

A.I.D. EVALUATION SUMMARY - PART I

PD AR 5-682

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

IDENTIFICATION DATA

<b>A. Reporting A.I.D. Unit:</b> Mission or AID/W Office <u>AID/Swaziland</u> _____ (ES# _____)	<b>B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan?</b> Yes <input checked="" type="checkbox"/> Slipped <input type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY 94 Q 3rd	<b>C. Evaluation Timing</b> Interim <input type="checkbox"/> Final <input checked="" type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>
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D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of 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)
6900247.45	Regional Rail System Support Project/Swaziland Component	FY 88	4/94	\$7,042,000	\$6,754,575

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director	Name of Officer Responsible for Action	Date Action to be Completed
Action(s) Required Distribute evaluation report (Swaziland Railway, Ministry of Transport, SARP/Zimbabwe)  Complete AID Final Evaluation report	Jamie Raile, PM  Jamie Raile, PM	5/94  10/94

APPROVALS

F. Date of Mission Or AID/W Office Review Of Evaluation: 4 (Month) 29 (Day) 1994 (Year)

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)	Jamie Raile		Don Foster-Gross	Valerie Dickson-Horton
Signature	<i>Jamie Raile</i>		<i>Don Foster-Gross</i>	<i>Valerie Dickson-Horton</i>
Date	Oct 19, 1994		10.20.94	10.20.94

ABSTRACT

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

The purpose of the RRSS Project/Swaziland Component was to provide technical assistance and training to Swaziland Railway in order to improve the management capacity of the Railway, and to undertake activities to ensure its viability. Project implementation was undertaken with the assistance of De Leuw, Cather International (DCIL). The FINAL evaluation was conducted by Nathan Associates Inc. and Burlington Northern Railroad (a joint venture). The evaluation consultants were Charles Vandervoort, Michael Volker and Michael Reid. The major findings and conclusions are:

1. As a result of the RRSS project, Swaziland Railway (SR) is financially viable, and should remain so in the foreseeable future. SR turned from the brink of insolvency to one of the most profitable railways in Africa through the efforts of SR management and staff, the technical assistance team, USAID's leadership, and the support of the Ministry of Transport and Communications.
2. SR and its Board should aggressively pursue the rationalization of road user charges as well as strongly support SADC's initiatives for regional integration of the railways.
3. The most important factors that would impact SR's future financial viability include: faster-than-expected diversion of traffic to Maputo, economic recession in South Africa, and reduced efficiency of the port of Durban because of political instability. In addition, serious train accidents or a loss of senior management staff to other countries would also impact SR's viability.
4. SR should continue to improve service and revenues, cut costs, improve safety, and develop cross-border traffic. As well, the Board of Directors should be strengthened in order to develop, with SR management, long term strategies.

Lessons learned:

The project training program was unique and proved to be successful. The format used for training should be a model for future USAID programs.

Successful localization management transitions can occur if all parties, including Board of Directors, are committed to the effort. In this project, a transition was made from expatriate contractors moving from management authority to advisors once Swazi management training was completed (with the advisors leaving at the end of the DCIL contract).

**COSTS**

I. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
Charles Vandervoort	Nathan Associates Inc.	645-0247-C-00-1045-00	\$398,000* *(Monitoring and evaluation contract/Swaziland)	Project/SAR?
Michael Volker	Burlington Northern Railroad			
Michael Reid	" "			
2. Mission/Office Professional Staff Person-Days (Estimate)		15	3. Borrower/Grantee Professional Staff Person-Days (Estimate) 10	

**A.I.D. EVALUATION SUMMARY - PART II**

**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     | ● Principal recommendations |
| ● Purpose of activity(ies) evaluated             | ● Lessons learned           |
| ● Findings and conclusions (relate to questions) |                             |

Mission or Office  
USAID/Swaziland

Date This Summary Prepared:  
October 13, 1994

Title And Date Of Full Evaluation Report: Regional Rail  
Systems Support Project 890-0247 Final  
Evaluation/Swaziland Component April 1994

**Purpose of Activities Evaluated**

Implementation activities of the Swaziland Component of the RRSS project began in 1989 with the arrival of the long term technical assistance team supplied by De Leuw Cather International (DCIL), prime contractor, and Rail India Technical and Economic Services (RITES), the sub-contractor. Nathan Associates, through a regional evaluation contract, completed a mid-term evaluation in November 1991 and carried out monitoring visits in August 1992 and October 1993. This Final Evaluation was conducted in Swaziland, and involved reviewing all previous project documentation as well as interviews with Swaziland Railway personnel and other key players. Of assistance was the fact that each member of the evaluation team had been involved in at least one other SR monitoring or evaluation visit.

Specific Findings and Recommendations are summarized below:

**Finance:** SR's financial situation has substantially improved since project inception. SR's capital structure, cost containment, and management processes have all been addressed through the Project. Financial management has been strengthened by the project, but ongoing assessments of service costs, containment of expenses, etc. will still be required.

