziland, Mozambique, and Malawi have an evaluation contract with a joint venture between Burlington Northern Railroad of Kansas City, Missouri, and Nathan Associates of Arlington, Virginia. Representatives from Burlington Northern were Mr. Michael Newman and Mr. Dana Maryott. Representing Nathan Associates was Mr. Charles Vandervoort. Additional input in matters regarding computer and procurement issues was provided by Mr. Pedro Herrera, USAID/W FA/IRM and Robert Van Horn, Regional Commodity Management Officer, REDSO/Nairobi, respectively.

II. Findings and Conclusions:

Since the previous evaluation in October, 1991 and the status report completed in March of 1993, there has been significant improvement in both financial and locomotive tractive areas. However, certain components of the T.A. activities should be continued so that regression to pre-technical assistance performance can be avoided.

Regarding the Financial area: The T.A. has not yet completed the installation of the computer based centralized accounting system, though considerable progress was made during the past year. It is expected that by June, 1994 the system will be completely installed. A budget system has been introduced and a cost accounting system as well, but their validity and usefulness is hampered by a lack of historic data. The evaluation also notes that there is a serious lack of appreciation and support from top CFM management of the need to develop accurate and reliable financial data. The evaluation recommendeds a continuation of the T.A. at a reduced level until a decision is made by the Government of the Republic of Mozambique (GRM) related to the options put forward by the Maputo Corridor Revitalization Project (MCRP) [funded by the World Bank]. Further, the T.A. should be integrated into the day-to-day line operations of CFM so that accurate data can be maintained for use in the MCRP.

Regarding Locomotives: With the low level of traffic existing at present, and anticipated for the next two-three years, there is an excess capacity of locomotive power. The technical/managerial level of CFM work force has been brought to the point where maintenance and repair of the U-20C locomotives can be carried out without assistance from the T.A.. It is recommended not to extend the T.A. in this area. The evaluation also repeats earlier recommendations that the refurbishing of the diesel shed for maintenance purposes be completed, and the main workshop closed. Regarding the continuation of spare part procurement, it is recommended to furnish spare parts only for running maintenance of the U-20C and U-10B locomotives until the PACD (December 1996).

III. Principal Recommendations:

- There is no need to extend the Enge-Rio T.A. for maintenance and repair of the U-20C locomotives.
- The proposal to retain a private firm to manage and organize maintenance and repair work should receive serious consideration.
- USAID should urge Caisse Francaise Developement to continue T.A. for the Alsthom locomotives.
- Refurbishing the diesel shed should be completed.
- T.A. in the financial area should continue at a reduced level.
- An asset inventory should start as soon as possible.
- The MCBA financial computer system should be centralized in Maputo. Duplicating the MCBA in Beira is not recommended.
- A simple wagon tracking system should be implemented.
- Consideration should be given to providing someone to assist in the sale of the large amount of scrap.
- GE/Alsthoms should be concentrated in Maputo. The best U-20Cs shoud be concentrated in Nampula, and the other U-20Cs should be stored until traffic demand rises significantly.

IV. Lessons learned:

- While assistance in the mechanical area of this project has been an important element (for a railroad without functioning equipment will get nowhere fast), it would behoove RRSS and similar transport projects throughout USAID to examine managerial reform and structural innovation as the major ingredients not merely for efficient use of USAID resources during the course of the project, but sustainability once the project has packed up. Thus, RRSS in its final years will be spending significantly less for engineering components, and more on operational, structural and marketing efficiency.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation summary: always attach copyo of full evalutation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Attachment 1: Final Report: RRSS Second Evaluation: July 1994
Attachment 2: CFM Comments on Final Report
Attachment 3: Status of Engineering Inputs 7/94
Attachment 4: Status of Financial Inputs 7/94

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

For comments from Grantee, see Attachment 2.

Other comments are included in the final Evaluation Report (Attachment 1)

USAID/Mozambique concurrs with the findings and initiated the related actions listed on page one of this summary.

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Attachment I

Final Report: Second Evaluation
Mozambique Component
Regional Rail Systems Support

6

XD-ABM-613-A

REGIONAL RAIL SYSTEMS SUPPORT PROJECT 690-0247

98728

Final Report

Second Evaluation

Mozambique Component

SUBMITTED TO
U.S. Agency for International Development

SUBMITTED BY
Burlington Northern Railroad
Nathan Associates Inc.

IN COLLABORATION WITH
U.S. Agency for International Development

UNDER
Contract No. 645-0247-C-00-1045-00

July 1994

REGIONAL RAIL SYSTEMS SUPPORT PROJECT 690-0247

Final Report

Second Evaluation

Mozambique Component

SUBMITTED TO
U.S. Agency for International Development

PREPARED BY
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Arlington, Virginia

IN COLLABORATION WITH
Pedro C. Herrera
U.S. Agency for International Development

UNDER
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SUBMITTED BY
Burlington Northern Railroad
Nathan Associates Inc.

July 1994

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Glossary

CFM	Caminhos de Ferro de Moçambique (National Railways of Mozambique)
CFM(N)	CFM Northern Line
CFM(C)	CFM Central Line
CFM(S)	CFM Southern Line
CFM(DG)	CFM Directorate General (corporate headquarters)
DE	diesel electric locomotive
GE	General Electric
GM	General Motors
IRM	USAID Office of Internal Resources Management
LBII	Louis Berger International, Inc.
MCBA	off-the-shelf accounting software
MIS	management information system
MTBF	mean time between failures
PC	personal computer
RRSS	Regional Rail Systems Support
TA	technical assistance
USAID	United States Agency for International Development

Preface

The evaluation team wishes to express its appreciation to Mr. Peter Argo, Mr. Timothy Born, Mr. Robert McCarthy, Mr. Luis Santos, and the entire staff of the Regional Rail Systems Support project for assistance during their stay in Maputo.

The team also wishes to thank Mr. Luiz Dahlia, Mr. Michael Macdonald, and the entire staff of Louis Berger International, Inc. for providing the information that made this evaluation possible.

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Executive Summary

FINDINGS

In general, the past year saw a significant improvement in performance in the accounting department. This improvement was attributed to the commitment of USAID and Louis Berger International, Inc. (LBII) to implementing one of the recommendations of the previous evaluation, which was to focus on installing the computerized MCBA accounting system. A computer systems analyst and a programmer were added to the team to accomplish this task. However, although many of the important modules are now running, the availability of good input data is extremely limited. The accounting department is therefore not yet able to provide management with useful information on which to base decisions. In addition, although the staff of Caminhos de Ferro de Moçambique (CFM) are able to input data and develop simple reports, they are heavily dependent on the technical assistance (TA) team for improving data quality, developing new reports, and maintaining the computerized aspects of the system. If the TA team providing assistance in the financial area were to leave at the completion of their contract in June 1994, the lack of sound financial data would pose a severe obstacle to the timely completion of the proposed USAID and World Bank projects (see Chapter 6). These studies will define the best alternatives for involving private sector management in improving the performance of the CFM Southern Line [CFM(S)]. The success of these studies is critically dependent on good financial data.

Improvement in locomotive tractive power during the past year has been good, and the evaluation team believes that the technical aspects of maintenance and repair of locomotives were carried out and sustained by CFM without the TA team. Nonetheless CFM(S) management is not yet ready to efficiently organize the flow of repair and maintenance work in the diesel work shed.

Several important recommendations in previous evaluations about the use of the main workshop and the diesel shed and the need to cut back on unnecessary spare parts have still not been implemented. The significant cost saving that could have resulted has therefore not been realized.

Although it is frustrating that progress, except for the last year, has been slow, it should be realized that the TA team has been working in a difficult environment. Placed in an advisory role rather than in a line position with direct authority, the TA team was dependent on strong support from top CFM management to implement organizational changes and other improvements. This support was often not forthcoming because of the shortage of top managers within CFM. The TA team also has to work under the burden of providing considerable training to raise the skill levels of the CFM staff. Despite these obstacles, however, there were significant accomplishments.

The Enge-Rio TA should be pleased to have made the technical aspects of locomotive repair and maintenance of CFM(S) self-sustaining, and the LBII TA can be content with the realization that the MCBA computerized system (except for quality data) is almost operational and that several important financial functions, such as budgeting, are well advanced.

The evaluation team believes that if selected aspects of the TA were to be extended for 6 months after the scheduled contract completion date of June 1994, the CFM(S) financial department would

be in a good position to support the crucial USAID and World Bank projects to prepare for revitalization of the Maputo corridor.

Specific findings of the evaluation team are summarized below.

Financial

The TA team has not completed installation of the computer-based centralized accounting system, although considerable progress was made during the past year. The system is expected to be functioning by June 1994, although data inputs will still be of poor quality.

The main constraints impeding the development of the financial accounting system are lack of timely and accurate input data, lack of reliable historical data, and lack of internal controls to validate the transactions. There are few, if any, controls to ensure that only authorized and valid transactions are reflected in the accounting information. These significant control issues need to be addressed before the accounting system can become a useful management tool.

The MCBA system did not initially meet the requirements of CFM for many reasons. One of the most important reasons was that the MCBA system was designed for a manufacturing not a service environment such as a railroad. However, the system's weaknesses were systematically addressed and corrected, and the system should now adequately meet the needs of CFM.

Appropriate facilities have been provided for the TA team members, as recommended in the interim evaluation report. The TA team, however, does not appear to be functioning as a cohesive unit, and there does not appear to be adequate sharing of information among the various team members. As a result, there is not a good understanding among the team members of what the other members are involved in.

There is a lack of appreciation and support from top CFM management of the need to develop a system to maintain and retrieve accurate and reliable financial data; middle and lower management were not given the authority and resources necessary develop such a system. Part of this is lack of support is due to the legacy of overcentralized planning. Another, and perhaps more important, reason is that the critical function of corporate planning was not developed. And without the ability of top management to carry out planning functions, it has little incentive to request such data.

A budget system has been introduced that is capable of producing a meaningful and useful budget. However, it is not yet a management tool because accurate historical data are lacking, it does not cover all the expenses of CFM, and budgeting procedures have not been set up.

The cost accounting system developed by the TA team is technically and theoretically correct, but implementation is far from complete. As with budgeting, accurate historical data, especially in the area of fixed assets, are lacking.

Development of the internal audit function was neglected, and the TA team member responsible for this task was assigned duties that were not related to his responsibilities.

The material management system implemented by the TA team to address the management of General Electric (GE) components has been completed except for pricing of the components. The Alsthom locomotive components were also included.

"U"-Series Locomotives

Some of the recommendations made in earlier evaluations were put into effect, and there has been a marked improvement in key indicators of the performance of the U-20 locomotives. CFM(S), USAID, and the TA team can be proud of this achievement.

With the low level of traffic demand existing currently and anticipated for the next 2 to 3 years, there is now an excess capacity of locomotive power. Considerable funds could be saved if the excess locomotives were to be placed in storage.

Major locomotive components are still being overhauled in the main workshop. The high cost of overhaul is not justified in view of the small number of locomotives in the fleet.

Under the current maintenance schedule, there is no need to upgrade the U-20 locomotives. With reasonable care, the existing locomotives should provide adequate service in the foreseeable future.

The technical and managerial levels of the CFM work force has been upgraded to the point that maintenance and repair of the U-20 locomotives can be carried out without assistance from the TA team, which can leave on schedule by the end of June 1994. Assistance such as would be provided under the proposed Full Locomotive Service Contract will be necessary after the TA team leaves.

Management Information System

The LBII computer systems analysts are completing installation of the MCBA package, and almost all the modules are operational—although reliable input data are lacking. The analysts have also developed several software applications that compensate for critical functions missing in the MCBA package.

CFM Informatics personnel have not been involved in any major way in the installation of the MCBA system. One reason for Informatics' lack of participation is the absence of a corporate planning function, the subsequent lack of interest in information by top management, and the lack of direction provided by top management.

Because of a lack of technical direction and of an understanding of the requirements, the wagon tracking system developed at considerable expenditure of time and effort is not relevant to the needs of CFM(S). CFM(s)'s needs can be met by a simple manual wagon tracking system.

Although USAID/Maputo and the LBII technical assistance team have committed substantial resources to train Informatics staff, the trainees have little incentive to actually become involved with operating or maintaining the MCBA system.

All of the hardware, software, and telecommunications equipment purchased under the RRSS project have been installed, and the key departments are connected and communicating with the MCBA servers.

RECOMMENDATIONS

The evaluation team makes the following recommendations.

- There is no need to extend the Enge-Rio technical assistance contract for maintenance and repair of U-20C locomotives. The TA team has successfully trained the CFM work force to do the required work and can be pleased with this accomplishment.
- The proposal to retain a private firm to manage and organize the maintenance and repair work in the diesel work shed is good and should receive serious consideration.
- USAID should urge the French aid mission to ensure that TA continues for the Alsthom locomotives. These locomotives are complex; without careful attention to proper maintenance, they will soon become useless. To reduce the workshop workload, the Rumanian diesel hydraulic locomotives should be scrapped, and CFM should consider putting the U-20C locomotives in temporary storage until traffic demand justifies their use.
- The evaluation team repeats the recommendation made in earlier evaluations that refurbishing of the diesel shed be completed, that the main workshop be closed, and that repair of heavy components be outsourced.
- Technical assistance in the financial area should continue at a reduced level and with carefully selected team members until at least the start of the proposed USAID and World Bank projects. The TA team should be integrated into the day-to-day line operations of CFM, thereby giving the TA team direct control over CFM staff. This is a stopgap measure to ensure that financial data are available in time for use by the proposed studies. The remaining TA in the financial area should focus on strengthening internal controls and on improving the quality of input data.
- All of the options possible under the proposed USAID and World Bank projects will require some type of asset inventory and a validation of the payroll. These activities should start as soon as possible.
- It is recommended that the MCBA system be centralized in Maputo and that all consolidation of finance and accounting functions be carried out in Maputo. Duplicating the MCBA system in Beira is not recommended.
- CFM spends hundreds of thousands of dollars a year on excess wagon hire. Given that traffic levels are currently not high at present and are not anticipated to rise sharply in the near future, a simple manual wagon tracking system checking these losses could be implemented in little time. This manual system based on train manifests can substitute for the sophisticated wagon tracking program now under development by Informatics.
- Although scrap iron stocks have diminished considerably over past years, there is still a fortune of scrap in the rail yard. Consideration should be given to providing someone to assist in the sale of the tremendous amount of scrap. This individual should make sure the maximum amount is generated from the scrap sale transactions.
- GE/Alsthoms and all their stores should be concentrated at Maputo. The best U-20Cs and all of their usable stores should be transferred to Nampula. The remaining U-20Cs should be stored until traffic demand rises sufficiently to justify their use again.

CFM is sustaining large but unknown losses because of inadequate controls on the use of diesel fuel and irregularities in the disbursements of the payroll. Controls should be implemented as soon as possible to stop these losses.

USAID should consider putting together one last procurement of hardware and software (to be identified by the LBII TA team) to increase the capacity of the MCBA peripheral equipment such as file servers, terminals, printers, and microcomputers.

1. Introduction

The second evaluation of the Regional Rail Systems Support (RRSS) project follows the midterm evaluation performed in October 1991 and the interim status report prepared in March 1993.[1] The second evaluation was scheduled for the end of the terms of the project technical assistance teams and was carried out approximately 4 months before the June 30, 1994, contract completion date, concluding almost 4 years of technical assistance to Caminhos de Ferro de Moçambique (CFM).

In addition to assessing the overall achievement of the project and noting lessons learned, the primary objectives of the evaluation team were to determine whether the 4 years of technical assistance had brought CFM to the point of being self-sustaining. Second, if CFM was not self-sustaining, assess whether technical assistance should continue, for how long and at what level, and the objectives.

These objectives are especially relevant at this time because the environment within which the CFM Southern Line [CFM(S)] will be operating in the near future will be different from the environment in which the RRSS project was conceived. Three factors are responsible for the new environment. First, the urgent need for success—before the shift becomes permanent—in attracting the substantial traffic lost after independence that is now moving through South African ports. Second, the new USAID and World Bank initiatives to improve the efficiency of CFM(S) by placing more dependence on the private sector and reducing costs through eliminating useless assets and a redundant labor force. Third, recognition of the critical role CFM must play in supporting the region's international trade and Mozambique's economic growth.

The USAID and World Bank initiatives are crucial elements of the strategy for turning around CFM(S)'s performance and for increasing traffic levels on the railway. Studies supporting this strategy may begin as soon as January 1995. The quality of the studies' recommendations will be enhanced significantly if the CFM financial department can provide support with sound financial data. This changed environment has placed a greater urgency on the need to complete installation of an effectively functioning financial department in CFM(S).

[1]Field work was completed in October 1992. See Appendix A for a summary of the recommendations made by the evaluation team in the March 1993 report and the status of the recommendations from the evaluation team's point of view as of February 1994.

2. Strategic Role of CFM

The project paper for the Regional Rail Systems Support (RRSS) project stresses the importance of CFM to the Mozambican economy by pointing out that "CFM has historically been a mainstay of Mozambique's economy, employing more than 40,000 people as recently as 1981 (14 percent of the estimated 300,000 people employed in the formal sector), and generating significant foreign exchange earnings." CFM is also of vital importance to the international trade of the landlocked countries in the interior of southern Africa and the northeastern Transvaal region of South Africa because it provides them the shortest and potentially lowest-cost access to the sea. Without an efficiently operated CFM, high transport costs would place the region's exporters at a considerable competitive disadvantage with other countries.

As an example of the strategic role played by CFM in providing the shortest and most economical routes for the region's international traffic, the distance from Harare, the capital of Zimbabwe, to the ocean via Maputo is only about 1000 kilometers as opposed to 1500 kilometers to the port of Durban, South Africa. Other things being equal—such as damage, pilferage, and quality of service—the shorter distance could result in a saving in economic cost of transport of about one-third.

Before independence in 1976, the Mozambican transport system was sufficiently well run to attract almost all of the international traffic of the landlocked countries. In 1973, for example, the total amount of transit traffic over the Mozambique rail system was approximately 18 million net MT, with CFM Northern Line [CFM(N)] carrying 0.3 million, CFM Central Line [CFM(C)] 4 million, and CFM(S) 13 million. The income from this transit traffic was considerable and proved essential for bolstering Mozambique's economy. In 1973, profits on transit traffic operations financed about $110 million of the structural deficit in Mozambique's trade balance.