**Marketing:** SR is committed to excellence in marketing, and senior Swazi management has done a good job over the past year. In the early stages of the project, not enough emphasis was given on developing appropriate marketing data (client industries, truck competition, etc.); management is aware of the weaknesses and is trying to improve the situation. The recommendation is that SR increase its budget for market research.

**Safety:** A reduction in locomotive accidents and injuries is needed for continued financial viability. A safety program has been implemented with good success. The recommendation is that SR approach USAID/Harare and other donors about funding regional safety conferences and workshops.

**Training:** The training of 30 senior employees, including top management, was successful. However, SR needs to place a priority now on training of lower management, and ensure that replacements for top management are in place should vacancies occur.

**MIS:** Financial reporting information is now being provided to senior management quickly and consistently. Progress in MIS has occurred primarily in the accounting area involving off-the-shelf systems; no systems development has taken place to date. The recommendation is to develop a system that integrates the whole railway, and which will assist in corporate planning which could be accomplished by hiring a senior MIS professional.

The End-of-Project Status Indicators were all examined with the main findings listed below:

### END-OF-PROJECT STATUS

- **Debt/equity ratio reduced from 408 to 150 percent by end of 1993.** This target has been achieved. However, as pointed out in the 1991 mid-term evaluation, this ratio actually compared debt with revenues rather than equity. As such, it was deemed to have little informational value relative to the underlying performance of SR.<sup>2</sup> The monitoring report therefore recommended substitution of net position.

As of March 31, 1994, the debt/revenue ratio is projected at 50.3 percent (E 36,563,000 / E 72,633,000), well below the target value of 150 percent.

The net position, as of March 31, 1994 will be E 33,097,000 + E 45,414,000 - E 36,563,000 = E 41,948,000. This is a considerable improvement over March 31, 1986, when the net position was negative at (E 101,472,000).

- **Swazi CEO and department heads adequately trained for their jobs, in place, and functioning effectively.** The Senior Management Training Program has been completed and, with the exception of the Chief Engineer, the SR management team has assumed its position and is operating the railway.
- **Swazi Railway's operating ratio reduced from 146 to 68 percent.** Although this ratio has improved dramatically, the target ratio will not be achieved by the end of FY 1994. As of March 31, 1994, the operating ratio is projected at 83.3 percent (E 60,531 / 72,633).  
The projected ratio for FY 1995 is 77.8 percent.
- **Operations and business systems developed, accepted, and used.** Coordination of train movement through the Radio Train Order System (RTOS) and enhanced operating procedures have been well established through effective planning, training, and project implementation. The use of SPRINT for wagon information requirements is acknowledged as insufficient, and the current processes are overly dependent on the Director of Traffic's daily interventions.
- **SR's financial and capital structures analyzed, changes recommended, and action plans adopted.** This task is complete. In addition to developing action plans, the technical assistance team was successful in implementing actions to improve SR's financial structure by discontinuing steam locomotive operations, conducting a comprehensive assessment and separation of excess employees, and renegotiating business agreements with major suppliers.

SR's capital structure is now manageable. The debt-to-equity ratio is about 80 percent at the close of fiscal year 1994. The interest coverage ratio (operating surplus/interest expense) approaches 9 at the close of 1993/1994—a healthy indication that SR is able to manage interest expense.

- **Loan portfolio analyzed and loans restructured.** This effort is complete. The government has restructured the bulk of its ownership from debt claims to equity by converting infrastructure loans

<sup>2</sup>It is presented here to ensure consistency with earlier reports.

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into equity and natural disaster loans into grants. In addition, SR has retired high-interest-rate commercial debt obligations and eliminated foreign exchange losses. Finalization of servicing plans for remaining debt obligations is in progress. —

- **A corporate strategy and ongoing planning systems established, including the development of a five-year business plan.** Business planning responsibilities have been entrusted to a newly hired manager of market research.
- **SR rights determined under the SR/SATS<sup>3</sup> memorandum of understanding; changes recommended and negotiated.** Significant progress was made. Legal council retained by SR has established that the Memorandum of Understanding (MOU) was legally binding and was applicable to SPOORNET. This strengthens SR's negotiating position because SPOORNET is routing less traffic over the North-South link as stipulated in the MOU, and it can argue that the loan to SR should be restructured on more favorable terms. Negotiations are continuing, and it is hoped that the interest on SR's debt will be forgiven, with repayment of the principal occurring over the next few years.
- **An MIS in place providing SR and the government with comprehensive and timely decision-oriented data on operating variable costs and revenues.** The need to standardize software programs used within SR remains. The MIS coordinator established through the project has made notable progress in establishing a core level of MIS. Successful implementation of the RTOS has dramatically improved the currency, accuracy, and value of operating information flows. However, work still remains in improving the consistency of information and transfer of information among departments. Finally, the development of wagon control and freight accounting deserves more attention.
- **Establishment of a revised tariff structure with a commercial and cost-based orientation.** Considerable progress was made and a cost-based tariff has been implemented. A simple, practical, and appropriate computer program was developed for determining costs by commodity and route. Emphasis can now be placed on perfecting the data inputs to the cost model, and on calculating tariffs that will maximize revenue while staying below the tariffs imposed by the competition.
- **An improved financial management plan and systems development implemented.** This activity is partially complete. While systems for payroll, stores, and accounts payable are operational—as is an off-the-shelf accounting system (ACCPAC)—they currently operate in an unintegrated fashion. However, complete integration of these systems is underway. Implementation of a freight accounting system is still required to provide a firmer basis for internal controls. An STTA<sup>4</sup>-developed costing system using several categories of operating data to estimate wagon movement costs has been completed and refined. Improving the integrity of SR data through the systematic collection and summarization of operating data must still be addressed as part of MIS development efforts.

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<sup>3</sup>South Africa Transportation System.

<sup>4</sup>Short-term technical assistance.

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- **An improved staff development plan in place providing definite career paths and training plans. Incomplete.** An excellent training plan was developed, but the manager who had been trained to implement the plan left shortly after completing his training. His replacement lacks the training and knowledge to implement the plan.
- **A marketing plan and budget developed and in place.** A marketing plan and budget were developed for FY 1994, and is in process for FY 1995. Management is committed to excellence in marketing.
- **Senior staff trained and returned to SR.** Thirty-one senior SR officers were trained and, with a few exceptions, have returned to SR.
- **Substantial on-the-job training accomplished, leading to an overall improvement in the institutional capabilities of SR.** The long-term and short-term technical assistants accomplished on-the-job training of SR staff in all areas.

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# Final Evaluation

*Swaziland Component*

SUBMITTED TO  
U.S. Agency for International Development

PREPARED BY  
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SUBMITTED BY  
Burlington Northern Railroad  
Nathan Associates Inc.

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

April 1994

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# Preface

From February 13 to April 5, 1994, a team from Burlington Northern Railroad and Nathan Associates Inc. visited Swaziland to carry out a comprehensive and final evaluation of the Swaziland component of the Regional Rail Systems Support Project. This Evaluation Team (ET) consisted of three people. From Burlington Northern came Michael Volker, an operations and training specialist, and Michael Reid, a financial specialist. Joining them was an independent marketing consultant to Nathan Associates, Charles Vandervoort.

# Executive Summary

As a consequence of the Swaziland component of the Southern Africa Regional Rail Systems Support Project (690-0247), Swaziland Railway (SR) is financially viable and, barring unpleasant surprises, should remain so over the foreseeable future. The railway has taken a giant step in turning from the brink of insolvency to become one of the most profitable railways in Africa. The turnaround resulted primarily from the dedication of SR's management and staff; USAID's leadership in assembling and overseeing a technical assistance effort to assess and find practical solutions to the problems in the management, finance, operations, marketing, safety, and other areas; the good performance of the technical assistance teams; and the support of the Ministry of Transport and Communications. If management continues to improve in important areas such as safety, cost reduction, information management, marketing, and removing the unfair competitive advantage of trucking, its financial viability should improve even further.

The likelihood of unforeseen problems is far from negligible, however. The three most important ones are (1) faster-than-expected diversion of traffic to Maputo, (2) economic recession in South Africa, and (3) reduced efficiency of the port of Durban because of political instability in South Africa. In addition, there are other contingencies such as (4) a serious train accident, (5) another devastating cyclone such as the one in 1968, and (6) the loss of one or more senior management staff to other companies.

There are two deterrents to the realization of the full potential of SR. One is the lack of integration of the railway with the other regional railways, especially SPOORNET (SR's system for freight wagon management) and the South Division of Mozambique Ports and Railways, or CFM(S). This results in operating inefficiencies and lengths of haul that are quite short and uneconomical. With integration, the efficiency of all the railways will improve, thus enhancing their competitive position compared with trucking. The other deterrent is the cost advantage road haulers have over SR because truckers do not pay their share of infrastructure costs. The railway is obliged to provide and maintain its own track, but the government provides and maintains the main road network and does not recover user costs. For many years license fees and fuel taxes have been far too low, and well below the levels charges in South Africa and other countries.

The SR Board has as one of its primary functions the development, jointly with SR management, of a strategy to address the broader issues of regional integration and road user charges. It is important that the board be strengthened in order to play its proper role in this process.

## Recommendation

SR management should prepare for uncertainties by incorporating flexibility in its planning, and it should continue to improve service and revenues, cut costs, improve safety, and develop cross-border traffic. If this is done, the Evaluation Team (ET) believes SR's financial viability will be sufficiently robust to survive temporary spells of adversity.

Further, SR and the Railway Board should (1) aggressively pursue the rationalization of road user charges and (2) strongly support SADCC's<sup>1</sup> initiatives for regional integration of the railways. It

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<sup>1</sup>Southern Africa Development Coordination Conference.

should be noted that the terms of three members of the current board will expire this year, and that this provides an excellent opportunity to change the composition of the board to include more representation of members knowledgeable on railway affairs.

### END-OF-PROJECT STATUS

- **Debt/equity ratio reduced from 408 to 150 percent by end of 1993.** This target has been achieved. However, as pointed out in the 1991 mid-term evaluation, this ratio actually compared debt with revenues rather than equity. As such, it was deemed to have little informational value relative to the underlying performance of SR.<sup>2</sup> The monitoring report therefore recommended substitution of net position.