The situation changed drastically after independence when transport operations on the transit corridors were disrupted by banditry. The efficiency of the rail system declined because of the mass exodus of managerial and artisanal railway staff and the nationalization of the railways. International traffic dropped steadily, from a high of 17 million tons in 1973 to only about 1.7 million tons during 1992 and 2.1 million tons in 1993. Instead of generating a surplus, the railroads needed to be subsidized by approximately $60 million per year.

The region can ill afford the extra cost of conducting international trade in the southern Africa region because of the higher cost of transportation through South Africa. The World Bank estimated that the incremental cost in 1991 to the Malawian economy of using routes through the South Africa was $80 million annually.

Investment funds in southern Africa are scarce, and investment to develop the social sector and rehabilitate nontransport infrastructure is greatly needed. Mozambique can no longer afford to spend scarce public resources on subsidizing the inefficient operations of CFM, and the landlocked countries in southern Africa can no longer afford to pay high transport costs for their international traffic through ports in the South Africa.

To restore the efficiency of Mozambique's transport corridors, the donors and the Mozambican government have invested about $1 billion in transport infrastructure—more than $300 million for the Nacala railway alone. These investments have been effective in restoring almost all the railway

infrastructure and tractive power. They have not been as effective, however, in reversing the decline in traffic, though there have been significant gains in traffic on the Northern and Central corridors. Traffic on CFM(N) increased from a low of 32,300 tons to 129,000 tons in 1993, traffic on CFM(C) increased from a low of 296,000 tons in 1984 to 982,100 tons in 1993, and traffic on CFM(S) increased from 1,385,000 tons in 1991 to 1,803,000 tons in 1993.[2]

[2]See Appendix B for selected operating statistics of CFM for 1977–1993.

3. Locomotive Component

INSPECTION OF CFM(S)

The first and midterm evaluation team inspections set forth the criteria needed for the CFM(S) locomotive fleet to achieve a level of efficiency at a reasonable cost. The evaluation team recommended that the CFM(S) locomotive shops reposition their strategy on the depth of maintenance performed. The evaluation team believed that the heavy overhauling of locomotives and their respective components, the large physical plant, and a work force (240) too large to sustain such activities were unjustified for a small fleet of 29 locomotives, especially considering the low demand for service of the locomotives (less than 5 trains a day, less than 2,400 trailing tons).

The evaluation team also recognized that a large complex such as CFM(S) would be difficult to manage efficiently, even in the United States. It is unreasonable to place developing CFM managers under the unnecessary strain of managing a plant whose current mission does not at all reflect the purpose for which it was originally designed. Both the physical plant and the scope of work were designed in colonial times to meet the needs of CFM. Now, however, the plant is obsolete; its only intrinsic value lies in the study of industrial archaeology, not in efficiently maintaining locomotives. It would therefore be unfair, unwise, and uneconomical to ask CFM managers to sacrifice their developing managerial skills by trying to manage a plant that is overbuilt for a fleet that is underused.

The evaluation team's specific recommendations on the facility and the scope of work are as follows.

- Close the workshop and suspend all overhaul activities. It is too expensive and inefficient.
- Refurbish the work shed and revise the scope of work so that the shed performs scheduled running repair maintenance only (replacement, not repair of components).
- Construct a daily servicing facility in a strategic location relative to the main line to service inbound locomotives for immediate return to service.
- Implement a periodic schedule of preventive maintenance to be performed at the work shed that will maximize the fleet's ability to meet its mission and maintain the locomotives at a level that requires only light to moderate repairs.

The previous evaluation team inspection also thought that the GE U-20C fleet should be upgraded to 1970s technology if the U-20Cs were ever rebuilt, because the "U" series locomotive has an inherently poor design. The team recommended that if the U-20Cs were replaced, a locomotive type more compatible with CFM's mission, skill level, and service be selected. The previous teams' recommendation was a General Motors 16-cylinder 645E– series locomotive with Roots blowers, four axles, a traction alternator, and "Dash 2" electronics.

Findings

During the 1994 inspection the evaluation team found that some of the team's recommendations had been put into effect and that the level of service that CFM(S) U-20 locomotives could provide had improved.

"U"-Series Locomotives

Locomotive mean time between failures (MTBF) was measured at 91 hours in 1991 and reached a commendable level of 44 days by December 1993. During the same period the level of available locomotives increased from 55 percent to 78 percent. Even though service demands are light and there are too many locomotives in the fleet for the level of traffic, 44 days' MTBF and 78 percent of availability are no small achievements for the "U" series GE locomotive, even in the best of times.[3] To be fair, CFM(S) and USAID can proud of this accomplishment. Even in the United States, the "U"-series GE locomotive is a workshop's worst nightmare.

The evaluation team discovered that CFM local management was able to increase MTBF and serviceability largely because of its regularly scheduled maintenance program. CFM managers, USAID, and the Enge-Rio technical advisers acted on the recommendation of the evaluation team to prepare a comprehensive schedule of preventive maintenance that has directly improved the "health" of the U-20C fleet. In the future, reliability can only improve for the U-20Cs, and some of the items in the schedule of preventive maintenance could probably be removed as "overmaintenance."

The TA team is showing CFM managers how to collect failure data on the fleet. In time the managers will have a good database from which to make important decisions about where to shift emphasis on locomotive maintenance, which locomotives to store, and what type of locomotives and how many parts should be in the regular inventory. The evaluation team was told these data will be stored on a personal computer in the shop. The TA team is also using word processing software to create maintenance records and maintenance instructions. This is an excellent approach that is both flexible and cost effective and should be encouraged.

Maputo Workshop and Work Shed

Consolidation of facilities is still under way. The diesel workshop in Maputo—a large building designed for the major overhaul of locomotives—is unfortunately still open and functioning. The team found the shop relatively neat and orderly, but there is a large assortment of unused but valuable machinery and parts on hand at the facility. CFM could *make* a fortune by selling these items, and it could *save* a fortune by shutting down the workshop and replace it with a relatively small facility designed for servicing, maintenance, and light repair.

The Maputo workshop is currently handling the annual levels of maintenance, repair, overhaul, and inspection of locomotives and leaving the less demanding weekly and monthly maintenance as well as servicing to the work shed. This is a good idea because the work shed has not been refurbished and cannot operate efficiently in its present state.

The evaluation team believes that as soon as the work shed has been refurbished the Maputo workshop should be closed. Major component repair and overhaul are too expensive for such a small fleet of locomotives, and the degree of management required to efficiently operate the workshop is too high. A North American railroad would have to operate many more than 1,000 locomotives to justify having a heavy repair facility the size of the Maputo workshop. Proper maintenance, the quality of today's lubricants, and the use of outside contractors have enabled Burlington Northern and many other major railroads to greatly reduce or even eliminate their dependence on heavy repair shops. Burlington Northern has been able to eliminate two of its three heavy repair facilities in the last 12 years. The railroad still expects a typical road locomotive in heavy service to travel at least

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[3]Appendix C charts the availability of GE locomotives during 1988–1993.

800 000 km and provide 5 years of good service before overhaul is required.[4] CFM(S), which has a small fleet, light service demands, and an improved maintenance cycle can expect few if any heavy repairs. Stopping heavy overhaul and component repair immediately will save money. The only repairs that should be excepted are engine governor and fuel injector rebuild because CFM test equipment is available and space is available for the equipment at the diesel work shed. In addition, continuing injector and governor rebuild can be justified because these items are frequently used when there is poor fuel quality. The capacity of the governor and injector rebuild at one shop would be enough to serve the needs of all three shops.

The evaluation team believes that spending additional money to upgrade or rebuild the U-20Cs would be unwise at this point. If CFM continues to follow the maintenance schedule now in place and changes components as needed, the existing U-20C fleet should serve with reasonable cost and effectiveness[5] for the foreseeable future.

The evaluation team also believes that the large store of spare parts for these locomotives should obviate the need to overhaul or replace them with new technology. The team recommends that these locomotives remain in service as is until the locomotives and their copious stock of parts have been exhausted. Until that time, replacement should not be considered because the Mozambican people have far greater necessities than new locomotives.

GE/Alsthom Locomotives

CFM has 15 GE/Alsthom locomotives, 11 of which service CFM(S). These locomotives are state of the art, running under a microprocessor technology that even Burlington Northern could not afford to operate. Burlington Northern Railroad tested 11 similar locomotives to see whether Caterpillar prime movers and microprocessor technology could survive the railroad's harsh environment and give economical service. The Chicago and Northwestern line and the Soo line ran similar tests. All found that even though Caterpillar engines are technically superior, there is a point at which the cost of high technology overshadows profit. No justification could be found for the added expense in parts, skills, and tools compared with fuel saving and other efficiencies. Burlington Northern found the Caterpillar-equipped locomotives so technologically demanding to keep in good repair that they rarely reached more than 35 days' MTBF.[6] The evaluation team therefore finds it completely untenable that anyone would offer this type of equipment to a country with a less developed infrastructure. Donor nations should more seriously consider what equipment they are going to supply CFM.

Nevertheless, as long as the TA team is assigned to the project the GE/Alsthom locomotives can provide a solid core around which CFM(S) can build its operations in the near future. They are new, and they are powerful. If CFM assigns them to its most demanding trains, allowing the U-20Cs to handle lesser assignments and placing them in storage (with guards to discourage pilferage) or transferring them to Nampula, the advantages of the GE/Alsthoms' state-of-the-art construction should protect the older U-20Cs from heavy abuse and extend their operable life span.

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[4]These estimates are based on a performance target of 70 MTBF, 93 percent availability, and approximately 13 000 km a month with 3500–4000 trailing tons.

[5]When referring to "U"-series locomotives, the term "reasonable cost" is highly conditional.

[6]Burlington Northern found that more than 90 percent of its work force did not have the expertise needed to keep the Caterpillar-equipped locomotives adequately serviceable, even though its employees are among the best trained railroaders in the world.

Rumanian Locomotives

Past and current team inspections have recommended scrapping Rumanian diesel hydraulic locomotives as they come up for repair. The engineering is too slipshod and the workmanship too poor to merit further investment. Rumanian locomotives seriously damage profit and performance.

Recommendations

The evaluation team makes the following recommendations on CFM(S) locomotive facilities and equipment.

- **When train frequency or equipment exhaustion requires new locomotives, USAID should be responsible for protecting CFM from businesses that want to donate, sell, or lease new locomotives to CFM that they would find difficult to maintain.** If USAID doubts what type of locomotive to buy that combines both serviceability and survivability, it should poll any short-line operator in the United States. With almost no exception the operator's recommendation will match that of the evaluation team.
- **In view of the team's recommendation that the U-20Cs be placed in storage, the technical assistance contract held by Enge-Rio should be allowed to expire.** The technical level of the CFM(S) work force is sufficient to handle the U-20Cs and no longer needs Enge-Rio to provide technical inputs.
- **The evaluation team endorses the proposal currently under consideration by USAID to hire a private contractor under a full-service contract to manage and organize the work in the diesel shed.** CFM(S) is not yet capable of organizing and managing the flow of work in the work shed. This involves activities such as preparing the maintenance plan for the locomotives, developing and updating workshop manuals, reviewing the flow of maintenance activities in the shop, and programming the procurement of spare parts.
- **The work force still needs technical assistance for the Alsthoms.** Since the Enge-Rio contractors do not have the expertise required to maintain the Alsthoms the team recommends that USAID actively query the French mission to ensure that TA continues for the Alsthoms and that they include training. Without TA, the operating life span of the GE/Alsthoms is problematic at best.
- **The work shed should be refurbished so that all maintenance and repair can be consolidated there.** A minimum amount of refurbishing is necessary for the work shed to serve its purpose. For instance, the roof needs to be repaired, the shop wiring needs to be fixed, and adequate lighting needs to be installed. One or two 10-ton cranes spanning all tracks need to be put outside for locomotive component changes. Plumbing and sanitary facilities need to be refurbished. There should be provision made to move locomotive stock into a secured area in the shop. A governor and injector area should be designed into one of the cubicles in the facility, and the buildings walls, floors, pits, and ramps should be cleaned and painted.

  There is no need for additional bays or construction to be added to the existing site. The facility has plenty of room, and 10-ton cranes would be big enough to change any component on the locomotive except the prime mover or the main generator. If either of these items needs to be replaced, which is unlikely, the big rail crane could be used. Once this facility is in place and equipped, no more than 40 people should be required to operate it. The team suggests that the funds saved by the reduction in staff be spread out among the remaining managers and mechanics; the current levels of compensation are grossly inadequate compared with the responsibility and quality of the work that needs to be performed.

- **A diesel servicing facility is needed by the main line to keep up daily servicing.** Such a facility will keep the work shed free to concentrate on its primary function, greatly easing the management and logistics of the work shed. Without these facilities in place the obstacles to efficient management of the CFM(S) locomotive fleet becomes unreasonable even by U.S. standards.
- **Management of work at the shop itself should be improved for CFM(S) locomotive shops to achieve profitable levels of efficiency.** With a great deal of time this function could be taught through the existing management structures at CFM(S). However, the most expedient solution would be to involve the private sector in managing the diesel shop so that the operation can quickly achieve profitability and serviceability. Because the need for a constant supply of serviceable motive power is so critical to the success of CFM(S) operations this is something that should have been done previously. Turning over the operation of the diesel shop at Maputo to a private contractor is the evaluation team's best solution for implementing the necessary changes at CFM(S).

INSPECTION OF BEIRA

The evaluation team inspected the Beira locomotive facility and found many of the same problems there as at CFM(S), that is, too much plant, too much expensive overhaul activity, too many locomotives, too many of the wrong locomotives, too little traffic.

However, 10 new GM locomotives going on line at Beira should prove invaluable. They do not exactly match CFM(C)'s requirements (they have no self-load, one too many turbochargers, and two too many axles), but they are much easier to use and more reliable than the U-20Cs. The evaluation team therefore recommends that the U-20Cs at Beira immediately be placed in storage. With Beira's light traffic, the GM locomotives should easily cover all assignments. As with CFM(S) there is just no justification for having the U-20Cs around wasting money; however, the GE U-10s should continue to be maintained. Some thought should be given to transferring some U-10s to CFM(S) to protect shunting duties and altogether remove from service the Rumanian locomotives.

The team realizes from its discussions with CFM(C) management that the idea of storing the U-20Cs will be unpopular. Therefore the evaluation team recommends that USAID purchase no parts for the U-20Cs, in order to hasten their demise or their transfer to CFM(N).

INSPECTION OF NAMPULA

The evaluation team found that Nampula suffered from the same problems as the other shops. However, the U-20Cs run best at Nampula—as best as a U-20C can run—therefore, all the new and refurbished U-20Cs should be sent to this shop to form the backbone of the locomotive fleet. All U-20 stores should also be sent to Nampula since it is the only facility that should be running U-20Cs. This would encourage other shops to store their U-20Cs since they would have no store stock. Nampula is the only shop to which any additional U-20 parts and supplies should be purchased and delivered. Four GE/Alsthom locomotives were stored at Nampula after track upgrade was completed. They should be returned to Maputo with their stores to bolster the GE/Alsthom fleet and to be close to appropriate technical assistance.

The evaluation team's recommendations for Nampula are similar to those for other shops:

- Close the workshop,
- Upgrade the work shed to handle component changes and running repair maintenance,
- Install a mainline service facility,
- Stop overhauls,

- Scrap the Rumanian diesel hydraulic locomotives,
- Centralize locomotive stores in the work shed,
- Reduce the work force to 40 or fewer, and
- Store excess U-20Cs.

FLEET ASSIGNMENT

Maputo

The GE/Alsthoms and all their stores should be concentrated at Maputo. Most of the locomotives of this type and the technical assistance for them are already there. Several GE U-10s should be brought from Beira to protect "shunting" assignments at the port. This is a good mix because the U-10s have Caterpillar engines like the Alsthoms.

Maputo has a working oil laboratory with the capacity to prepare samples for the whole railroad. This function should be centralized to eliminate the expense of redundancy at all three locations. If Beira or Nampula can perform this function better, the function should be transferred there. Nevertheless, there should only be one oil laboratory.

Beira

GM locomotives should continue to be used at Beira, and some U-10s should be used for shunting service. A governor shop should be set up at Beira, which has a new governor machine and a suitable place in which to operate it. This shop could supply reconditioned governors to Nampula since the U-20Cs also use Woodward governors. One governor shop could service the entire railroad.

Nampula

The best U-20Cs and all of their usable stores should be transferred to Nampula. The remaining U-20Cs should be stored (preferably at Nampula to remove the temptation of using or repairing them). Nampula does good work on the U-20Cs (91 percent availability) and has technical assistance in place. There are enough new and refurbished U-20Cs among all three locations to build a solid core of reliable U-20 locomotives at Nampula for the foreseeable future. As mentioned earlier Nampula's Rumanian diesel hydraulic locomotives should be scrapped.

Nampula would be a good location for a fuel injector shop because fuel injectors are frequently changed and one fuel injector shop could supply the needs of the entire railway.

All Locations

All three locations have a critical need for the chemical treatment of water to prevent scaling in the radiators. Most railroads prefer the brand Nalco. It will prevent deterioration of radiator cores that is plaguing all of CFM. Using Nalco would cost only a fraction of the cost of replacing radiators prematurely, and Nalco is easy to apply. CFM may also need to clean out the radiators by applying acid treatment before water treatment. The Nalco dealer will know which sort of acid pretreatment is best.

Some critical spare parts for U-20Cs (compressor gaskets, injector rebuild kits, BN electronic modules) are lacking at all locations, but concentrating all U-20 stores and U-20Cs at Nampula would alleviate the shortage and ease the inventory and management of stores at all three locations, since each location will be stocking and managing parts for only one type of locomotive.

SUMMARY

USAID is making progress toward better CFM locomotives; however, the evaluation team sensed that USAID is frustrated by the slow rate of change at the diesel shops. This slowness is not uncommon in the rail industry, even in the United States. The U.S. rail industry experienced and is experiencing a similar frustration. Some rail carriers could not deal with the bureaucracy that was allowed to overtake them and collapsed as a result.

These collapses occurred not because the railroads did not have a good service to market but because they failed to invest in management. A railroad requires a high degree of organization to operate efficiently. The more organized and better managed a railroad, the more efficiently it can serve a community's transportation needs. If a large portion of resources is invested in diesel fuel and trucks, a great deal of goods can be moved at great expense.

A railroad trades organization for fuel. The better organized a railroad, the less fuel it uses. Comparing trucks with trains, each at its peak, a railroad is 75 percent more fuel efficient. Trucks are the easy way out: The railroad also requires an investment, which is management. This investment is not cheap in the short run, but it is in the long run.