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- **Swazi CEO and department heads adequately trained for their jobs, in place, and functioning effectively.** The Senior Management Training Program has been completed and, with the exception of the Chief Engineer, the SR management team has assumed its position and is operating the railway.
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- **SR's financial and capital structures analyzed, changes recommended, and action plans adopted.** This task is complete. In addition to developing action plans, the technical assistance team was successful in implementing actions to improve SR's financial structure by discontinuing steam locomotive operations, conducting a comprehensive assessment and separation of excess employees, and renegotiating business agreements with major suppliers.

SR's capital structure is now manageable. The debt-to-equity ratio is about 80 percent at the close of fiscal year 1994. The interest coverage ratio (operating surplus/interest expense) approaches 9 at the close of 1993/1994—a healthy indication that SR is able to manage interest expense.

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- **An MIS in place providing SR and the government with comprehensive and timely decision-oriented data on operating variable costs and revenues.** The need to standardize software programs used within SR remains. The MIS coordinator established through the project has made notable progress in establishing a core level of MIF. Successful implementation of the RTOS has dramatically improved the currency, accuracy, and value of operating information flows. However, work still remains in improving the consistency of information and transfer of information among departments. Finally, the development of wagon control and freight accounting deserves more attention.
- **Establishment of a revised tariff structure with a commercial and cost-based orientation.** Considerable progress was made and a cost-based tariff has been implemented. A simple, practical, and appropriate computer program was developed for determining costs by commodity and route. Emphasis can now be placed on perfecting the data inputs to the cost model, and on calculating tariffs that will maximize revenue while staying below the tariffs imposed by the competition.
- **An improved financial management plan and systems development implemented.** This activity is partially complete. While systems for payroll, stores, and accounts payable are operational—as is an off-the-shelf accounting system (ACCPAC)—they currently operate in an unintegrated fashion. However, complete integration of these systems is underway. Implementation of a freight accounting system is still required to provide a firmer basis for internal controls. An STTA<sup>4</sup>-developed costing system using several categories of operating data to estimate wagon movement costs has been completed and refined. Improving the integrity of SR data through the systematic collection and summarization of operating data must still be addressed as part of MIS development efforts.

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<sup>4</sup>Short-term technical assistance.

- **An improved staff development plan in place providing definite career paths and training plans.** Incomplete. An excellent training plan was developed, but the manager who had been trained to implement the plan left shortly after completing his training. His replacement lacks the training and knowledge to implement the plan.
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- **Senior staff trained and returned to SR.** Thirty-one senior SR officers were trained and, with a few exceptions, have returned to SR.
- **Substantial on-the-job training accomplished, leading to an overall improvement in the institutional capabilities of SR.** The long-term and short-term technical assistants accomplished on-the-job training of SR staff in all areas.

## FINDINGS AND RECOMMENDATIONS

### Finance

SR has made tremendous strides in moving from the brink of insolvency to one of the most profitable sub-Saharan railways. The comeback was primarily due to the USAID's leadership in assembling a long-term technical assistance effort that achieved consensus among various government ministries, the SR Board, the Swazi management, employees, and SR's service partners to address the railway's financial, cost, and capital structure, which were fundamentally incompatible with its traffic base.

As a result of the Regional Rail Systems Support Project, SR is positioned to deliver cost-effective transportation services, fulfill its obligations to its owners and employees to operate a sound and profitable enterprise, and make appropriate investments to enhance service and contribute to the economic growth of Swaziland.

The achievements in addressing SR's cost structure and fixed-debt obligations greatly reduce the threat to viability that traffic diversions to Maputo might entail. In fact the recent and projected operating surpluses will allow SR the opportunity to prepare for these eventualities based on commercial principles.

Effective financial management of SR has been enhanced but not guaranteed by the project. Ongoing assessment of service costs, containment of indirect expenses, and sober evaluation of strategic investment options are still required. In this regard, maintaining the momentum from the project must remain a high priority for SR management. Most fundamentally, SR should build on the systems analyses already completed and aggressively pursue integration of wagon control and freight accounting development. The opportunity cost of not pursuing these efforts is significant, as demonstrated by wagon-hire penalty payments alone.

Effective and efficient management can be enhanced by organizing responsibilities around natural groupings. For example, the distribution of financial activities among various departments in SR will be characterized by duplication of effort, unclear lines of responsibility, and weakening of management focus. The same may be said for distribution of management information systems (MIS).



While the prospects for an enhanced safety record through RTOS and operations training are good, train accidents continue to pose a significant potential threat to profitability and viability. A continuation of the safety record experienced in 1993-1994 may threaten SR's financial viability. Although resolution of charges for the May 1993 accident have been resolved more favorably than projected, resolution of other accidents is still outstanding. The Accident Reserve should be replenished to E 10 million for catastrophic events. The cash portion of the reserve should not be used for accelerated debt retirement because potential illiquidity could result from a catastrophe. If the outstanding accidents are not resolved at cost levels below the current appropriation, management should consider increasing the annual appropriation until such time as the number of accidents falls below the appropriation level.

Financial management prescriptions will minimize the impact of threatened losses in both transit and cross-border levels. Transit traffic that continues to be destined to South African ports should be targeted for rate adjustments that are consistent with market conditions while allowing for cost recovery. Variable costs associated with reductions in the number of SPOORNET trains (e.g., locomotive, fuel, and wagon) should be automatically eliminated as SPOORNET should not apply hire charges. (However, given the recent recovery of hire account overcharges, implementation of wagon control and freight accounting should be a management priority.)

The requirements associated with cross-border traffic are slightly different. Making ongoing adjustments to rolling stock (locomotives, wagons) is critical given the volatility in traffic markets. The goal is to minimize daily hire of locomotives and wagons not necessary to support traffic levels. This will be difficult given the lack of a timely wagon control and freight accounting system.

Finally, contemporaneous monitoring of traffic movements will assist in managing locomotive driver assignments and in reducing overtime and double-time expenses.

The wagon control and freight accounting system is critical to SR's ability to aggressively control expenses associated with train operations, to realize 100 percent of the revenues from traffic services, and to enhance satisfaction of customers' wagon requirements. Accuracy in billing and timeliness of wagon movements will improve service levels to customers, help customers reduce their transportation costs, and help maintain traffic levels in the face of increasing road transport competition.

The institution of stronger loss control has already removed expenses from SR's cost structure. Continuing these efforts will help ensure that SR develops and maintains a strong competitive presence in the regional transportation market.

### *Recommendations*

In light of these realities, the following are recommended actions to strengthen SR and improve management effectiveness.

- Group financial functions (expense and revenue accounting, financial planning and reporting, financial monitoring, costing, and capital planning and analysis) together under the Finance Department.
- Create a management support group responsible for helping all departments of SR. In part, this group would provide support akin to short-term technical assistance. Such a group would provide economic analysis to Finance on interest rates, Marketing regarding industrial output, Personnel concerning labor compensation changes, and road haulers on competitive benchmarking. This group should provide computer-based support to departments as necessary (e.g., special reports to task groups such as the Overtime Reduction Committee), manage the computer assets (e.g., maintenance and troubleshooting) of the railway, and help

employees as they begin to use computers. The MIS Coordinator is already filling this role; however, because the coordinator reports to the Director of Finance, most of the support is to the Finance Department. This group should also be charged with coordinating the input from various departments in preparing the annual 3- to 5-year business plan. Because this group must support all departments, it should not report to any of the existing department heads.

Recruit a (temporary) systems development specialist to use the completed information systems analyses to implement an integrated railway MIS with emphasis on integrating wagon control and freight accounting capabilities.

## **Marketing**

The marketing function has improved significantly over the past year because the senior management is in place and is highly committed to SR's excellence in marketing. SR has fully accepted the need for a "marketing concept" that pulls together marketing planning, sales, advertising, research and other related functions into one marketing team, though this team is currently rather small. The marketing strategy for FY 1995, though late in starting, is in preparation, and appropriate emphasis is being placed on expanding SR's share of the market, setting tariffs that take into account both costs and the pricing strategies of the competition, and lowering of marketing costs.

A major weakness hampering the work of the Marketing Department is the lack of reliable data on client industries and the nature of truck competition, and on SR's operating statistics and costs. Development of these data was not given proper emphasis during the early phases of the project. Marketing management is aware of these weaknesses, and has taken steps to correct them. However, the task is formidable given the small size of the marketing staff.

### *Recommendations*

The data gap is serious. In addition to funding in-house efforts, the E 100,000 budget for market research should be obligated to studies on (1) the organization and competitiveness of the trucking industry and (2) the characteristics and prospects of client industries.

## **Safety**

The newly implemented safety program is off to a good start and will significantly reduce the occurrence of costly catastrophic locomotive accidents and injuries. Management appears committed to placing a high priority on safety. This achievement is crucial to the financial viability of the railway.

### *Recommendations*

SR should urge the USAID/Harare regional office and other donors to fund regional safety workshops, conferences, and training courses that include SR staff. This would ease the financial strain on SR's limited budget.

## **Cost Reduction**

SR has made noteworthy advances in reducing costs through right-sizing, aggressively negotiating car-hire rates with SPOORNET, taking action to avoid paying South African fuel taxes on diesel fuel, and obtaining reimbursement for the road-maintenance component of Swazi taxes. However,

progress in installing a simple wagon control system and in integrating it with freight accounting has been slow.

### *Recommendations*

SR cannot afford to wait for implementation of the proposed regional wagon tracking system. It should develop a simple system for its own use, keeping in mind the type of interface that may be required in the future for integration with the regional system.

### **Training**

The Senior Management training program has been completed and, with the exception of the Chief Engineer, the SR managers have assumed their position and are operating the railway. The transition has been a little bumpy but generally has gone quite well. This relatively smooth transition can be attributed to the generally high quality of the managers selected for training, with regard to both basic qualifications and personal characteristics, and to the excellent and relevant training provided under the project. The senior managers were well trained and were anxious to apply their new skills. The project training program was unique and, the ET believes, quite successful. It should be used as a model for future appropriate USAID programs.