Highly skilled managers can organize complex tasks and costs. They can add something to their community. They become a resource that renews itself by teaching others to manage. The evaluation team and USAID would rather leave that as a legacy of our involvement. Although USAID might be frustrated at its progress, it is on the right track.

4. Financial Management Component

INTRODUCTION

Louis Berger International, Inc. (LBII) is providing technical assistance in finance and accounting to the Mozambique RRSS project. USAID had identified an automated accounting system during the March 1993 site evaluation, but specific information on the system was unavailable to the evaluation team. System implementation began in April 1993 and is currently under way. As of the site evaluation, not all aspects of the system had been fully implemented. The following information is therefore based on currently functioning aspects of the system and LBII's plans for implementation.

The current members of the LBII TA team have not been on site since assistance to CFM began. On the basis of discussions with LBII representatives, the focus of the Mozambique RRSS project changed around April 1993. New members were added to the team in important areas such as cost accounting, budgets, and system support, changing the direction of the project. Thus, the part of the project dealing with these areas has been effectively operating for only approximately one year. The tangible changes made in CFM accounting functions before the change in project direction are difficult to assess now. The majority of activity undertaken by the TA team since the last evaluation has focused on changes in processes required by the accounting system. This report will not assess the efforts undertaken before the change.

FINDINGS

General Requirements of the Financial Component

The basic requirements of the financial component are establishment of a computer-based, centralized accounting function. The TA team has not fully implemented a computer-based accounting system at the CFM General Directorate [CFM(DG)] and at CFM(S) as of the date anticipated by USAID for this evaluation.

The TA team has noted that CFM management was not willing to adopt all of the organizational structure recommended in the midterm evaluation even though it is appropriate for the accounting functions at CFM. The TA team modified the structure to accommodate the desires of CFM management. The TA team accepted the structure but stated that not implementing the desired organization hinders implementation of the TA team's recommendations.

Facilities

Appropriate facilities have been provided for TA team members as well as for members of the CFM(DG) staff. The CFM office building is being renovated; when complete it should provide an adequate work place for all finance employees, assuming all finance functions for CFM (S) are placed near the new building.

Observations

The evaluation team offers the following comments on the TA team working at CFM. The TA team has been faced with a complex problem. The conditions that existed when technical assistance began resulted from many years of social, political, and economic uncertainty after colonialism ended in 1975. At that time all of the managerial and technical financial experts left the country. As a result, the accounting functions at CFM were effectively operating without a purpose before the TA team arrived.

By modern industrial standards, there was no accounting system in place, as noted by the attempted KPMG Peat Marwick audit. Each of the accounting areas operated independently without coordination with other areas—a requirement in an accounting function. Significant improvements in accounting have been made as a result of the efforts to implement an integrated accounting system. A general sense of purpose has been developed within the organization. This is an important first step in developing a functional accounting organization, which previously did not exist. A good finance function requires a fairly high level of expertise. Establishment of a sound finance function within CFM will be time-consuming.

One of the most difficult issues facing the TA team is the language barrier. A large number of the team do not speak fluent Portuguese, and the majority of CFM staff does not speak English. Communication has thus been a problem. This is a difficult problem to address but must be considered when assessing the effectiveness of the TA's effort. Future technical assistance should consider English training for CFM employees.

The TA team has been organized and managed so that there is a distinct reporting relationship through the chief of party. This style of management does not always foster open communication between team members. At times the TA team does not appear to be functioning as a cohesive unit, there does not appear to be an extensive sharing of information among various parts of the team. For example, there appears to be little coordination between the cost accounting function and the general ledger function. The same situation appears to exist between cost accounting and budgeting.

The development of meaningful financial information requires a high degree of integration and sharing of common information. In some cases it was necessary to re-create information in one area that was being addressed in another area. An example of this is the 1993 annual report prepared by LBII. Certain sections are detailed and comprehensive, where as others were summarized and brief. Each section was apparently prepared by the individuals responsible for it, and there is a lack of consistency among the sections. Not all members of the team speak the same language fluently. Each area of the TA team should keep the other areas informed about issues and activities in one another's areas. Common problems and issues should be discussed by the TA team, and joint solutions developed from the input of all team members. Communication should be constant and continual among all team members. Each member of the team should have a good understanding of what the other members are involved in.

An essential ingredient to a successful project is missing at CFM: Top management appears not to appreciate the need to support this project. From discussions with the TA team this lack of appreciation occurs primarily at CFM(DG). There does not appear to be an open communication line between the Director General of CFM and his direct staff. This situation is also apparent between line management and the department heads at CFM(DG) and at CFM(S). However, considering the recent history of Mozambique and its political environment of central planning, this is understandable. The TA team and CFM do not function in step with each other. CFM is slow to react to suggestions from the TA team and will change suggestions to the point of diminishing the effectiveness of the suggestion. This situation appears to have occurred in suggestions regarding organizational structure made by the TA team and modified by CFM. Various CFM line managers interviewed have indi-

cated their desire to improve things, but middle management does not appear willing to support change and lobby top management for change.

The interim and midterm evaluations recommended that USAID become more involved in helping CFM(S) make the necessary changes proposed by the TA team. This recommendation, however, was impractical considering the large burden of work under which current USAID staff are working. For example, the RRSS project director, in addition to the RRSS project, is responsible for projects in water, environment, roads, bridges, and schools.

FUNCTIONAL AREAS OF FINANCIAL ACCOUNTING

Budget

The TA team implemented a budgeting system capable of producing a meaningful and useful budget. The budget process has appropriately identified the major elements and has been structured in a usable manner. A test budget was used for the second half of 1993 and for 1994. However, the tangible benefit of these budgets in managing the business is questionable. A budget is a management control tool and is most useful when incorporated into the day-to-day management of an organization. This situation does not exist at CFM. To incorporate budget discipline into CFM management each department head needs to be held accountable to the budget. Budget variances must be explained and documented, and the basis for budgeted amounts must be explained and based on valid and realistic business activities. The requirement to adhere to and follow good budgeting procedures must be clearly set by top management. The Director General needs to assign the responsibility for budget management to an appropriate member of CFM(DG) management. All other managers in the organization must be made aware of their responsibilities in this area. This role should be assigned to the Finance Director of CFM(DG).

Financial results for the second half of 1993 are not available. Consequently, it is not possible to determine the reliability of the budget. The 1994 budget is highly questionable. The biggest factor in the viability of the budgets is the lack of historical financial data and operating statistics. Historical financial data are the key to building a usable budget. In addition, good payroll data are required. A department manager needs to know how many employees work in a particular area and the related payroll cost. Discussions with various LBII team members have indicated that the payroll data in CFM are highly questionable.

Information for the 1994 budget was required of all budget units, known as UBOs, in all four CFM organizations. However, the information was not received on time. The TA team conducted training sessions in how to use the budget system and what information was required for the 1994 budget. However, the effectiveness of this training was limited by the lack of historical data and the limited skills of CFM management. A budget department was staffed by CFM(DG) employees. These individuals know how to operate the computer-based budget system but are not trained in how to operate a budget department as part of an organization.

The CFM staff helped the TA team identify 163 UBOs at CFM. Although this is a logical breakdown of CFM's business, it may be too detailed at this time in the railroad's organizational development. The budget process should be started at a high level, with a policy statement and guidelines, and be completed by line management who possess the detailed information required to develop a budget. The TA team explained that the budget units should be determined by the level of management that possesses a sufficiently detailed understanding of the operation of individual departments. The TA team said that a good understanding of the organization did not exist at higher levels in the

organization; therefore, the TA team selected the best starting point for a budget on the basis of the state of CFM.

The 1994 budget does not cover all expenses associated with the operation of CFM. It focuses on payroll and expense items to be purchased and contains no valid cost information for materials that will be supplied from inventory and for depreciation expense. Not all components of material inventory have been valued and thus cannot be assigned a budget cost. Depreciation expense is not calculated because no fixed asset accounting data exist.

Cost Accounting

The cost accounting system developed by the TA team is technically and theoretically correct. The system was developed by TA team members who have a good understanding of railroad finances and information essential to a cost accounting system. To date, efforts in cost accounting have focused on capturing actual cost at a level required to develop meaningful cost accounting information. As in budgeting, essential information for cost accounting means accurate and complete historical data. However, as in budgeting, accurate historical data are lacking.

The work accomplished by the TA team in cost accounting has focused on how to code transactions so that actual revenue and expense transactions can be associated with specific business activities or segments of rail and port operations. Coding has been structured around the general ledger requirements.

The methodology planned for implementing the system is used in a number of businesses and widely accepted. This type of cost accounting requires a lot of detailed information. Expenses and revenues must be allocated to various business activities or to asset segments, or to both. The coding proposed by the TA team should produce the desired results and required information. However, in view of the history of CFM this system is perhaps superfluous at this time and may prove too complex. Each expense transaction requires five numeric codes. A number of the codes must be entered manually. This method of coding cannot be sustained without support from the TA team. Revenue transactions require eight codes to meet cost accounting requirements. A portion of the account coding will be entered systematically as part of the integrated accounting system. Revenue account coding will be entered when a bill is prepared. However, the coding method will depend on the controls implemented in the billing process.

Cost accounting information was determined on the basis of existing general ledger account coding requirements. General ledger expense coding was done at a high level and was in place before cost accounting requirements were determined. To provide the actual data at the level required for the cost accounting system, additional account coding had to be developed to allocate actual cost and revenues in a manner meaningful for cost accounting purposes. A revised general ledger and chart of accounts would reduce the account coding required for the desired cost accounting system and may produce better information. Assigning the current account coding requirements for CFM cost accounting is complicated.

The next phase of the cost accounting process will involve the analysis of actual data to be used in making business decisions and developing tariffs. Lack of information on the value of fixed assets and inventory value is a large constraint that needs to be addressed. An essential component of a cost accounting system is determining how to replace assets that are consumed while service is being provided. This issue cannot be addressed until an inventory of assets has been completed.

Implementation of a cost accounting system is far from complete. In an established railroad, the activities undertaken and results achieved to date mark the starting point of any cost accounting system. Cost accounting cannot start without historical data. The anticipated results of a cost accounting system are a revision of the current tariff structure so that CFM prices its services at an appropriate

rate. However, the question remains about the organization's willingness and ability to change tariff rates now. The limited financial data that do exist indicate that CFM rail operations are not making money. Consequently, the need for tariff changes currently exists but no action has been taken.

Discussions with the TA team in cost accounting indicate that sufficient operational statistical and business data exist, such as gross tons by commodity, to support tariff decisions based on cost accounting. Matching historical cost with business activities is a fundamental component of cost accounting. The missing link is sufficiently detailed, accurate, and complete historical information on costs and revenues.

Current Operations

Current operations covers the basic day-to-day transactions in all the other finance-related functions. The TA team has been addressing accounts payable, accounts receivable and invoicing, and treasury transactions. Current operations is the area that involves the entry point of numerous transactions. The computer-based system will result in a technically correct accounting system. However, the information produced by the system will reflect the quality of the data input into the system. Quality of data input is a result of the financial policies, procedures, and controls of the organization. The fundamental requirement in producing accurate and reliable financial data is a strong control environment. Financial controls, also known as internal controls, ensure that only authorized and valid transactions are reflected in the accounting information. Controls protect and safeguard the assets of the organization from misappropriation and misuse. A necessary component of good controls is issuance of accounting policies and procedures. Policies and procedures define how each transaction should be handled to ensure that all transactions are accounted for consistently and correctly. Automation of the current systems does not completely address these issues. One of the most significant problems associated with the Mozambique CFM project is the lack of reliable data. The TA team has had to devote a lot of time to cleaning up data before systems can be implemented.

Implementation of the computer-based accounting system in the current operations area should significantly improve customer billing functions at CFM. Before installation of the computer-based accounting system, customer billing was done monthly and was time-consuming. As a result, bills were not being prepared until 45 to 90 days after service was provided. Installation of the computer-based system will allow CFM to bill weekly, substantially reducing the time required to collect from customers. This ability is important because of the high inflation rate in Mozambique.

From discussions with TA team members and the evaluation team's limited review of day-to-day operations, significant control issues need to be addressed at CFM. Putting in place the integrated financial system will address some issues. The information produced by these systems will depend on the quality of the information input. This area cannot be considered complete until the numerous control issues are addressed.

Examples of control areas that need improvement are as follows.

- Treasury. Because of the banking system and economic conditions in Mozambique, most transactions take place in cash. Limited controls exist to ensure that cash is not misappropriated, and it is impossible to determine whether all cash disbursements are authorized. There is no follow-up on unpaid bills, and there is no way to know how much in receivables is not collected and if all payments are made and recorded in the accounting records.
- Payroll. The TA team indicated that payroll records are not updated, and it is highly likely that a significant amount of payroll is paid out unnecessarily. There is a payroll adjustment process that has no control over how much is paid. An employee can claim that he or she did not receive the correct amount of pay. A form indicating the additional pay is completed

without verifying against payroll data to determine whether the employee's claim is valid. The physical layout of the treasury department could result in the loss of significant amounts of currency. The department maintains large amounts of currency with no safeguards against misappropriation of currency. The TA team has recommended changes in this area. CFM has implemented only a portion of the changes. The changes made have not reduced the risk of currency loss.

Financial Accounting

The financial accounting system planned for implementation will result in a technically correct and complete system. However, a system is only as good as the information placed in it. Financial data will not be reliable until the numerous control issues are identified and resolved. The chart of accounts was developed on the basis of account descriptions determined by the Mozambican government. The accounts are generic and apply to all companies operating in the country. The chart prepared at CFM was not modified to meet the informational requirements specific to railroad and port operations. Consequently, the financial information produced is generic and aggregate. The detailed financial information required to manage the business is being produced by the cost accounting system.

As noted earlier, all transactions must be coded according to cost accounting system requirements to obtain a meaningful allocation of actual cost. For example, diesel fuel for locomotives is not distinguished from diesel fuel for vehicles. Diesel fuel consumption is an essential informational requirement for a railroad. Payroll costs are not segregated by train crews, maintenance of way, or mechanical department. A chart of accounts could have been developed that meets the operational needs of the railway and the port *and* meets government informational requirements. Thus, the current account coding required for both general ledger and cost accounting purposes could have been consolidated, resulting in less complicated account coding requirements. The TA team has approached general ledger and cost accounting as two separate functions—they should be viewed as two interdependent functions, as noted in the midterm evaluation.

Financial results for 1993 are not complete because it is necessary to make sure that valid information was input into the accounting systems and because CFM lacks the management initiative to provide required information on time. Contributing to the situation is the timing of implementing the computer-based accounting system. The system was not ready to be used until late 1993, at which time 1992 data were the first to be input. The TA team indicated that 1992 data will be completed and financial information available by the end of February 1994, and 1993 financial data should be complete by the end of May 1994. However, it is important to note that the information will not include historical cost data for inventories and for material and fixed assets. Thus the financial data will not be complete.

Audit

An internal audit function at CFM has not been put in place. The TA team members assigned to auditing has been providing miscellaneous functions for CFM management since their arrival on site in Maputo. The evaluation team's review of progress reports generated by the TA team revealed that there was no section for internal audit in the annual report and that a 1994 work plan was not provided. The chief of party stated that the skills of the TA team assigned to auditing are not well suited to supporting development of an internal audit function. The major function of an internal audit process is to ensure compliance with control requirements. Currently there are limited control mechanisms in place at CFM. On the basis of this information, the audit function should have focused on developing and implementing the comprehensive control policies and procedures discussed

previously. However, policies and procedures would be valuable to the organization only if management supported and adhered to them.

Integrated Financial System

The accounting system selected for CFM will be technically correct. An USAID computer information systems specialist reviewed the hardware and software for the system. The system selected, MCBA, is a generic, off-the-shelf package designed for a manufacturing environment and not a service environment such as a railroad. Therefore, the local vendor had to customize the system at the direction of the TA team to meet the business requirements of CFM. This has affected the TA team's ability to implement the system on a short schedule. Furthermore, it has been difficult to obtain support from the local vendor. The system did not contain the required monetary field size when it was received from the vendor. The size of the monetary fields was not large enough to accept the local currency. The TA team had a difficult time persuading the local vendor to change the computer program, and when the change was made it was done at a cost of $40,000. In addition, the system was designed in English and translated to Portuguese by the local vendor. The local vendor did not adequately translate the system, and a number of errors were identified that required correction.

MCBA did not meet the requirements of CFM in the treasury area. The treasury operates as a bank, and the majority of functions are performed in cash. The system does not have the capability of tracking individual cash transactions. Consequently, the TA team had to develop a standalone system to support the daily activity of the treasury and provide the information required for input into the accounting system. The standalone system was recently completed and is now being put in place. Contributing to the difficulties in the treasury area were numerous control issues that needed to be resolved before the computerized system could be implemented. The day-to-day procedures in this area were so out of control that they could not be computerized. The treasury area operated as an independent entity with no tie into the rest of the accounting information.

MCBA is a COBOL-based system. COBOL is an outdated computer language that has a reputation for not being user friendly. In addition, members of the TA team have noted that response time can be very slow and the use of radio transmission to link locations is unreliable.

These factors are important to note in assessing the timeliness of system implementation. The efforts required to install the computer-based accounting system have contributed to the delay in implementing a new financial structure at CFM. However, the software modifications made appear to be appropriate, and the system should adequately meet the needs of CFM for some time.

Material Management and Procurement

The material management system implemented by the TA team to address the management of GE components has been completed except for the pricing of the components. Pricing is partly complete, but lack of historical documentation has made it difficult to determine the historical cost of some components. The scope of this project covers only material management requirements for GE parts. The parts for the donated Alsthom locomotives have been incorporated into the system designed by the TA team and are being priced. CFM has a substantial number of components besides GE parts. The system developed by the TA team has been integrated into the computer-based accounting system for GE parts and summarized for other parts. The TA team believes that the material management system it developed could be maintained in its absence. However, material accounting requirements—maintaining valid and accurate average price information—are subject to the same constraints affecting the other accounting areas and would not be maintained in the absence of the TA team.

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Before additional mechanization of the material area, a decision should be made about the disposition of significant quantities of obsolete and excess inventory. A number of items in inventory will never be consumed, regardless of how much traffic is moved. CFM continues to maintain inventories of parts for equipment that is no longer in use. CFM currently has approximately 45,000 inventory components; only 5,000 are required to support operations. It does not make sense to automate the management of such items. Ideally, all excess items should be identified and disposed. CFM is currently conducting a physical inventory of all items located in the various store locations in Maputo, as task which has not been performed since 1985. An annual physical inventory is required in most organizations. The results of this effort will make a good starting point in identifying excess and obsolete inventories. However, this is a business decision that may not be possible in Mozambique.

This system could be maintained without the TA team, but it will require a discipline that may not exist. Because of the precarious financial condition of CFM, any major item required to support operations must be donated through an aid organization. This situation will not change until CFM operations change dramatically so that enough revenue is generated to fund the cost of asset replacements. Such changes do not appear possible in the near future.

RECOMMENDATIONS FROM MARCH 1993 STATUS REPORT

The TA team prepared a detailed response to the recommendations made in connection with the March 1993 status report (Appendix A). The responses appear to be appropriate except for the following items. The status report noted two items on training. One recommendation suggested hiring a technical writer to assist in the preparation of meaningful training material. The TA team did not pursue this recommendation because it was believed to be too time consuming to first train a writer in MCBA before he or she could prepare information for training purposes. The second recommendation was to modify training material to be less technical. This task was undertaken by TA team members after the decision not to hire a technical writer.

The successful training of CFM staff is a continuing issue. The TA team has not been successful in training CFM staff to take over the operation of the computer-based accounting system. The causes of this situation are numerous, the most significant of which are the extremely low educational level of CFM staff and the short time period during which the system has been operational. The introduction of a computer-based accounting system has been a monumental change for CFM employees. The characteristics of CFM are best understood and explained by those familiar with the environment in Mozambique. In this context, training of CFM staff is an extremely challenging task. The computer-based accounting system has been operational for only one year, an extremely short period of time in which to train employees with minimal skills that previously operated in an organization that had no structure. Also contributing significantly to training issues is the lack of support by CFM management to adapt to the new systems. CFM management has not mandated that employees attend training sessions.

The training process at CFM will be slow and time consuming. Given the environment at CFM, a professional trainer would make training more successful. The role of the trainer would be to assist the TA team in developing a coordinated meaningful training program tailored to the CFM environment.

The status report recommended some organizational changes that have not been adopted. The first recommendation dealt with the reporting relationship for the internal audit function. This function has never materialized as anticipated in the original scope of work. Therefore, the reporting relationship of this function to the Finance Director at CFM(DG) has not resulted in a conflict of interest. However, if an audit function does materialize at CFM, the manager of the audit function should

report to the Director General. The second organizational recommendation involved centralization of the general accounting and current operations areas. These activities have not been centralized, as recommended, because CFM was not willing to follow the TA team's suggestions.

The March 1993 report recommended the completion of a fixed asset study. This recommendation remains as an open issue during this evaluation.

An item noted in the March 1993 status report that needs to be discussed is communication and coordination between the TA team and USAID Weekly status meetings are held between USAID and the chief of party of the TA team. The purpose of the meetings is to discuss issues occurring with the implementation of the accounting systems at CFM and to address administrative issues. However, these meetings appear to be fairly superficial and have not been beneficial in resolving issues identified by the TA team.

The TA team has become familiar with control issues at CFM. Although CFM was informed of these issues, they were not forcefully communicated and consequently were not implemented. In an attempt to improve implementation, USAID in July 1993 assigned an assistant project manager to the Mozambique RRSS project. His primary assignment was to monitor progress of the project on a day-to-day basis, to assist with implementing recommendations made by the TA, and to help with resolution of problem areas between the TA and CFM(S). However, because of limitations in staff availability, USAID was not able to assign someone with a strong financial background, and senior enough to have the required authority to persuade CFM(S) top management to implement recommendations proposed by the TA team. Although the assistant project manager was helpful in resolving relatively small matters, he was not able to make the drastic changes needed in the organizational area.

The TA team has also proposed organizational changes that have not been accepted by CFM. The weekly status meetings are typically attended by the chief of party only. It would be beneficial if all members of the TA team attended status meetings. This would allow USAID to get a good picture of what is happening on a day-to-day basis within CFM from those closest to the action. The factors for lack of change are numerous and typical for the environment in Mozambique; they are best understood by those who work with CFM employees day to day. The monthly written status report has been abandoned by the TA team since the last evaluation. Continuing to prepare this report, in a streamlined version as suggested in the last evaluation, would have facilitated communication between USAID and the TA team.

Implementing an accounting system itself will not improve the financial performance of CFM. An accounting system measures performance—improvements in the financial performance of CFM depend on changes in the management control environment at CFM. Although the TA team and USAID have communicated regularly, significant improvements in the financial controls of CFM have not resulted. The March 1993 status report recommended that USAID actively help implement the accounting system at CFM and assign a finance representative to the project. USAID involvement since this report has increased but appears to be more administrative than substantive. A representative with a finance background was not assigned by USAID In the absence of a finance representative from USAID, the TA team needs to assume the responsibility of educating the USAID representative in the key issue affecting CFM. The USAID representative should work with all members of the TA team to understand the areas they are working in, explain the issues, and educate the USAID representative in general finance terms. A good finance person should be able to translate technical finance terms into terms that can be understood by people without a finance background.

SUSTAINABILITY OF CFM ACCOUNTING SYSTEM AFTER TECHNICAL ASSISTANCE

There is universal agreement among the TA team that CFM is not capable of maintaining the accounting and finance system developed as a result of the TA effort. All accounting functions would revert to the condition the accounting function was in before the start of technical assistance. The only way to continue the accounting system developed by the TA team is through ongoing assistance. The level and type of assistance depend on the ultimate plan on how to best involve the private sector in the management of certain functions of CFM, and as outlined in the proposed World Bank Maputo Corridor Revitalization Technical Assistance Project (see Chapter 6)..

RECOMMENDATIONS

The following recommendations are based on the proposed World Bank project and may need to be modified according to how the ultimate organizational structure of CFM resulting from that program is determined. The recommendations focus on the appropriate technical assistance to produce a financial management system that can properly support the technical and financial studies needed to identify the best option for involving the private sector in the management and operation of CFM. The objective of the recommendations will be to assess the minimum informational requirements to make a good business decision about the best option for revitalizing CFM and the requirements for to maintaining CFM operations until the World Bank project determines the outcome of CFM, which may be 2 to 3 years from now.

Financial Controls

The most critical need at CFM is the establishment of good basic financial controls. Included in the category of financial controls is the establishment of policies and procedures that ensure that only authorized and valid transactions occur and are recorded in the financial records. CFM is losing money in a number of areas, including payroll, treasury operations, credit and collection, and wagon ire. The TA team is quite familiar with the issues in these areas and should develop a plan to im- rove controls in the near term. However, without CFM's willingness adopt the recommendations, is plan will be worthless. The importance of controls cannot be overemphasized—controls deter- ne the reliability and validity of data input into the accounting system. A valid analysis of CFM not be performed without good data. Automation of accounting functions by itself does not result ood information.[7]

inuing Role of the Technical Assistance Team

e benefits will be obtained from the technical assistance provided only if it continues to be led in CFM's day-to-day operations. The level of technical assistance depends on CFM's near- als and the potential for management reform until the outcome of CFM under the World roject is determined. The prospects for management reform in the next 2 to 3 years are not evertheless, there are aspects of the current technical assistance program that should con-

uture level of assistance should be structured to provide the financial data that are required n informed business decision about CFM's operations. The marketability of CFM will be

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dix D discusses potential immediate cost savings that could be achieved by CFM(S).

improved by producing reliable, useful financial data on a monthly basis. On this basis, technical assistance should continue in the areas required to produce meaningful financial data.

The first step will be to address the control issues noted in the preceding section to obtain immediate control over the operations of the accounting functions. Technical assistance is required to maintain the computer-based accounting system functionality. The technical assistance required to create advanced financial information may not currently be necessary. Specifically, developing a cost-accounting system may not be necessary if management is not willing to change tariffs. The purchase of a computer-based costing model should be closely examined on the basis of CFM's anticipated future. It is important to note that current work in the cost-accounting area is very important and should be completed and used. The work completed to date serves as a basis for tracking actual expenditures and revenues in a meaningful and useful manner and must be continued. Work in the areas of budgeting, current operations and general ledger and financial reporting should be staffed with sufficient technical assistance to continue the current planned level of operation. The current operations area encompasses the majority of day-to-day accounting transactions and control issues, and a current level of technical assistance needs to continue to ensure the reasonably accurate production of accounting data.

All remaining technical assistance should be incorporated into the day-to-day line operations of the CFM staff, and the TA team members should have direct control over the number of CFM staff required to produce monthly financial data. This appears to be the best way to ensure progress and that technical assistance will have a future benefit. The TA team should be given the opportunity to handpick the CFM staff necessary to carry out this function and should train the staff in the skills necessary to perform the related day-to-day activities. Training should not be conducted with the goal of turning the accounting systems over to CFM to be operated independently. This should be the responsibility of the management team created as a result of the World Bank project. It is imperative that CFM management assign the appropriate authority to the TA team to accomplish the desired tasks. Assigning this authority may have the added benefit of creating a work force that could be employed within CFM after the private sector has started to operate and manage certain functions. Regardless of the option selected under the World Bank project, there will be a need to staff operations with local employees.

If CFM is not willing to support the organizational structure, the production of accounting data independently of CFM may be necessary. In this case, technical assistance may need to take the form of an independent accounting function. However, this arrangement may require hiring local employees to support the TA team that will be providing the managerial direction. This is not a preferable option.

Significant technical assistance should focus on addressing the control weaknesses currently in place at CFM. Training of CFM staff should be coordinated by a professional trainer and first focus on preparing the CFM staff to learn. In addition, the CFM staff needs to be motivated to work by increasing the rewards obtained from working. This is an area that should be supported by a human resource specialist.

Fixed Assets

All of the options noted in the proposed World Bank project will require some type of asset inventory. A meaningful disposition of the operations of CFM cannot be considered until a starting point is established—a reasonable starting point being the assets of CFM. The potential of CFM is based in the assets base it offers to provide transportation services. The asset inventory does not require the development of historical financial data; however, it must contain a detailed listing of the physical characteristics of all assets. The inventory should also address the condition of the assets, which will

be beneficial in addressing the marketability of the assets. The importance of this inventory cannot be overemphasized: The future of CFM cannot be determined without a starting point.

Payroll Validation

The issues affecting the payroll area are numerous and well documented. Procedures must be put in place to ensure that only valid authorized payroll transactions occur. Payroll records must be cleaned up so that only valid employees are paid. A database of existing employees needs to be developed that includes length of service with CFM, positions held, education and training.

Professional Trainer Assistance

The training processes to date have not been highly successful. The results of the project would benefit from the addition of a professional trainer able to prepare clear manuals, visual aids, and lesson plans based on the needs of CFM employees.

Disposition of Excess or Obsolete Inventory and Assets

Significant amounts of cash could be generated from the disposition of excess or obsolete assets. A substantial portion, if not all, of the requested physical plant improvements required in the diesel shed could be funded from the proceeds of selling excess or obsolete assets. This political possibility needs to be addressed by those who are more familiar with Mozambique. However, it does not appear unreasonable to request CFM management to contribute to the urgent task of revitalizing the organization.

Implementation of MCBA at CFM Central

It was recently determined that the MCBA system should be implemented at CFM(C). From lessons learned in implementing this accounting system at Maputo, it does not appear to make sense to attempt a similar process at Beira. The previous recommendation of consolidating all finance and accounting functions at Maputo should be implemented. The current staff at Beira could serve as a data-gathering source that provides and accumulates the information to be transferred to Maputo for input into the accounting system. The transmission of data between Beira and Maputo does not need to sophisticated. If it is determined to implement the system in Beira, the Maputo experience should serve as the baseline.

RECOMMENDED ORGANIZATION OF CONTINUED TECHNICAL ASSISTANCE

Future technical assistance should continue to provide guidance in the areas currently identified under the existing program. The program should have additional focus in the areas of overall internal controls, payroll, and receivable credit and collection. A proposed structure follows.

The budget function should be expanded to address all the internal control issues, including development of policies and procedures to address the major accounting functions of CFM. This will be a key position and should be staffed by an individual with a strong accounting background, designated as a CPA or equivalent.

General accounting and cost accounting should be merged and should be directed by one TA team member. The function should continue to produce historical financial data using the existing accounting system. Modifications in the existing chart of accounts should be explored in an effort to consolidate and simplify the existing coding required for both general ledger and cost accounting

purposes. A decision needs to be made about what value would be obtained by developing a cost accounting system for information to be used in making tariff decisions. This does not appear to be an immediate business need given the World Bank revitaliza.ion project. This area could be handled by one TA team member with a solid accounting background.

The current operations area includes accounts receivable, accounts payable, and treasury operations. This area should be expanded to include payroll and material accounting requirements. The material accounting area would include maintaining the average pricing for material that has been priced under the current technical assistance program. Inventory components that have not been reviewed should be assigned a nominal cost for future financial statements, and further efforts to computerize this information should not be made until all excess and obsolete inventory is disposed. A prime focus of this area should be to improve the collections of accounts receivable by implementing good credit and collection policies and timely billing. In addition, numerous payroll issues need to be addressed. This function may require up to three TA team members.

There is no immediate need to provide an auditing function in the near term.

Continuing involvement in the material management and procurement areas should focus on maintaining the inventory pricing noted above. Consideration should be given to providing assistance in the sale of the tremendous amount of scrap. This would require one individual with a background in material management, if desired. This individual should ensure that the maximum amount is generated from the sale of scrap.

The integrated financial system will need continuing technical assistance to remain functional. Because of the critical need to keep this system operating to address control issues at CFM, two individuals should be assigned to this area. The individuals in this area should be very familiar with the MCBA system at CFM.

The need for a team leader is unclear at this time. If possible, the responsibilities for this role could be shared by all members, with one individual serving as leader and addressing one of the above-noted areas.

To form a truly effective team all team members should be fluent in English. This is necessary to make sure that the free flow of information and exchange of ideas occurs among the team on a daily basis. This will also result in a more unified team.

As noted, the TA team needs to operate in a line function and CFM management needs to delegate the authority required to accomplish this task. This delegation needs to be clearly understood by all CFM employees and management.

The TA team should be required to work in accordance with a well-defined work plan. The work should include specific performance measures so that progress can be monitored readily.

SUMMARY

The need for continuing assistance clearly exists, but for the TA team to be effective, USAID must encourage the more positive involvement of CFM management with technical assistance activities. Numerous factors have contributed to the disappointing results of the current technical assistance effort; however, one of the biggest factors is CFM management. CFM management does not appear willing to accept the recommendations from the TA team. This issue must be addressed in determining the future level of technical assistance. CFM management must also accept, at a minimum, that the TA team be given a line authority to accelerate the process of preparing the finance department to support the revitalization project.

The current TA team is ready for a new direction. However, some changes need to be made in the management and makeup of the TA team if assistance continues after June 1994. The TA team should function as an integrated team with short-term, measurable goals.

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Current TA accounting system efforts will not result in a complete financial statement that can be audited. The absence of fixed asset and valid inventory valuations will prevent the preparation of complete financial statements. The absence of internal controls calls into question the validity of recorded data. Certain aspects of CFM may be subject to audit, primarily receivable revenue transactions and expense transactions paid in cash. However, the absence of a capitalization policy calls into question the accuracy of expense transactions. Some transactions currently recorded as expense may represent capital additions that should be added to the fixed asset base and depreciated. An accounting system is only as good as the data put in that system, and the quality of data is determined by the controls and policies in place in the organization. There are few, if any, controls currently in place at CFM.

5. Management Information Systems Component

INTRODUCTION

The RRSS project is financing the procurement, installation, and implementation of computer hardware and software at CFM, with the purpose of computerizing the finance and accounting and the inventory and procurement management functions.

The main contractor conducting the implementation activities is Louis Berger International, Inc. LBII has contracted with MacLove Computer Systems, the South African representative of MCBA, an American software company, for the installation and implementation of the MCBA integrated software package. MCBA is an integrated financial management and manufacturing application that primarily processes the critical financial and operational information of organizations involved in manufacturing activities.

MacLove Computer Systems has also been charged with installing all the hardware procured by the RRSS project; translation of the MCBA screens, menus, and help screens into Portuguese; adaptation of MCBA to CFM requirements; and training of key CFM personnel in the management and operations of the system. Furthermore, MacLove is installing and implementing all the required telecommunications infrastructure.

The MCBA system at CFM involves a combination of terminals, microcomputers, and printers running the SCO/UNIX operating system. There are systems currently installed at four CFM sites: Finance and Accounting; Stock Control and Procurement; Stores (at one of the storerooms); Informatics (CFM computer center).

Two installations, at Procurement and at Stock Control, are part of the CFM Stores and Procurement functional area. The Informatics site also includes a training classroom where all MCBA training takes place. There are two installations within the Finance and Accounting function. All of the sites communicate with the Informatics site via radio modem. The central file server has been installed at the Informatics location.

OBJECTIVES

The objective of the computerization component of the evaluation is to advise the RRSS project management team on the most cost-effective means for maintaining the computerized financial accounting and inventory management systems being implemented by LBII. The recommendations that will assist the project managers in determining the strategies to pursue between the end of the contract with LBII (June 1994) and the PACD (December 1996), and taking into consideration the need for information of the analytic studies to be conducted under the upcoming World Bank–funded Maputo Corridor Revitalization Technical Assistance Project, scheduled to begin in early 1995. The objectives of the evaluation are to

- Assess the status of implementation of the computerization aspects of MCBA;
- Evaluate the performance and results of the implementation of MCBA within CFM;
- Assess the capability of CFM computer staff to operate and support MCBA without the assistance of the LBII TA team;
- Review LBII's implementation plans for the remainder of the contract; and

- Together with the Burlington Northern consultants, identify and propose potential alternatives to the implementation methodologies being currently employed by LBII within CFM's financial, inventory, and information systems departments.

FINDINGS AND RECOMMENDATIONS

As stated in the previous section, the objective of the evaluation is not only to provide the RRSS project managers with an assessment of the work conducted to date within CFM by the LBII technical assistance team, but also to provide a set of recommendations to be implemented between the end of the LBII contract in June 1994 and the startup of the proposed World Bank project in January 1995. The recommendations contained herein will provide the project with an objective blueprint for ensuring that the significant RRSS project investments in information technology resources are sustained until the future of CFM is decided.

Technology Transfer

Findings

Technology transfer is defined as "the process by which modern management and operating procedures, methodologies, and knowledge are transferred by a project's technical assistance implementation team to the host-country institution being assisted by the project." The technology transfer aspect of the RRSS project's information technology component has progressed very slowly because of the large needs for training in basic skills.