The newly implemented Safety Program is off to a good start and will help reduce accidents and injuries. Accident reductions are vital to the long-term profitability of SR, which can ill afford the inordinate number of accidents it has historically experienced.

The Training Department is not functioning to expectations and needs supervision and reorganization. It is important that a major effort be made to train middle management personnel. Replacements for senior management positions are not in place, and the training of middle management personnel to fill senior management positions should be a major SR goal.

### *Recommendations*

The project training program was unique and proved to be successful. The format used for training should be a model for future USAID programs.

SR should place a high priority on training middle and lower management to improve skills, safety attitude, and morale. Replacements of senior management positions are not in place, and the training of middle management personnel to fill possible future vacancies in senior management positions should be a major goal of the railway.

### **Information Management**

Installation of the MIS is still in its initial stages, and the system is not yet able to provide the database necessary for informed management decision-making. This hampers the development of strategic plans. A qualified MIS specialist has been appointed and is focusing on the important but basic steps of ensuring reliability of the input data, teaching basic skills in computer use, integrating the payroll function, and installing reliability in the local area network (LAN). This is a big task, and the ET is concerned that the pace at which this is occurring is not fast enough. Furthermore, there is a need for a system that serves the whole corporation, and that is managed by a senior MIS professional at the level of director or direct CEO staff.

### *Recommendations*

SR should consider recruiting a part time MIS specialist to help install the system. It should also consider establishing a MIS function at a high level staffed by a senior MIS professional.

## **Strategic And Business Plan**

The FY 1994 Corporate Strategy and Business Plan (April 1, 1993 to March 31, 1994) was developed by SR's senior management team under guidance from long-term technical assistance (LTTA) with the hope that this would institutionalize the Strategic Business Analysis and Planning function process. A qualified market research specialist hired recently was assigned responsibility for preparing the FY 1995 plan. It was also decided to prepare the plan every two years, rather than every year. The EIT does not agree with the latter decision because of the very uncertain external environment faced by the SR ( including the efficiency of Maputo port, developments in the RSA, and prospects for regional integration) as well as the need for extreme flexibility to meet future challenges.

### *Recommendations*

SR should reconsider its decision to prepare a corporate strategy and business plan every 2 years. It is recommended that a thorough "corporate plan" be prepared only every 5 years, but that the business plan be prepared annually.

# 1. Introduction

Swaziland Railway (SR) operates a small network in one of the world's smallest countries. Lengths of haul are short, though they may increase if regional integration of the region's railroads becomes a reality. The railway bypasses both major towns in Swaziland, as well as some centers of agricultural production such as the sugar mills. The road network is among the best in the developing world, and road competition from South African operators is intense.

From its inception through the period during which iron ore for export through Maputo constituted the main traffic (see Chapter 2), SR was operated by Mozambique, then a Portuguese colony. After Mozambique gained independence in 1974, and because of the exodus of experienced Portuguese personnel from Mozambique, most management and operational functions were taken over by foreigners, including Canadians, Zimbabweans, and finally by SPOORNET (then South African Railways). This arrangement lasted until 1985, when Swazi management took over.

Because of its history of contracting out senior railway management responsibility, SR had few Swazi nationals in its senior management positions. After the iron-ore mining operation ceased, SR found itself having to cope with a more diverse range of traffic, a more complex traffic pattern, and the need to operate and maintain its own rolling stock. These factors exposed the shortcomings in the management of the railway.

As part of a strategy to improve the railway's management and capability and ensure long-term viability, technical assistance and training were provided under the Swaziland component of the Regional Rail System Project. At the request of the Swaziland government, the U.S. Agency for International Development (USAID) contracted with a consortium consisting of DeLeuw, Cather International (DCI) and Rail India Technical and Economic Service (RITES). The contract commenced in November 1989 with a Project Assistance Completion Date of April 30, 1994. Figure 1-1 is a map of the system; figure 2-1 is a schematic of the railway.

The project consisted of the following activities:

- Long-term technical assistance, for which DCI and RITES provided, until April 1, 1993, personnel for the positions of Chief Executive Officer, Financial Director, Chief Engineer, Commercial/Marketing Adviser, Operations Adviser, Personnel Adviser, and Training Adviser. (Except for the Chief Engineer, long-term technical assistance was replaced by Swazi nationals on April 1, 1993.)
- Short-term technical assistance.
- Training.
- Commodities such as computers and furniture.

The objectives of the consortium were to (1) improve management performance, (2) improve overall institutional capability, (3) ensure continued viability, and (4) arrange for a transition to Swazi management. This final evaluation reports on the success of the project in accomplishing these objectives.