The LBII TA team is completing the installation, implementation, and customization of CFM's critical applications using the MCBA package and other software tools. The evaluation team believes these applications are a significant achievement in terms of providing CFM with modern and efficient capabilities for information processing and management. However, the evaluation team believes that CFM has been unable to either use the information being provided by the system or to participate in the maintenance and administration of the systems implemented. Although CFM managers are not capable of grasping the knowledge imparted by the LBII team, it is apparent that key CFM managers are aware of LBII's efforts and the potential benefits to CFM whenever these efforts are finally assimilated into CFM management and operating culture.

Recommendations

The evaluation team recommends that the RRSS project refocus its project implementation strategy from trying to transfer technology to CFM in an advisory capacity to actually assisting CFM in its operational and line management tasks. It is recommended that the contracts of at least two of the current LBII TA systems analysts be extended after June 1994 in order to complete the ongoing information technology implementation efforts. In addition, these individuals should be charged with actually providing the line functions not being provided by CFM's Informatics Department (see later subsection). Rather than continuing to try to prepare CFM for taking over the information technology resources, the LBII advisers should actually manage and maintain the systems themselves. The LBII advisers should continue with all the implementation tasks not completed by the end of June 1994. In addition, they should be charged with disseminating to all CFM managers the benefits of using computers to manage and process information.

Installation and Implementation of MCBA

Findings

From a technical point of view many of the modules are operational, but because of lack of reliable input data, and as discussed in the financial section of this report (see Chapter 4), little useful information is being generated. A few of the modules are not yet operational and other modules will not be implemented at all, since a decision was made to consider hiring a private contractor to operate CFM's diesel shed. The following table shows the status of each of the MCBA modules:

Module	*Status*
General Ledger (includes Budget and Cost Accounting)	Implemented and operational
Fixed Assets	Implemented and operational
Accounts Payable	Implemented and operational
Accounts Receivable	Implemented and operational
Inventory Management	Implemented and operational
Purchase Order and Receiving	Implemented and operational
Customer Order Processing	Implemented but not operational
Foreign Exchange Processing	Implemented but not operational
Material Requirements Planning	Will not be implemented
Shop Floor Control	Will not be implemented
Job Costing	Will not be implemented
Material Requirements Planning	Will not be implemented
Standard Product Routing	Will not be implemented

In addition to the MCBA modules, the LBII technical assistance team has implemented several small systems for specific applications. These small applications are providing increased processing functionality in areas where MCBA lacks processing flexibility. Furthermore, the FlexGen report writer software package, the Informix database management system (DBMS), and the dBASE IV DBMS are being used for specific report writing and other requirements.

Recommendations

A significant number of CFM information processing and management requirements will remain to be addressed after June 1994. The TA team will need to assume a line function rather than act in an advisory capacity and must perform the functions that the CFM Informatics Department would perform if it were adequately staffed. The TA team will provide computerization support to CFM managers, provide the system administration functions, develop new software applications for specific requirements, and continue adapting the MCBA software to existing requirements.

CFM Informatics Department

Findings

The CFM Informatics Department (the central information systems department within CFM) has unfortunately not been involved in any significant way in implementing MCBA. Several Informatics staff were trained and two are assisting with systems administration tasks. The RRSS project has also funded an onsite adviser to the Informatics Director. However, for the most part involvement of the Informatics Department has been minimal.

Even though the servers for the entire system are located at the Informatics site, only a few Informatics staff have become knowledgeable in the technologies. In addition, more than 100 CFM

staff (more than 30 from Informatics) have been formally trained as users of MCBA. However, few Informatics staff have ever worked with or have shown further interest in MCBA. (Of the current users of the MCBA tools, none is apparently in Informatics.) CFM's Informatics Department has consistently been unable to participate in or contribute much to the entire project. The LBII team has apparently been unsuccessful in its attempts to use Informatics staff as counterparts during the entire MCBA implementation phase of the project.

CFM's Informatics Department has been ineffective during the entire project and is generally nonessential to the entire operation of CFM. In other words, the Informatics Department is detached, both physically as well as functionally, from the other CFM functional areas. Informatics has no understanding of the information processing requirements of the various CFM organizations. Rather, the department concentrates in two applications generally considered by the rest of the organization as unreliable. Informatics has no staff with the skills or capabilities to contribute much to the implementation of MCBA at this point. Informatics is staffed by about 60 people, of which there are three programmers and three operators. It is unclear what the remainder of the staff does.

Nonetheless, the Informatics Department has a sophisticated hardware and software infrastructure (e.g., two Siemens minicomputers, microwave telecommunications, uninterruptible power supplies (UPS), the Informix DBMS). However, as stated in the previous paragraph, the department runs only two applications, the reliability of which is questioned by other CFM departments. For example, one of the applications is a wagon tracking system designed (11 modules were designed; only one was actually developed) during a 7-year period by a technical assistance team from India Railways. This system, if working properly, would allow CFM to track foreign wagons on CFM lines, thereby minimizing the charges CFM has to pay the country that owns the wagons.

According to Informatics management, the system works well. However, according to other CFM staff who are aware of the costs incurred by CFM in wagon charges (see Appendix B), the system does not provide the information needed to minimize the money CFM pays foreign carriers. For example, the system is designed so that terminals located at several points on the rail line to South Africa are used to enter wagon information data. When a train passes, an operator enters the wagon's identification into the system (which communicates via microwave communications to the Siemens machines in Maputo). This enables the system to determine the location of a South African wagon within the CFM system at a particular point in time. However, most of the terminals and connections at the points on the line either have not yet been installed or are not operational. This has been the case since the evaluation team's first visit to CFM (September 1991). There are cases in which a train conductor brings to Maputo data (the *consist*) regarding the wagons. These data are then entered into the computer. However, this process is sporadic and unreliable. Therefore, it is easy to conclude that for all practical purposes, the wagon tracking system does not accomplish what it was designed to accomplish.

The other main Informatics application is payroll. The payroll application was originally written in COBOL in 1975 for an IBM mainframe. It was later converted to run on the Siemens machine (also in COBOL). According to Informatics, the payroll application runs flawlessly. However, according to other CFM staff and to the LBII TA team, the application and the procedures used to process it are flawed. In other words, payroll information is delivered to Informatics and processed. However, most of the time the information entered and processed is unreliable and incomplete. This is a classic example of GIGO (garbage-in, garbage-out). (Please note, however, that corrupt information is not necessarily the fault of Informatics.) There are no checks and balances or controls on the payroll or the information used to process it. Among other things, there is no way of knowing the number of employees or where exactly they are assigned to. It is apparent, as discussed in more detail in Appendix B, that CFM's antiquated payroll application may be a major financial drain to the

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institution. However, Informatics staff are completely unaware of this situation and are currently not involved in any efforts to alleviate it.

Recommendations

It is recommended that CFM's Informatics Department, except for the two Informatics operators trained by LBII as SCO/UNIX system administrators, not be involved in the development of the MCBA system during the remaining phases of the project. Informatics has not been able to contribute positively to and has not assumed any role in the implementation of the MCBA technologies. Furthermore, even though Informatics possesses substantial tangible (hardware and software) information technology resources, it does not have sufficient staff or management with the background, experience, or skills necessary to appropriately run an information systems function of an organization of the size and complexity of CFM. The onsite LBII adviser to the Informatics Director is expected to produce a report for the reorganization of Informatics. Unfortunately, regardless of the appropriateness of the future recommendations by the LBII adviser, the evaluation team is pessimistic about the probability of success of any reorganization at this point.

In an organization as physically dispersed as CFM, Informatics should be the function providing critical processing and telecommunications support to the rest of the organization, in order to allow it to functionally integrate its critical data and information. This has not happened and will not happen as long as the organization remains structured as it is today. Informatics requires assistance and support that the evaluation team considers to be beyond the scope of the RRSS project. However, since the RRSS project's objectives in information technology implementation were designed to specifically not rely on Informatics as much as on the line functions (e.g., Finance and Stores), minimizing the involvement of Informatics in the RRSS project's efforts will not be particularly felt. The only current RRSS project involvement with Informatics is that the MCBA file servers are located at the Informatics site The success story within Informatics is the two Informatics operators trained by LBII as SCO/UNIX system administrators. Even though their knowledge is limited, they are able and willing to conduct basic system administration and management tasks.

To conclude, making the Informatics Department a viable information systems function is a complex endeavor and will have to be tackled by whatever technical assistance is given to CFM by the upcoming World Bank project. The RRSS project has consistently attempted to incorporate the Informatics Department function into the technology implementation project. Unfortunately, these attempts have been unsuccessful and Informatics cannot at this point assume ownership and maintenance of the MCBA applications.

Staffing

Findings

Historically, CFM staff have had little or no knowledge of or expertise in information technology tools. As stated previously, even the expertise of the Informatics staff is considered limited. Although both the RRSS project managers and the LBII technical assistance team committed substantial resources and efforts to train CFM staff, most of the staff trained have shown little interest and motivation for actually learning and putting the knowledge to use. Partial cause for this, however, was the delay between the formal training courses and the actual implementation of MCBA. There are, however, a few cases in which individuals have excelled and are now occupying positions of importance within CFM. However, of more than 100 CFM staff trained, few are actually involved with the MCBA applications.

At the same time, the processing of CFM information with MCBA applications has started to produce results well beyond the expectations of anybody at CFM. For example, CFM now has MCBA output reports that allow it to check its financial records against CFM financial records produced by the banks. The bank reconciliation system has allowed CFM managers to uncover shady internal practices and other errors that previously went undetected. Another example is daily invoicing. The billing and invoicing system developed using MCBA and other tools will allow CFM to invoice its clients one day after services are rendered. It used to take about 90 days between the time services were rendered and the time CFM received payment. All these changes and efficiencies are causing significant alterations to the way CFM conducts business. It is apparent, however, that CFM management is slowly grasping the importance and significance of these changes to the organization. Nonetheless, the average CFM employee has been slow to understand the changes. In a way there has not been the expected resistance to change that would normally result from a technology implementation project such as this, where technology will more than likely cause the eventual loss of jobs.

Recommendations

The evaluation team believes there is not much the RRSS project can do in the remaining time to alleviate the staffing problems at CFM. Without the current CFM "corporate culture" being significantly altered to allow for rewarding and promoting hard-working and dedicated individuals, and for punishing and dismissing unproductive and corrupt employees, it is believed that no amount of technical assistance will bring measurable enhancements to the performance of CFM staff.

There have been some successes in identifying young professionals that have been trained and are working side by side with the TA advisers in all areas of MCBA implementation. Unfortunately, there are few of these cases. These individuals should be nurtured and supported since they will undoubtedly be an important part of any future CFM organization.

As described in several previous sections, the evaluation team recommends that the LBII TA advisers that remain with the project until the World Bank project takes over assume roles of actually conducting the line functions of the various departments (in some cases this is already happening). It has been difficult for the TA team to implement changes while acting solely as advisers. The objective from June 1993 on will not be to prepare CFM staff to take over the management and ownership of the technologies. Rather, the objective should be to maintain and sustain the technologies, advances, and investments made so far by the RRSS project. CFM staff and management have not yet grasped the tremendous benefits that these advances will bring to CFM. However, some of the managers are aware of the products being delivered by the MCBA applications and will undoubtedly request and require further access to this information.

Hardware and Software Issues

Findings

All the hardware, software, and telecommunications equipment purchased under the RRSS project has been installed. The installations have actually been conducted several times more than originally planned because some of the departments moved to new offices. However, the main departments are connected and communicating with the MCBA servers located at Informatics.

Various minor issues remain unresolved. For example, the radio modem antenna used for data communications between the servers and the Inventory Management function is blocked by a large building, causing problems in data communications. The servers' disks are slowly becoming full of

data and the increase in processing requirements is causing a degradation in performance. Furthermore, as new specific applications are being developed and brought on-line, needs for additional terminals, microcomputers, and printers are being identified. Another issue to consider is the lack of an RRSS-procured UPS for the servers. The servers are now connected to the Informatics UPS. However, this UPS is highly unreliable and is causing problems for the MCBA servers every time it fails.

Recommendations

The evaluation team recommends that the RRSS project consider conducting one last procurement of required hardware and software commodities. The LBII TA team has been instructed to conduct a brief needs assessment to prepare a list of the items that CFM needs once all applications are on-line. It is suggested that the RRSS project consider procuring the latest technologies (e.g., Pentium-based servers) to ensure that the MCBA applications have the best and most efficient platforms for processing and that CFM management is made aware that the RRSS project has made every effort to implement state-of-the-art technologies within the institution. The evaluation team suggests that LBII consider installing microcomputers (e.g., 486SX processors) rather than "dumb" terminals as workstations and that they be equipped with at least word processing software besides access to the MCBA applications. The evaluation team also suggests procuring a UPS to be used strictly for the file servers. As stated earlier, the LBII advisors should prepare a final list of items to procure before June 1994.

Miscellaneous Issues

It is apparent that the LBII team has achieved tremendous success by implementing systems that produce useful and important information for CFM managers. However, the evaluation team believes these achievements are not altogether known by key CFM managers. LBII must take the time to educate CFM management not only on the achievements of the systems being implemented but on the operational and functional deficiencies encountered during the analysis of CFM procedures. The analysis phase uncovered many CFM deficiencies in managing its finances (collecting what was owed and minimizing what was spent). Although the systems are providing CFM with increased capabilities for monitoring and controlling its finances, it is not apparent that these achievements are being disseminated to the appropriate authorities for action. In other words, the LBII team must be much more aggressive in advertising its successes throughout the CFM environment and must show CFM managers not only what information the systems are producing but what can be done with the information produced for the benefit of the organization. No amount of investment in information technology will alleviate problems caused by existing inefficient operating procedures.

CFM managers are usually slow in making the critical decisions that the LBII team needs in order to proceed with implementation. Most decisions, regardless of the magnitude, are usually made at the highest level of CFM management. This decision-making process has sometimes hindered LBII's implementation activities. The evaluation team believes that in environments such as CFM, a technical assistance team must operate flexibly, allowing the advisers wide latitude for implementing appropriate solutions to specific problems. Succumbing to the host organization's rigid and bureaucratic procedures can only detract from the efforts to implement technology and is in the long-run detrimental to all.

6. Sustainability of CFM Operations After Technical Assistance

EXPECTATIONS AFTER TECHNICAL ASSISTANCE

World Bank Revitalization Program

Since the midterm and interim evaluations the World Bank and other donors have prepared a strategy to revitalize and turn around the performance of CFM(S). The new strategy developed by the donors is designed to actively promote the involvement of the private sector in operating the CFM(S) transport corridor.

This initiative was taken in response to concerns by the donors that the assistance strategy pursued to date was not working for the following reasons.

First, the strategy was not integrated to ensure a balanced approach to improve all the parts of the system. Only some of the key deficiencies such as improvement of tractive power and financial systems were addressed. Other important functions such as good marketing and reliable operations essential to recapture traffic received almost no attention.

Second, the lack of performance objectives in the operational and financial area contributed to the lack of pressure on or incentive by management to improve.

Third, it is increasingly apparent that in order to implement modern financial systems and procedures, the levels of education of CFM staff need to be raised to levels commensurate with their job responsibilities. (A recent survey by the TA team identified only 1 percent of the 296 staff in the CFM financial department who have more than an elementary school education.)

Finally, it is now realized that unless CFM speeds up the rate of service to shippers in South Africa, Zimbabwe, Zambia, and Malawi, their trade may be difficult to regain. In fact, it may be lost forever. For example, the South Africa is seriously considering the construction of new coal terminals in its own ports even though shipment through Maputo is potentially less expensive. The same is true for sugar from Zimbabwe, where sugar producers are contemplating the construction of a sugar terminal in the port of Port Elizabeth. Once an investment is made in such terminals, it will be difficult if not impossible for CFM to regain the lost trade.

The management requirements imposed on CFM(S) in the new corporate environment will depend on the management option selected by the government and the terms of the contract between CFM(S) and the private contractor. In general, however, the higher the participation of the private sector, the less the requirement for accounting.

Agreement between the government and the donors has been reached in considering three forms of management reform involving a greater portion of the private sector. In order of increasing involvement these are as follows.

- **Option 1: Award concessions to private operators to manage and operate specialized terminals at the port of Maputo.** A number of such terminals (sugar, coal, citrus) have already been leased or are in the process of being leased to private operators, and this form of management is therefore a continuation of an existing policy objective pursued by CFM(S).

Implications: This option involves the least involvement by the private sector, and is, in essence, a continuation of the existing CFM structure and mode of operation. This option therefore imposes the largest financial and operational management burden on CFM. Although the lease of certain port terminals will reduce the burden for management of port operations and payroll, the lease of rail assets is not included in this alternative. Without a reasonably efficient rail system, little of these bulk cargoes can be expected to move through the port of Maputo; therefore, CFM(S) must continue to strengthen its capability to manage rail system operations.

- **Option 2: Create a transport corridor conglomerate corporation, awarding operating concessions for selected activities by the subsidiaries of the private sector.** Under this scheme each of the corridor operating divisions would be incorporated as a fully owned subsidiary of CFM. Investment planning by CFM would be centralized, as would the cash generated from operations of the individual subsidiaries. Each subsidiary would be governed by an administrative council including representatives of the private sector. The public sector would be responsible for maintenance, railway operating subsidiaries would be formed under CFM, and concessions would be awarded to the private sector to operate selected activities in the port and railways. For example, the port of Maputo might be organized along the lines of a "landlord" port in the United States, where the port authority—a public entity—owns the major assets of the port and the functions of the port, such as stevedoring, would be operated by the private sector.

  Implications: The requirements on the financial management system are somewhat less than for Option 1 because many of the port operations will be carried out by the private sector. For example, the private company operating the stevedores at one of the port terminals will maintain its own payroll records, pay its own operating costs, and bill its own clients. Conceivably, and depending on the exact nature of the contractual arrangements, CFM's financial department's task could be limited to simply ordering external audits and collecting the franchise fees. Conversely, to properly calculate the terms of a lease or franchise the CFM financial management department will have to provide accurate estimates of the value of the lease or franchise. This, among other things, will require sound financial information on the asset base, as well as good cost accounting procedures.

- **Option 3: Award a master lease (concession) to one private sector operator to manage all parts of the system except functions such as safety and navigation, which will remain the responsibility of the public sector.** The main features of this management reform scheme are that all useful assets and productive workers selected by the lessee will be transferred from CFM(S) to a new organization. The new organization will both manage directly and will sublease these assets to third parties, or it may enter into operating agreements with existing transport organizations such as the National Railways of Zimbabwe. The master lessee will be responsible for meeting the level of profitability and level of service specified in the lease agreement. Nonuseful assets, scrap, and personnel not selected by the master lessee will remain under the responsibility of, and will be managed and disposed of, by the old CFM(S).