Figure 1-1. Map of Swaziland Railways System

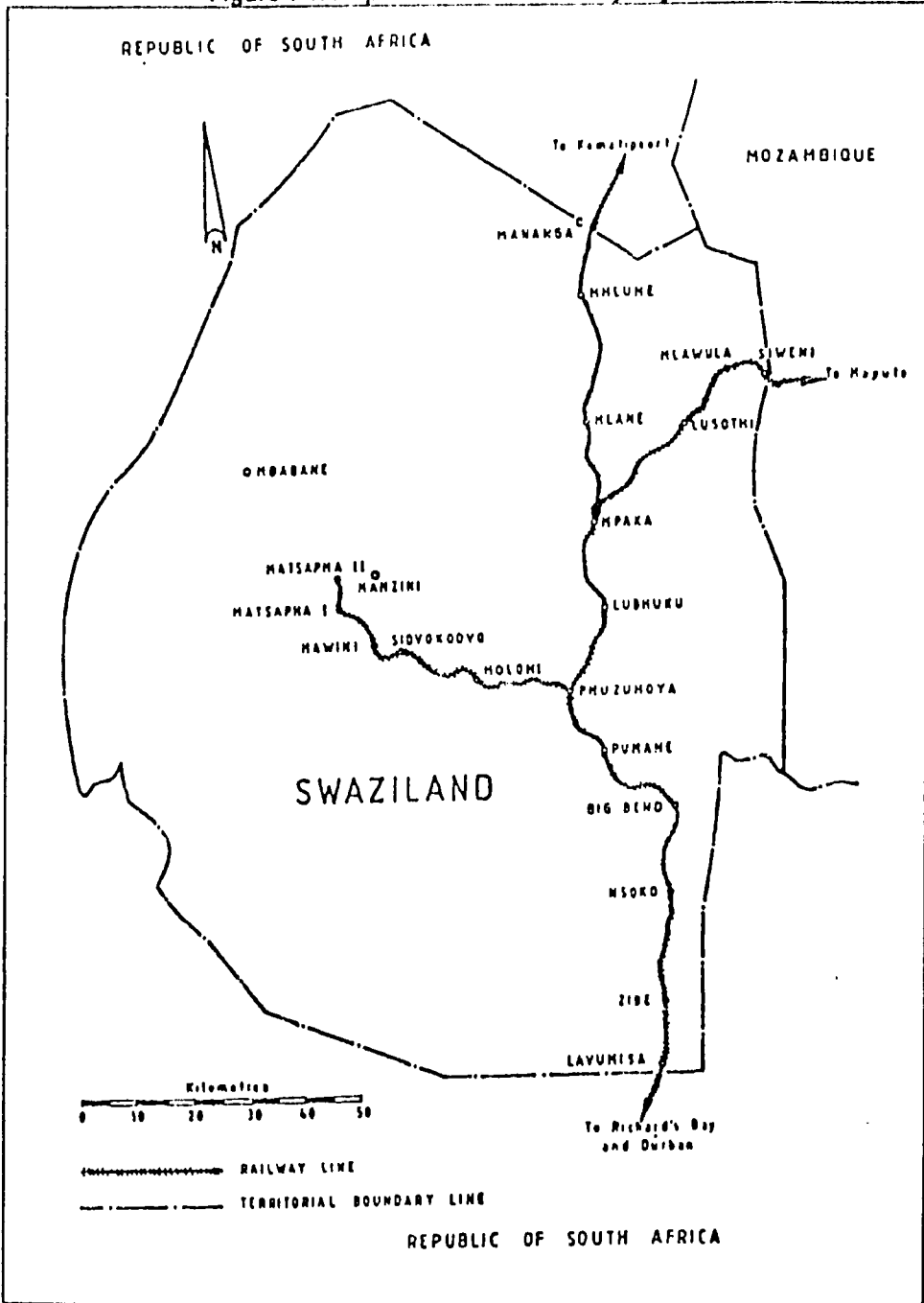
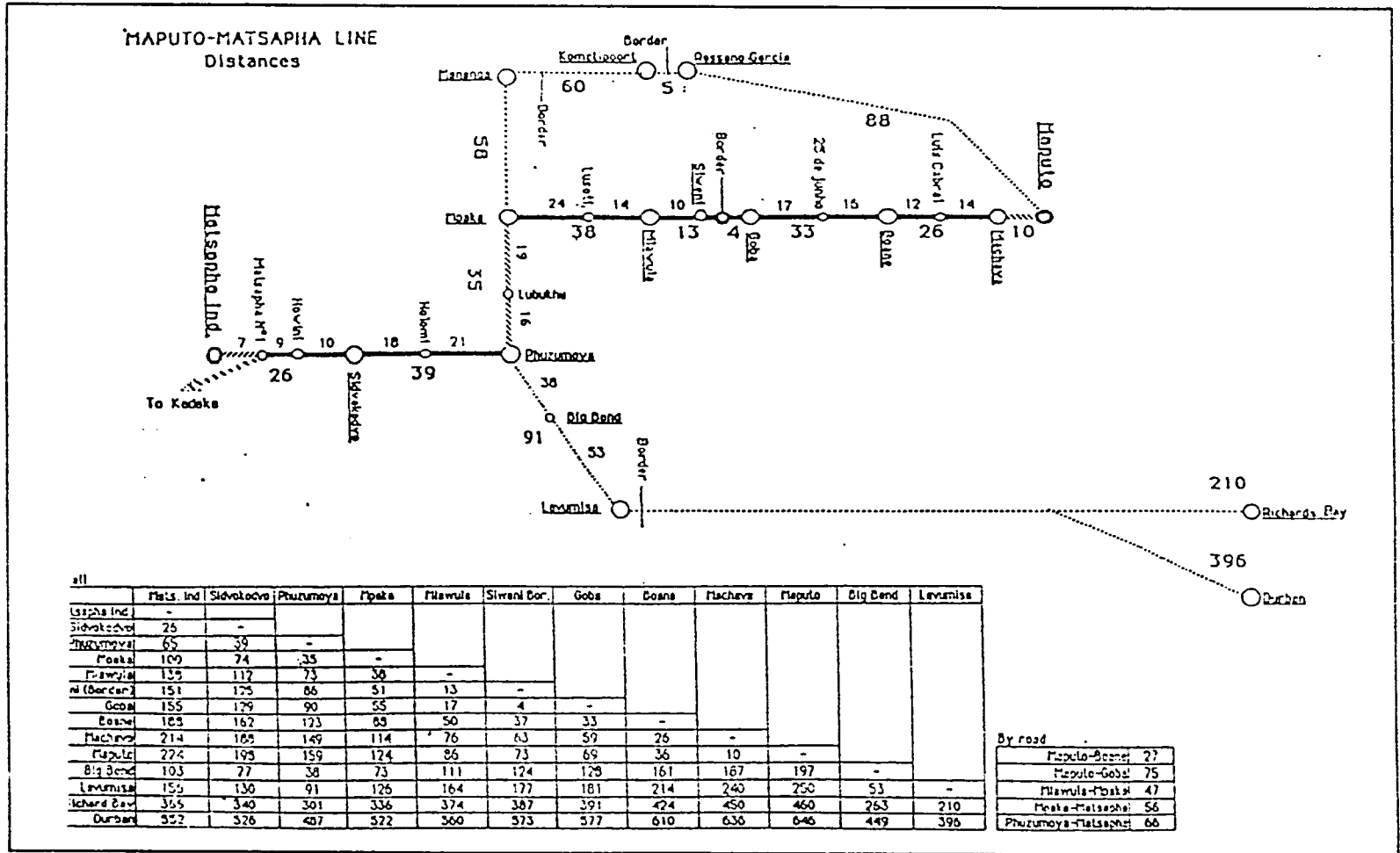