  Implications: This option involves the private sector to the maximum extent and therefore involves a considerable shift in the type of financial management required for CFM(S). The private sector will manage its own payroll, accounts payable and receivable, procurement and inventory, and other functions. Thus, the burden for detailed (low-level) accounting by CFM(S) will be reduced. However, greater emphasis will be placed on developing the high-level financial information needed by management, and CFM(S) will need a strong fi-

nancial system to calculate, among other things, terms of lease and franchise most advantageous to the government; to plan expansion when and where needed; and to enable effective oversight of the assets leased to the private operator.

TIMING OF THE REVITALIZATION STUDY AND REDEPLOYMENT OF CFM ASSETS AND PERSONNEL STUDIES

The technical and financial analyses required to identify the best management reform and redeployment options to be carried out under the World Bank revitalization project and USAID's assets and labor redeployment project may begin as early as January 1995. This leaves only 6 months after the end of the current technical assistance (scheduled for June 30, 1994) to strengthen the financial department at CFM so that it can support these studies. The quality of the data available to the study teams in the areas of historical costs, characteristics of the labor force, and value of the assets will have a profound effect on the quality of their studies.

7. Justification for Continuing Technical Assistance in the Financial Area

Since the March 1993 interim evaluation the TA team in the financial area has made considerable progress and is now at the point at which the financial system, from a technical point of view, is working well. The focus should now increasingly be placed on populating the system with quality data so that they can be used for decision making. The CFM(S) financial staff, however, as explained in Chapters 4 and 5, are not yet able to develop the internal controls and other functions to ensure quality input data. An important reason for continuing technical assistance therefore is to consolidate past gains and to assist the staff with populating the system with accurate and reliable data.

Another, and perhaps more important reason for continuing technical assistance is that the forthcoming World Bank revitalization study and USAID's redeployment of assets and personnel studies will be of better quality, and progress will be faster if there is a sound database covering areas such as historical costs, market value of assets, and number and characteristics of the labor force. As discussed throughout this report, the present financial system is far from this point. At the present slow rate of progress, prospects are dim that the CFM financial department will, without technical assistance, be able to reach this point within the 6 months before the study teams must start their work.

One of the most important reasons for the slow progress is that the TA team members are acting in an advisory and training role. They do not have line authority (although this was recommended in an earlier evaluation) to assign CFM financial staff to tasks deemed important by the TA team. The advisory role is appropriate for technology transfer and achieving sustainability. However, the educational level of the CFM accounting and computerization staff is not sufficiently high to permit fast progress toward reaching self-sustainability. The experience of the TA team has shown that even with generous amounts of training, it was not possible to raise the educational level sufficiently to permit fast progress.

Given the slow progress over the past four years, is it possible to strengthen the financial department sufficiently by January 1995? The evaluation team believes the answer is yes if the TA team is given line authority over the CFM staff. The team believes that with this modification in the authority of the TA team, it will be possible within the 6 months between the end of the contract and the start of the World Bank study to install a financial system that will provide sound information for the decisions that need to be made under the World Bank and USAID studies.

Appendix A

STATUS OF RECOMMENDATIONS MADE BY THE EVALUATION TEAM IN MARCH 1993

The following sections present the recommendations made by evaluation team during the March 1993 evaluation of the RRSS project and the status of the recommendations in February 1994 as noted by the technical assistance team.

1993 RECOMMENDATION	STATUS IN 1994
MacLove System	
"The technical assistance (TA) team must quickly gain a full understanding of the details of the MacLove system. This will expedite the implementation process and ensure the timely development of the necessary front-end support systems."	Recommendation followed. The implementation was concluded on time and all systems are operational.
Organizational Issues	
Audit: "As discussed in the Midterm Evaluation, in order to avoid conflicts of interest the audit department should report directly to the director general."	Recommendation to be implemented by CFM. The Finance Director has acceptable motives for the delay.
General Accounting and Current Operations: "The organization proposed by the TA team will, in the long run, require more employees with strong accounting skills rather than a more centralized structure."	The situation was reviewed and reformulated by the TA team. However, CFM did not accept the centralized structure proposed by the evaluation team. CFM(C) decided to have its own system. Instead of centralization CFM will have only consolidation at the CFM(DG) level. This action will require more skilled personnel.
Facilities: "To improve the flow of information between subdepartments and to minimize the managerial skills required to effectively manage accounting functions, the accounting departments should be located close to each other and would best be served by fewer rooms that are larger. Separating the accounting work space will require additional managerial skills to sustain a functional system."	The accounting and financial functions of CFM(DG) are now under one roof. However, this is not true of CFM(S). CFM(S) will continue to be spread over a number of locations until renovation of the main building is complete (end of 1994 or beginning of 1995).

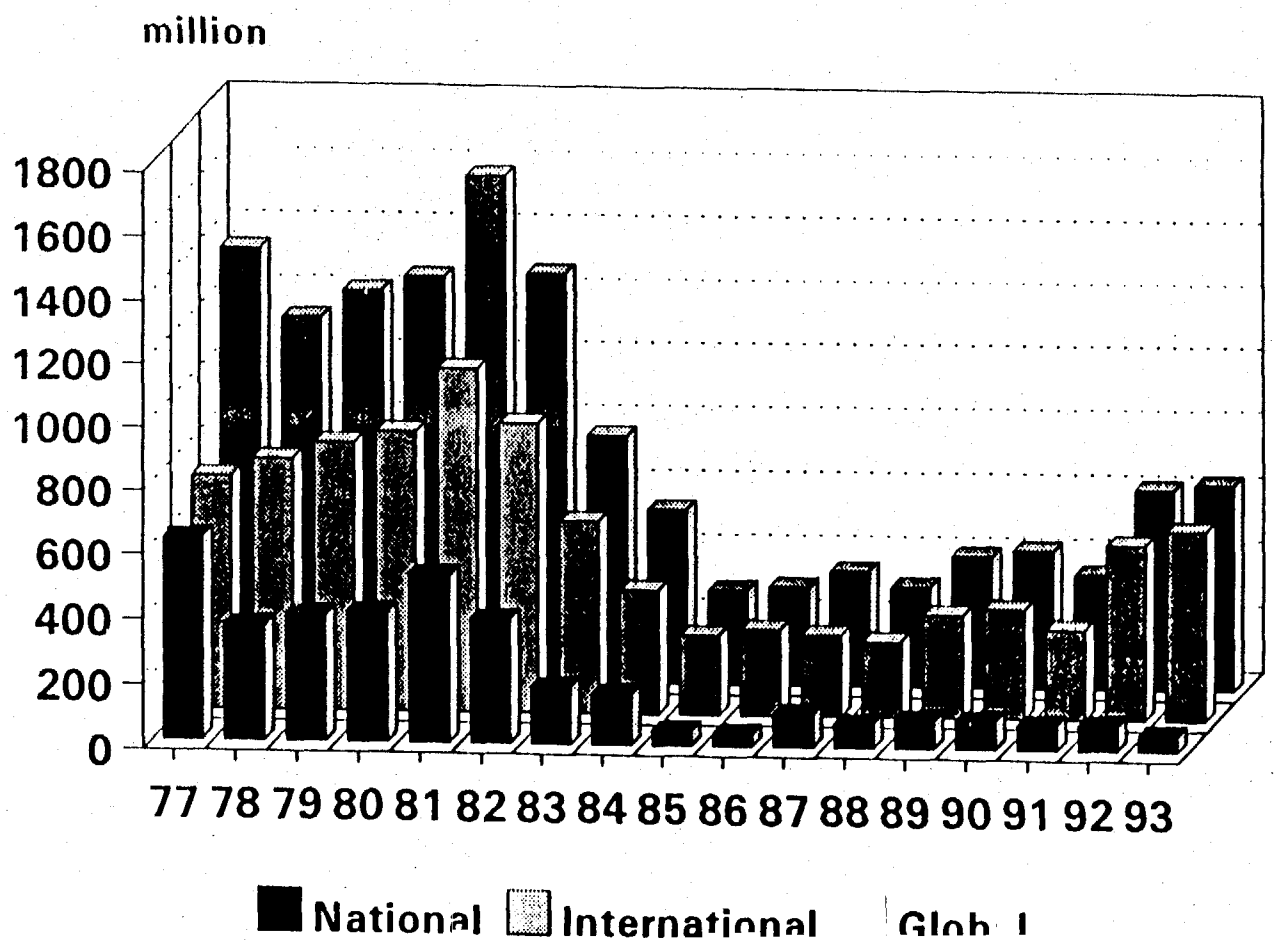
1993 RECOMMENDATION	STATUS IN 1994
MacLove System (continued)	
Fixed Assets Study: "In order for the Caminhos de Ferro de Moçambique (CFM; National Railway of Mozambique) account ledgers to be meaningful, a complete fixed-assets study must be undertaken as soon as the security situation allows a physical evaluation and the accounting system can incorporate the information."	The TA team presented to CFM a recommendation for that purpose. There was no visible action from CFM management, who were awaiting the results of their plea to financing agencies to support the costs of such an endeavor.
Implementation Process: "To expedite the implementation process and provide a higher quality of on-the-job training, it is necessary that the CFM staff report to the TA team."	CFM did not follow the recommendation. Consequently, implementation was completed with delay, and on-the-job training suffered. There were some changes in personnel from the positions initially indicated, which affected training and operations performance.
Implementation	
Presentation of Material	
Current TA Documentation: "To produce useful documents, CFM must participate in the evaluation of the documents. The TA team has indicated that CFM is currently reviewing the documents. This review should be encouraged and supported through USAID (Finance) participation."	CFM reviewed all documents and presented recommendations that were incorporated into the final editions.
Training Material: "The existing material is too theoretical for application in practical training. A technical writer should be hired as soon as possible to create training documents that are clear, concise, and visually appealing and that contain step-by-step instructions for long-term training."	It was not possible to hire a Portuguese-speaking writer. The TA team wrote some step-by-step training manuals for the more critical areas, such as operation of the MacLove system at terminals and PCs; detailed manuals for Current Operation, consisting of cash, banks, invoicing, collection, accounts payable, and accounts receivable; a detailed manual for the budgeting system; and a user's manual for cost accounting.
Training: "Training (including senior-level management discussions, as proposed by the TA team, and on-the-job activities) should begin as soon as possible to improve the likelihood of information transfer from the TA team."	It was not possible to have the training as required. There were delays, and the training will continue as far as possible.

1993 RECOMMENDATION	STATUS IN 1994
Implementation (continued)	
Weekly Meetings: "Informal weekly meetings with consistent participation from USAID, the TA team chief of party, and the CFM Director of Finance [are] necessary to ensure speedy implementation of the proposed accounting and finance system and early identification of significant problems."	Weekly meetings between the USAID project specialist and the TA chief of party are held regularly. The participation of CFM has been erratic. CFM decided that the meetings should be attended not only by the finance director but also by the Informatics and the Provisions directors. Although this inclusion is good, scheduling meetings has been difficult because not all managers are available at the same time.
Status Reports: "The monthly status reports currently prepared by the TA team should be streamlined immediately. The information can be transmitted through the weekly meetings as well as through a monthly written summary. The time saved can better be spent implementing the material."	The monthly report was discontinued. It must be noted that the monthly report was not an initiative of the TA team; the TA team was only requested to present it.
Inventory Control and Procurement	
There were no specific comments from the evaluation team.	Because of MacLove system requirements, inventory control and purchasing were incorporated into the overall finance and accounting systems and are operating in a consistent manner. The development and implementation of procedures manuals and routines for inventory management and procurement are not complete. However, purchasing procedures and importation control manuals were drafted and submitted for CFM's review.

Appendix B

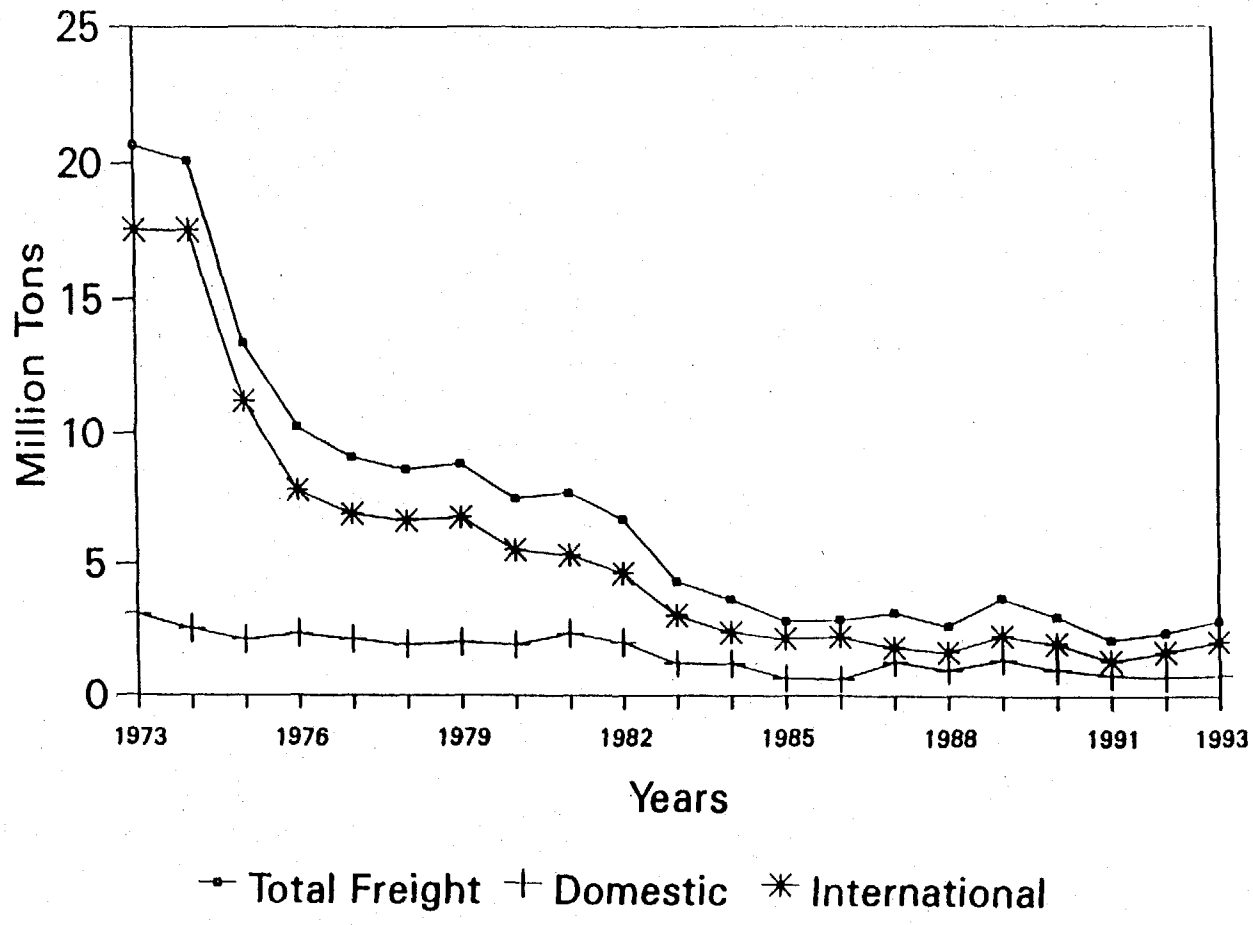
SELECTED OPERATING STATISTICS FOR CFM, 1977–1993

Mozambique Rail
Ton-km carried



MOZAMBIQUE RAIL

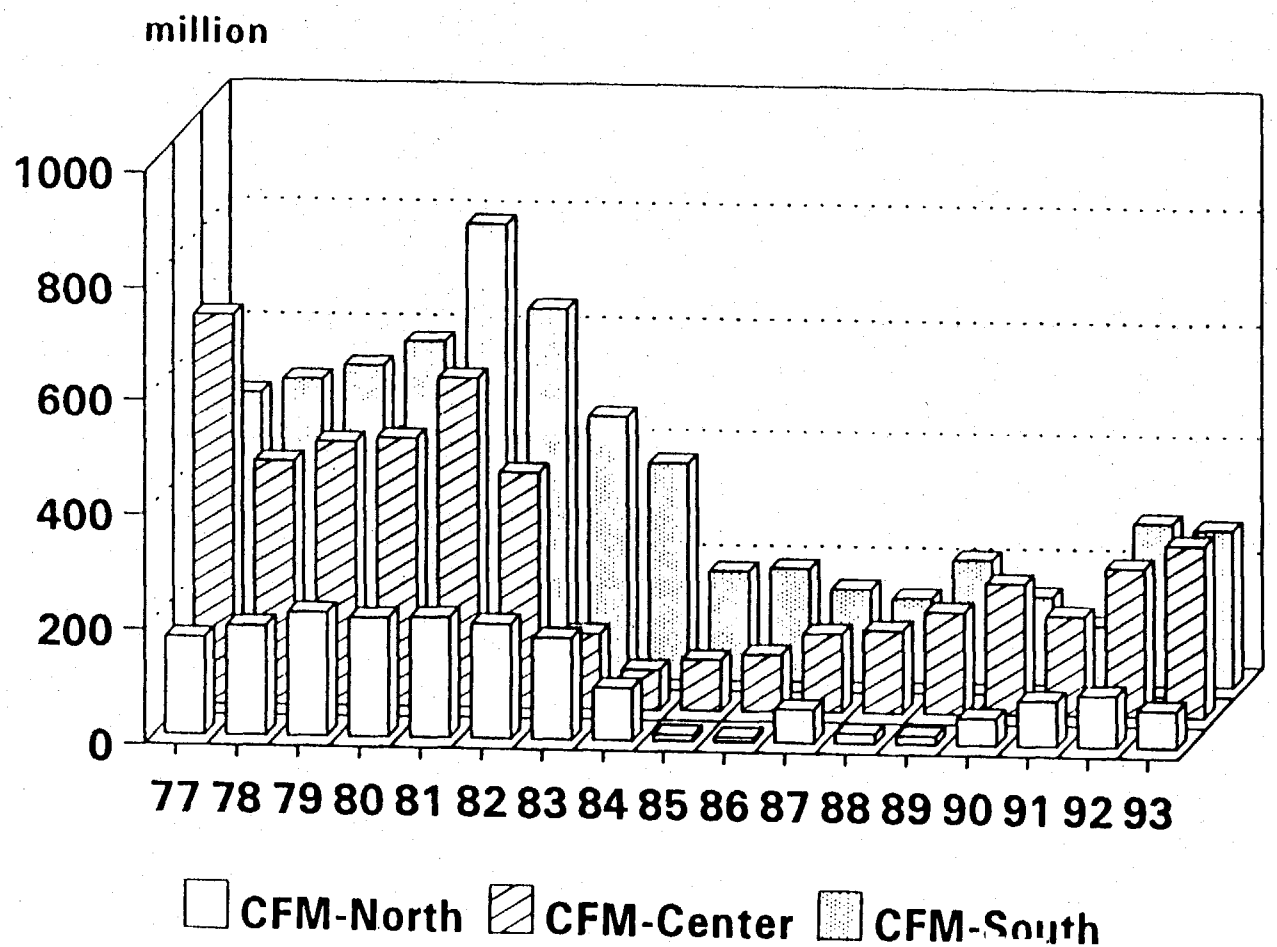
Freight carried



58

MOZAMBIQUE RAIL

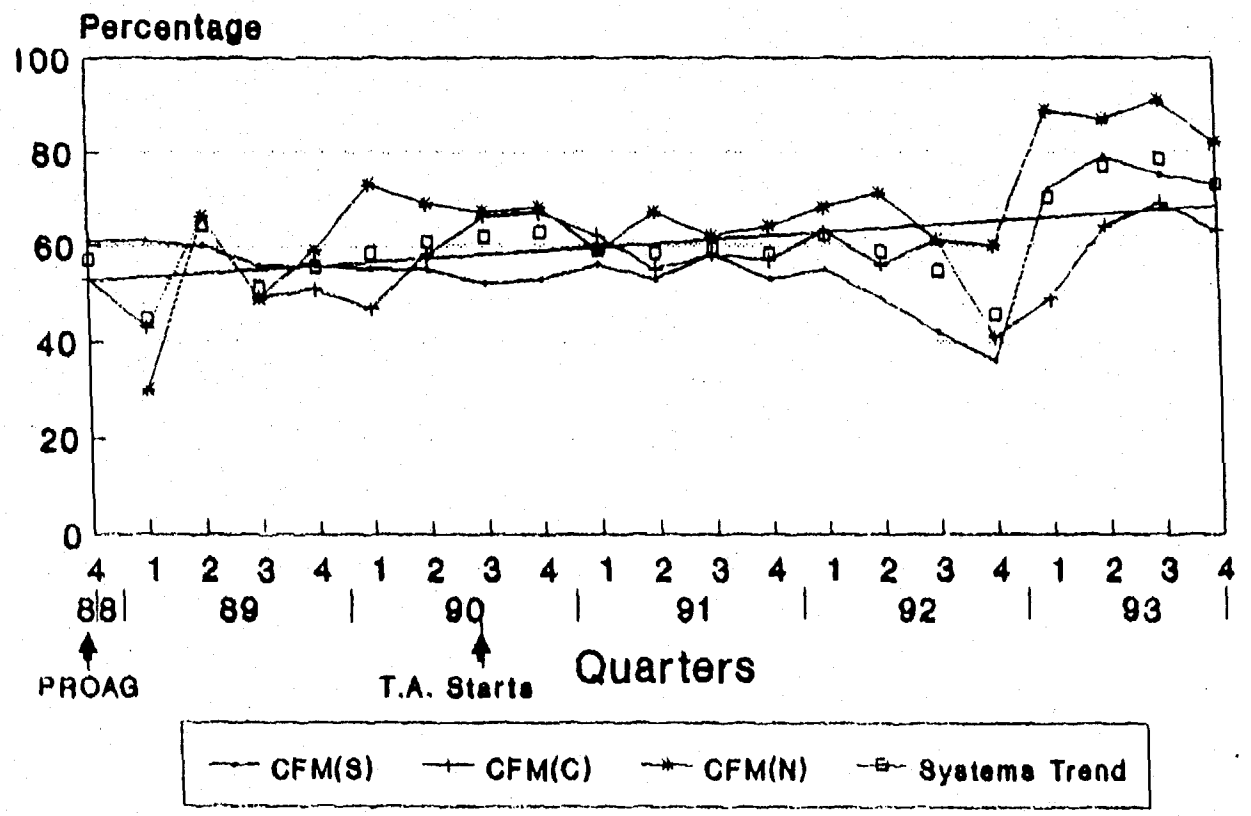
Ton-km by Corridor



Appendix C

AVAILABILITY OF GENERAL ELECTRIC LOCOMOTIVES AT CFM, 1988–1993

CFM
Availability of GE Locomotives



Appendix D

ESTIMATES OF POTENTIAL IMMEDIATE COST SAVINGS TO CFM(S)

INTRODUCTION

This appendix presents estimates of the savings possible through better control of payroll costs, wagon hire, and locomotive diesel fuel costs. The estimates are provided to give a preliminary indication of the magnitudes of funds that might be "leaking" out of the system because of lack of accounting controls. These estimates are not based on reliable data and should not be construed as implying such leaks exist.

ANALYSIS OF PAYROLL COSTS AT CFM(DG) AND CFM(S)

The following analysis was prepared to illustrate the potential financial rewards to be realized by addressing the control issues pertaining to payroll. The analysis is based on July 1993 payroll information received from LBII. The amounts are estimates, because there is currently no method of to calculating the true impact of questionable payroll transactions (all amounts are in U.S. dollar equivalents).

Annual cost of unexplained difference in July, 1993 payroll expense per the payroll system and the general ledger. This amount is assumed to result from the payroll adjustment process:

High estimate (100 percent error rate)	$400,000
Low estimate (50 percent error rate)	$200,000

Annual cost to CFM resulting from invalid salary and pension payments. Expressed as a percentage of total payroll processed in the payroll system in July 1993:

5 percent of total payroll is invalid	$325,000
10 percent of total payroll is invalid	$650,000
15 percent of total payroll is invalid	$975,000

This analysis indicated an estimated total savings to CFM of $525,000 to $1,375,000 in the payroll area.

ANALYSIS OF SAVINGS IN WAGON HIRE COSTS

The costs of wagon hire by CFM(S) are not controlled well and could be reduced significantly by implementing a simple wagon-tracking system. The cost of wagon hire from Spoornet, for example, is US$13.10 per day. In 1993 the time a Spoornet wagon spent in Mozambique ranged between 2.2 days and 6.7 days, with an average of 3.3 days.

Before independence, it was policy to return the wagon within 24 hours of entering Mozambique. This target was not difficult to meet because the distance between the South African border at

Ressano Garcia and the port of Maputo is only about 80 km. It should therefore be possible, with better control using a simple wagon-tracking system, to reduce the average number of days from 3.3 days to no more than 2 days per wagon, a 40 percent reduction.

The following table gives a short history of wagon hire charges paid by CFM(S) for wagons belonging to Spoornet:

Year	*Paid (US$)*
1990	3,163,260
1991	1,468,247
1992	996,371
1993	963,310

The total cost over the 4 years was US$6,591,188, an average of US$1,647,797 per year. If the turnaround were reduced by 40 percent, as indicated earlier, the total saving over the 1990–1993 time period would have been US$2,637,000, an average of $660,000 per year.

SAVINGS BY CONTROLLING FUEL CONSUMPTION

There is anecdotal evidence of considerable pilferage of diesel fuel from locomotives because of lack of accountability.[1] The filler caps on the fuel tanks of the locomotives do not have locks, and no records are kept of the trip kilometers versus fuel consumption.

The monthly consumption of diesel fuel by CFM(S) was 295,000 liters in 1992 and 211,000 liters in 1993, an average consumption of 253,000 liters per month or 3,036,000 liters per year. At an economic cost of about US$0.25 per liter, the annual fuel cost to CFM(S) would be $759,000. It is roughly estimated that better controls on pilferage could reduce fuel consumption by about 10 percent, resulting in a saving of $75,000 per year to CFM(S).

SUMMARY

The total saving from better controls on payroll (for the low estimate), wagon hire, and locomotive fuel consumption would be $525,000, $660,000, and $759,000, respectively, a total of almost $2 million per year.

[1]Unless controlled, fuel pilferage is also a common problem in the United States.

Appendix E

LIST OF PERSONS INTERVIEWED

USAID/Maputo

Roger Carlson
Timothy Born
Robert McCarthy
Peter Argo
Luis Santos
Deborah Nodes

Nathan Associates Inc.

Charles Vandervoort

Burlington Northern Railroad

Michael Newman Dana Maryott

Caminhos de Ferro de Moçambique

Oscar Diniz
Carlos Tamele
Graça Soares
Paulo Tarmamade
Noe Manuel
Avito Jequicene
Ricardo Daniel
Joaquim Zucule
Mariano Mitilage

Louis Berger International, Inc.

Luiz Dahlia
Terry Lodge
Bob Bernard
Mark Foster
Oberland Ferrula
Almir Morreira
Jean Pierre Copain
Mike Macdonald
Sweny Ferla
Barret Morse
Jorge Perrolas
Monte Rosenthal
Alberto da Silva

EXI

Orlando Grosso

MacLove Computer Systems

Giovanni Mottalini
Albert Van Hoof

Appendix F

CFM COMMENTS ON DRAFT FINAL REPORT

The following are comments from Caminhos de Ferro de Moçambique (CFM) on the draft copy ("draft final report") of the RRSS project's second evaluation. Discussion is divided into the following areas:

- Financial management
- Locomotive management
- Informatics services.

FINANCIAL MANAGEMENT

Overall the observations on various modules are broadly accepted. Among other things they bring out a number of weaknesses in the TA component itself in terms of the project trying a far too complex system in this organization guided by USAID. A few general observations on the evaluation report as well as specific comments on the recommendations are set out below.

GENERAL OBSERVATIONS

1. It has been stated that the organizational structures recommended have not been adopted by the CFM management. An important point to note is that any organizational structure proposed without taking into account the ground situation is a fruitless exercise. After detailed discussions most of the changes proposed have in fact been accepted.

2. On several occasions it is stated that there was not adequate CFM commitment to accept recommendations. While CFM is fully committed to introduce RRSS Project objectives, unless the TA can produce a reliable system e.g. Budget, Financial Accounts, etc. which can be made meaningful use of, CFM management can do precious little.

3. One of the problem areas facing the TA team is the language barrier. The English language is principally used with all business dealings with neighboring Railways. Otherwise the Portuguese language is the main means of communication for the CFM staff. Rather than train CFM employees in English language, desirable but costly and time consuming, the better solution may be for the TA members to have a language course in Portuguese language before coming here.

4. It is recognized there is need for constant and continuous communication among all team members in weekly/fortnightly meetings involving CFM management staff also. Meetings with USAID could involve other team members and top CFM management staff.

5. In all probability CFM would be following the "Oscar" system for cost accounting in line with other Railways in the region. It could be necessary to follow the coding requirements prescribed therein instead of developing new coding structures as at present.

6. The statement that billing for clients was occurring 45 to 90 days after provision of services is factually incorrect. Billing is being done within 15 days since over 4 years.

7. Regarding the observation that there is universal agreement among the TA team that CFM is not capable of maintaining the Accounting and Finance system developed, it needs to be stressed that most of the TA team, has been exposed to the MCBA system only here. They have only partially learnt MCBA system. In such a situation their effectiveness in developing a comprehensive useful system as well as successfully training CFM staff is doubtful.

RECOMMENDATIONS

It has been stated that the main focus of the TA team should be to provide sound financial data to facilitate the new USAID and World Bank studies for revitalization of CFM-Sul in January 1995. In CFM's view, the main trust should still be the implementation of an effective financial and accounting system not only in CFM-Sul but also in other regions as well.

A. FINANCIAL CONTROLS

The need for establishing sound policies and procedures is recognized. A request was made with USAID for more suitable various areas. CFM was delinked with DHPCF and became a state company with effect from 01.01.89. In order to have a reliable starting point, the task of working out the opening balance of CFM as on 01.01.89 was entrusted to M/S Coopers and Lybrand.CFM's accounts for 1989-1991 were submitted to International Auditors for audit. The recommendations proposed by the International Auditors are under gradual implementation. The audit of CFM's 1992 accounts would be taken up by KPHS shortly.

B. CONTINUING ROLE OF TA

As mentioned earlier, the Oscar model of computer based cost accounting system is likely to be adopted for CFM. It is not true to say that CFM is unlikely to change tariffs. In fact over the last year, the tariffs have been increased by about 20-25% quarterly to bring them in line with the tariff levels on ton/Km basis with other railways in the region. However in order to capture bulk traffic, CFM is quoting special tariffs virtually for all major commodities. It would certainly be useful the emphasis given to cost accounting is not reduced.

CFM is also willing to consider giving line authority to TA members. However we need to define the authority required and also the positions wherein such line authority would be useful. It is important to remember that the number of CFM staff adequately qualified and with experience is limited. It is only now that the first reports are just being brought out which are under analysis.

C. FIXED ASSETS

The need for asset evaluation is recognized and this is in fact one of the main recommendations of the International Auditors. A request was made to USAID for possible funding in this area.

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D. PAYROLL VALIDATION

CFM has already initiated a number of steps since October 93 with a view to clean up the payroll data base. The Human Resources and Finance Departments are giving their to most attention in this area.

E. PROFESSIONAL TRAINER ASSISTANCE

It is agreed a professional trainer with knowledge of Portuguese could make training more effective.

F. DISPOSITION OF EXCESS AND OBSOLETE INVENTORY AND ASSETS

CFM has already taken action in this area by identifying all the excess and obsolete inventory and also the speedy disposal of such stock.

G. MCBA IMPLEMENTATION AT CFM CENTRAL

There is a primary need to stabilize implementation of the MCBA system in Maputo before one can think of introducing such system in other regions. It is agreed there is now need to implement the similar system at CFM-Centre mainly because of the huge costs involved. A simple system should be studied wherein the benefits of the MCBA system are available in all regions without going in for additional hardware and software.

CLOSING COMMENTS

Recommendations from the TA should be based on the existing situation in the company. If too complex and sophisticated systems are proposed, it is unlikely it would be possible to maintain and operate such systems after the TA leaves. In selected areas, CFM is willing to give line authority to TA. Fixed asset and valid inventory valuations require suitable funding arrangements.

LOCOMOTIVE MANAGEMENT

1. It is agreed there is no need to extend the Enge-Rio TA for maintenance and repair of U-20C locomotives.

2. The issue regarding TA for Alsthom locomotives is being taken up with CFD.

3. The recommendation regarding scrapping of Rumanian Diesel Hydraulic Locomotives is under active consideration. The Rumanian locomotives are used for shunting purposes. As these locomotives have only a major problem regarding the transmission system, it is for consideration whether suitable upgradation could be done in this area.

4. The recommendation regarding closing of Maputo Workshop and repair of heavy components being out-sourced however needs careful thinking. Among the issues to be considered:

a) At present there are no companies in Mozambique which can take up the work relating to repair of heavy components. It would certainly take some time before such facilities are established.

b) If the repair work is to be done in the neighboring regions such as South Africa, it is not clear whether with factors such as freight, the higher labor costs, the time factor etc., there would be substantial savings.

c) Although USAID may in the initial stages provide funding for out-sourcing of repair of heave components, what about happen when this financing stops.

d) More important, it may be prudent to wait for some more time to see the effect of the profound political changes taking place in the region.

5. The recommendation regarding re-allocation of the locomotive fleet is accepted. This would help in better management of the locomotive fleet.

6. The suggestion regarding keeping in temporary storage the U-20C locomotives is accepted. Even at present some of these locomotives are already under storage for want of traffic.

INFORMATICS SERVICES

1. The implementation of MCBA in CFM has always been considered by Informatics Services CFM (IS-CFM) as an important contribution to improve substantially the management of finance and procurement functional areas of the company. This is the reason why IS-CFM considers the MCBA system to be the most important application software in the company.

In order to involve IS-CFM in all the implementation aspects of this software, the management of IS-CFM undertook the following actions, even though the MIS component of the RRSS project has been designed to be implemented without involving IS-CFM:

i) In the first quarter of 1993, IS-CFM worked with LBII to give training to some of IS-CFM technicians, in the area of hardware (computers and telecommunications) and software (SCO UNIX and NCBA). This training was partially completed since the LBII detailed implementation plan, revised on 31/03/93, was not fully executed. The total of IS-CFM's staff trained under this project is much less than 30.

ii) During Mr. Pedro Herrera's mission in June 1993, the Director of Information Services of CFM requested the involvement of IS-CFM in all tasks related with the implementation of MCBA, in order to ensure technology transfer to CFM before June 1994. This approach was supported and recommended by IRM (Mr. Herrera's June 1993 report - pag. 7&8).

iii) As at the end of the mission referred to in (ii) above, IS-CFM was not contacted to participate in the implementation of IRM recommendations, the Director of IS-CFM approached LBII to plan this involvement. In this connection a proposal of IS-CFM involvement plan in the implementation of the NCBA software was requested by LBII. The required plan was submitted to LBII on 30/09/93 and the

iv) Regarding the USAID approved IS-CFM training and involvement programme, only the INFORMIX training was completed on schedule and nothing more was scheduled. Informix training by itself would not be of much use for NCBA implementation in CFM unless other components of the training programme are also completed. The absence of a comprehensive and coherent schedule for a complete training and integration plan of IS-CFM's technicians in the NCBA implementation, can endanger the efforts taken so far since the technicians are not practicing the skills learnt and there is the risk of their forgetting all that they have learned. It is useful to remember that this was reported in the 1st December 1993 meeting with the Finance Department, USAID, and LBII.

As can be seen, the lack of IS-CFM involvement in NCBA implementation is due to the fact that the June 1993 IRM's recommendations were not implemented and it is quite clear that IS-CFM is not responsible for this situation. It will be advisable for IRM to investigate the reasons why its June 1993 recommendations were not implemented.

2. An elaboration of the role of IS-CFM in the company was made in the IS-CFM annual report during the last CFM's 'Conselho Gerel Restrite'. This gives the guidelines for the improvement of informatics function in the company. IRM is invited to read the document and know the real position of IS-CFM about the subjects raised in the report.

3. Regarding the application softwares in use in IS-CFM and quoted in IRM's report:

- On-line Wagon Control Application Software

  Due to lack of funds, it was not possible to conclude successfully the On-line Wagon Control Project. IS-CFM is conscious of this situation, and that is why, since the middle of 1993, it is working with SIEMENS NIXDORF INFORMATION SYSTEMS (PTY) to complete the project and contribute substantially to the reduction of the rolling stock's hire charges that CFM-S has to pay to neighboring countries and in the improvement of the management of the railway operations. This action only took place because IS-CFM knows the existence of the problem in the On-line Wagon Control System.

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  For the correct running of this application, it is necessary to have good coordination between the Human Resources, IS-CFM, and the Finance Departments.

  The application itself is running well, but obviously, if the data provided by the "Central de Vencimentos" is not correct, the results would contain errors.

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In conclusion, IS-CFM would like to express its disappointment to the fact that for the most part, the report was written based not on facts but on suppositions.

Attachment II

CFM's Comments on Evaluation

File D.26.5

MOZAMBIQUE PORTS AND RAILWAYS

EMPRESA NACIONAL DE PORTOS E CAMINHOS DE FERRO DE MOÇAMBIQU

MAPUTO, APRIL 20, 1994

150 /DG-CFM/94

MR. ROGER CARLSON
DIRECTOR
USAID, MAPUTO

SUBJECT: DRAFT SECOND EVALUATION REPORT

DEAR MR. CARLSON

CFM'S COMMENTS ON THE DRAFT SECOND EVALUATION REPORT ARE ENCLOSED. THE DELAY IN THE REPLY WAS DUE TO OTHER URGENT COMMITMENTS AND IS REGRETTED.

KIND REGARDS

ENG°. MARIO A. DIMANDE

DIRECTOR GERAL

Sede: Praça dos Trabalhadores, Maputo, Republica de Moçambique
Caixa Postal 2158 Telefone 427173 Fax 427746 Telex 6.208 CFMS-MO

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of the training programme are also completed. The absence of a comprehensive and coherent schedule for a complete training and integration plan of IS-CFM's technicians in the MCBA implementation, can endanger the efforts taken so far since the technicians are not practising the skills learnt and there is the risk of their forgeting all what they have learnt. It is useful to remember that this was reported in the 1st December 1993 meeting with the Finance Department, USAID, and LBII.

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In conclusion, IS-CFM would like to express its disappointment to the fact that for the most part, the report was written based not on facts but on suppositions.

Attachment III

Evaluation Summary - Engineering Component

EVALUATION SUMMARY: LOCOMOTIVES

Accomplishments/Difficulties	Requirements/Recommended Actio	Future Activities/Action	Resp.
U20C Locomotives:			
TA team has successfully trained the CFM work force	Terminate TA	None	CFM-USAID
Substancial improvement on MTBF from 91 hours in 1991 to 44 days in December 1993	Continue to implement schedule preventive'maintenance	Achieve 60 days in Dec. 1996	CFM
Availability of locomotives increased from 55% to 78% for above period Difficulties: Even with good availability, the utilization factor is very low due to the excessive number of locos in operation	CFM has surplus of locos. Storage some and save work force and spare parts. It is recommended that each locomotive that runs less than 400 km per day should be put in storage.	Achieve 80% in Dec. 1996 (average) and increase the utilization factor.	CFM
TA taught CFM managers the appropriate failure data collection using a PC in the shop	Improve collected data and share with other Executive Directorates	Create or buy on shelf software programs	CFM
Suspension of all overhaul activities Difficulties: equipment and expertise available and no competitive market for mechanical components	Achieved on electrical components. Temporality use the parts available in stock for mechanical components	Contract out all activities	CFM-USAID
Locomotives be placed in storage	Define and implement a realistic number of locos to stable	Prepare locos to be stable Re-allocate locos as needed	CFM
Centralize oil laboratory in Maputo, governor shop and fuel injection shop in Beira	Immediate action for implementation. New equipment is already in place.	Establish appropriate communications	CFM
Implement chemical treatment of water	Specify the products and procure	Submitt orders to USAID	CFM-USAID
GE-ALSTHOM locomotives:			
Hire TA or make a full service contract	Negotiate a contract	Management must cover all locos	CFM-CFD
Rumanian locomotives:			
Save profit and improve performance	All Rumanian locos in Beira were scrapped	Take similar actions for Maputo and Nampula	CFM

EVALUATION SUMMARY: WORKSHOPS

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/Actions	Resp.
Refurbish the CFM(S) Diesel Shed Difficulties: a prequalification of local firms was made and submitted to RCO but American firms also will be invited.	'Issue the RFP for design and construction supervision services, evaluate proposals and recommend an award. The design and conctruction supervision services will require a USAID Direct contract. The construction works will be done under a host country contract.	Make a contract	USAID
Selling unused but valuable machinery and parts in stock. CFM can save over USD 3.0 million. Difficulties: CFM has lack of expertise in this field.	Make an inventory and write tender documents. Short-term TA is required.	Short-term will be required to supervise the contract.	CFM-USAID
Close the CFM(S) workshop Difficulties: Prior to complete the refurbishing of the diesel shed this action is not recommended.	Wait until diesel shed is completed	Close CFM(S) workshop	CFM
Management of work be improved	Prepare program of management and organizational restructuring.	Reduce work force	CFM
Centralize locomotive stores in the diesel shed	For CFM(S) wait until diesel shed is completed. For CFM(C) and CFM(N) it is an immediate action for implementation	Make periodic inventories	CFM

Attachment IV

Evaluation Summary - Financial Component

Regional Rail Systems Support Project

Evaluation Summary: Financial Systems – FINANCIAL ACCOUNTING ELEMENT

FINANCIAL ACCOUNTING ELEMENT GOAL CREATE SYSTEM TO PRODUCE AN ACCURATE BALANCE SHEET

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/ Actions	GOAL & PURPOSE	SUMMARY NARRATIVE	PERIOD PLANNED START	PERIOD PLANNED END	PERIOD ACTUAL START	PERIOD ACTUAL END	EVIDENCE	RESPONSIBLE
System is technically correct and complete			Consolidacao dos Resultados	Utilizacao do Sistema Siscoop no CFM(C), (CFM(Z) e CFM(N) e Brigadas. *Consolidation of monthly accounts for all CFM utilizing SISCOOP for CFM(C) (Z) E (N).*	JUN/94	JUN/95			Relatorios	
Function deficient										
*Lack of reliable data										
*Accounts not tailored to business	*Develop chart of accounts that meets the needs of railway, port and government		Imputacao de dados confiaveis	Implementacao completa do Sistema de operacoes correntes e do fluxo documental. *Implement system of control over all source documents.*	SET/94	ABR/95			Controles efectivos e producao de dados confiaveis	Ferrua/Ferta and CFM Staff
	– – Ex Disaggregate fuel costs									
	– – Ex Separation of payroll costs by dept. and function		Contabilizacao da Movimentacao de Materiais para operacoes diarias	Termino do Manual de Procedimentos e treinamento do pessoal envolvido *Complete the manual of procedures.*	JUL/94	SET/94			Producao de dados realisticos na movimentacao de materiais	Ferta/CFM
*General, ledger and cost accounting not integrated	*Consolidate general ledger and cost accounting system									
*Lack of complete data			Inventario do Activo Fixo	*See attached nº1*	JUN/94	SET/94			Emissao de relatorios informatizados para confrontar com existencia fisica	System/Ferta CFM Staff
– – Inventory fixed assets										
Financial results for 1993 not complete										
– – Need to clean up data										
– – Information required from CFM not received on time										
– – Delayed implementation of system										
– – Inventory/fixed asset data absent										

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Regional Rail Systems Support Project

Evaluation Summary: Financial Systems – COST ACCOUNTING ELEMENT

COST ACCOUNTING ELEMENT GOAL: REVISION OF CURRENT TARIFF STRUCTURE SO THAT CFM CAN PRICE ITS SERVICES AT AN APPROPRIATE LEVEL

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/ Actions	GOAL & PURPOSE	SUMMARY NARRATIVE	PERIOD PLANNED START	PERIOD PLANNED END	PERIOD ACTUAL START	PERIOD ACTUAL END	EVIDENCE	RESPONSIBLE
Creation of technically and theoretically correct system Sufficient operation and other data to support tariff decision			Maintain existing cost accounting system.	. Ensuring that source document receipt, coding, input, reports, manuals and documentation updates proceed on a timely and accurate basis	JULY/94	JUNE/95			Control chart, reports, training, manuals	MF, MM, CFM staff
Codes for tying transaction revenues and expenses to business activities are too complex perhaps superfluous and not sustainable	Revise general ledge and accounts chart to reduce account coding	Coding is too complex Coding continually revised as required	Maintain interim salary system	. Ensure that the interim salary system is run, results input, and adjustment made. . Assist team to develop new system.	JULY/94	MAR/95			Salary data in MCBA	MF, MM
Implementation far from complete			Assist OSCAR implementation	. Determine Cost Accounting changes required to support OSCAR, write software produce reports	JULY/94	JUNE/95			OSCAR reports complete	MF MM
*Lack of historical data (especially for inventory and fixed assets	Creat inventory of assets	Not within scope of extension								
*Lack of coordination with other functions	*Coordinate Cost Accounting and General Ledger/Cost Accounting/Budget function		Revise chart of Accounts to reflect operational requirements and to support tariff decisions.	. Determine additional revenue codes required for invoicing, eliminate unnecessary codes, update documentation, and train staff.	JULY/94	DEC/94			Chart updated documentation updated	MF MM
	*Merge general accounting and Cost Accounting to one TA member	Timing not right. Cost Accounting is a specialized function that has not been fully developed. Merge may be appropriate when system implementation is more advanced.	Develop and implement adequate controls and procedures for Cost Accounting	. Indentify inadequacies, prepare monthly control chart, prepare procedures, ensure audit trail.	JULY/94	DEC/94			Checklist, control chart procedures	MF BB
	*Determine sopce of work based on whether CFM is willing or able to change tariffs	OSCAR, tariff system Not an extension priority	Improve accuracy and usefulness of budget	. Design improved methodology to base budget on historical Cost Accounting data	JULY/94	MAR/95			Budget produced using new methodology	MF BB, MM

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Regional Rail Systems Support Project **Evaluation Summary: Financial Systems – BUDGT ELEMENT**

BUDGET ELEMENT GOAL: PROVIDE A TOOL FOR MANAGING DAY-TO-DAY OPERATIONS

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/ Actions	GOAL & PURPOSE	SUMMARY NARRATIVE	PERIOD PLANNED START	PERIOD PLANNED END	PERIOD ACTUAL START	PERIOD ACTUAL END	EVIDENCE	RESPONSIBLE
Implementation of a system capable of producing a meaningful and useful budget			1995 – Budgets	Delivery operating, capital, forex, cash + investment budgets for 1995.	AUG/94	DEC/94			TA assistance to CFM staff as required, see item 1 of notes	CFM budget Staff
*Major elements identified *Structure usable			Integrate budget as management tool	Implement system to monitor budget drawdowns	JUN/94	JUL/94			Not a full time task testing & training included, see item 3 of notes.	Systems Bernard & CFM staff
Budget not as useful as management tool as it might *Lack of historical data and operating statistics			Make department heads accountable for budget basis and variances	Achieving objective is an iterative process – line CFM personnel prepared all input for 1993/94 budgets	On – going Current				See item 4 of notes	CFM staff Bernard
*Data is not reliable	*Focus specific areas (payroll receivables)	Not in the budgeting function	Develop budget department as part in organ	This is an iterative process also – fostered by unit's involvement in CFM actions	On – going Current				Assisted by training & participation in planning See item 5 of notes	CFM staff Bernard
*Data is not complete (inventory depreciation)	*Start some kind of asset register	Not in the budgeting function	Create asset register	See attached – n°1	Approx 500 hours				Physical inventory of fixed assets see item 6 of notes	Systems Bernard Fena/Foster
*Information is too detailed	*Merger general ledger/cost accounting	System is not too detailed			JULY 1	JAN 31				
Budget is not used in day-to-day management	Integrate budget into organization for use as a management tool	Not a budgeting activity	Assist CFM inventory of materials project	Review of project status reduced to determine extent of assistance required	During last quarter of 1994				Physical inventory of material & supplies see item 7 of notes	Foster Fena Bernard
	*Draft policy statements and guidelines	Review and revise existing materials								
	*Set up budgeting procedures	Improve existing procedures	Draft policy statement and guidelines.	Policy statement available but needs updating and formal issue.	SEP/94	SEP/94			See item a of notes	Bernard
	*Assign responsibility for budget management Finance Director	Outside scope of extension								
	*Line managements to complete line items	Outside scope of extension	Setting-up budgeting procedures.	Present procedures are basic and temporary but consistent with level of available budgeting skills.	FEB/95	FEB/95			See item b of notes	Bernard
	*Department heads to be accountable for basis and variances	Outside scope of extension								
	*Develop budget department as part of organization	Outside scope of extension								

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Regional Rail Systems Support Project Evaluation Summary: Financial Systems – CURRENT OPERATIONS ELEMENT

CURRENT OPERATIONS ELEMENT GOAL: CAPACITY TO TRACK DAY-TO-DAY TRANSACTIONS IN ALL OTHER FINANCE RELATED FUNCTIONS

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/ Actions	GOAL & PURPOSE	SUMMARY NARRATIVE	PERIOD PLANNED START	PERIOD PLANNED END	PERIOD ACTUAL START	PERIOD ACTUAL END	EVIDENCE	RESPONSIBLE
System technically correct TA Team has been addressing *Accounts Payable *Accounts Receivable & Invoicing *Treasury More timely customer billing possible Function deficient because data is inaccurate			FACTURACAO Nova rotina operacional com o processo centralizado e em base diaria, com emissao de facturas informatizadas.	– Ajustar PCC codes – envio diario e sistematico da documentacao relativa ao trafego. Ensino ao pessoal alocado o funcionamento do sistema MCBA.	SET/94	DEZ/94			Emissao informatizada de facturas diarias num unico sector da empresa.	Farrula/Chefe de Facturacao (CFM)
			CONTAS A RECEBER Emissao dos relatorios com dados actuais para controle e efectiva actuacao da empresa nessa area.	(Aspectos relacionados a interface) . Distinnguir os documentos provenientes de outros servicos nao facturados. informatizar a emissao de recibos e emitir os relatorios gerenciais. . Retreinamento do pessoal. . Conferencia dos dados ja imputados no sistema.	ON-GOING	ABR/95			Emissao de relatorios informatizados, confiaveis e actualizados Controle da posicao da empresa	Farrula/Equipe AR (CFM)
*Inadequate financial policies and procedures	Establish policies and procedures defining how to handle transactions	Actual billing on daily basis by 6/30/94								
*Inadequate internal controls	Establish internal controls to:- – assure that only authorized and valid transactions enter the system	Review and revise existing mate Delegate line authority to TA members to determine feasible actions and implement them	COBRANCA Efectuar a cobranca dos valores em atraso.	Introduzir, na pratica, atraves de treinamento do pessoal, as normas e procedimentos constantes do manual ja elaborado	MAI/95	JUN/95			Reducao do volume de Contas a Receber em atraso	Farrula/Responsavel (CFM)
	– Protect CFM's assets from misappropriation and mesure	Efforts to establish controls ineffective due to organizational problems outside TA control	CONTAS A PAGAR Organizar a area, centralizar a documentacao proveniente de fornecedores de diversos sectores da empresa, reduzir o volume de documentos.	(Aspectos relacionados c/interface) . Normalizar o funcionamento dos fundos. . Implantar o modelo informatizado "Ordem de Pagamento" ensinar o pessoal a controlar o AP atraves do sistema MCBA	ON-GOING	ABR/95			Emissao de relatorios confiaveis informatizados e actualizados da posicao da empresa	Farrula/Equipe AP (CFM)
	*Treasury controls required – prevent misappropriation – determine that cash disbursements are authorized – follow-up on unpaid billings – assure payment and recording – change physical layout to increase controls *Payroll – verify validity of payments	Present to CFM as especial area of effort Cost Accounting effort	TESOURARIA Finalizar o processo informatizado em implantacao com a emissao da posicao diaria da Tesouraria.	See attached n°3	MAI/94	AGO/94			Emissao da posicao actual da Tesouraria em base diaria, eliminacao do tumulto em dias de pagamento	Farrula/Tesoureiro Chefe Depto
			GERAL Identificar entraves na implantacao do sistema devido a factores de pessoal	Identificar pessoal com limitacoes tecnicas ou sem interesse na implantacao do sistema e recomendar o treinamento ou substituicao conforme o caso	JUL/94	JUN/95			Substancial melhora do nivel do pessoal responsavel, envolvido na implantacao do sistema	Equipe AT

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Regional Rail Systems Support Project

Evaluation Summary: Financial Systems – FINANCIAL ACCOUNTING ELEMENT

FINANCIAL ACCOUNTING ELEMENT GOAL CREATE SYSTEM TO PRODUCE AN ACCURATE BALANCE SHEET

Accomplishments/Difficulties	Requirements/Recommended Actions	Future Activities/ Actions	GOAL & PURPOSE	SUMMARY NARRATIVE	PERIOD PLANNED START	PERIOD PLANNED END	PERIOD ACTUAL START	PERIOD ACTUAL END	EVIDENCE	RESPONSIBLE
System is technically correct and complete			Consolidacao dos Resultados	Utilizacao do Sistema Siscoop no CFM(C), (CFM(Z) e CFM(N) e filiagdas. *Consolidation of monthly accounts for all CFM utilizing SISCOOP for CFM(C) (Z) E (N).*	JUN/94	JUN/95			Relatorios	
Function deficient *Lack of reliable data										
*Accounts not tailored to business	*Develop chart of accounts that meets the needs of railway, port and government -- Ex Disaggregate fuel costs -- Ex Separation of payroll costs by dept and function		Imputacao de dados confiaveis	Implementacao completa do Sistema de operacoes correntes e do fluxo documental *Implement system of control over all source documents.*	SET/94	ABR/95			Controles efectivos e producao de dados confiaveis	Fertula/Ferta and CFM Staff
*General ledger and cost accounting not integrated	*Consolidate general ledger and cost accounting system		Contabilizacao da Movimentacao de Materiais para operacoes diarias.	Termino do Manual de Procedimentos e treinamento do pessoal envolvido *Complete the manual of procedures.*	JUL/94	SET/94			Producao de dados realisticos na movimentacao de materiais	Ferta/CFM
*Lack of complete data -- Inventory fixed assets			Inventario do Activo Fixo	*See attached nº1*	JUN/94	SET/94			Emissao de relatorios informatizados para confrontar com existencia fisica	System Ferta CFM Staff
Financial results for 1993 not complete -- Need to clean up data -- Information required from CFM not received on time -- Delayed implementation of system -- Inventory/fixed asset data absent										

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