Figure 1-2. Schematic of Swaziland Railways System



## 2. The Economic Role of the Swaziland Railway

Established in 1962, Swaziland Railway began operating in 1964 solely to convey iron ore to the port of Maputo for Japan. The iron ore operation ceased in June 1980 after the supply of 64 percent-pure iron was depleted. By that time, however, SR had developed sufficient additional traffic to compensate for the loss of iron ore traffic. The railway continued to convey other products such as sugar, coal, and wood pulp. To avoid increasing operating difficulties to the port of Maputo caused by the war in Mozambique, in 1985 the railway constructed a 91-kilometer strategic line (or, as some view it, a political link) with the RSA on the north affording SR access to the ports of Richards Bay and Durban. SR's total current route length is approximately 301 kilometers, of which approximately 70 kilometers between Matsapha and KaDake (the old iron-ore route) are being dismantled.

During the past 30 years, SR has expanded its role from a domestic export carrier to a significant transit traffic carrier for goods destined to and from Zimbabwe, the northeast Transvaal region (of South Africa), and the ports of Richards Bay and Durban. During the same period, the railway's administration and management philosophy has changed at least five times along with the different countries operating it. These countries were, respectively, Portugal, Canada, RSA, Zimbabwe (briefly), and the United States, which oversaw the transition to complete Swazi management and executive control.

Data on SR's share of the market compared with road transport are sketchy. The only readily available data on SR's share of import and export traffic is in the 1993 transport policy outlook study,<sup>5</sup> and this is only for cross-border traffic, and for transport across the South African border. No modal-share data are available for transport across the Mozambique border, or for transit traffic. Moreover, the only year for which data are available is 1990, when the railway carried 57 percent (1,025,000 tons) and trucks carried 43 percent (775,000 tons) of the cross-border traffic.

Most of SR's traffic is in the form of exports of commodities such as sugar, molasses, pulp, fruit, and coal. Import traffic carried by rail is considerably less, though bulk commodities such as petroleum products (POL) and cement go by rail. Manufactured products and a large share of other import traffic go by road. One of the reasons for the railway's small share in the transport of manufactured goods is that, except for Matsapha, it misses all major centers of production and consumption in Swaziland. Another reason is the unfair competitive advantage trucks have because they do not pay their share of the cost of maintaining and strengthening roads. (The overloading of heavy road vehicles is also said to be widespread, although there is no statistical evidence for this claim.) A USAID-funded study found that, in Swaziland from 1986 to 1987, road-user costs amounted to E 13.2 million, of which only E 4.9 million was recovered as revenue. The under-recovery figure of E 8.4 million was an underestimate, however, and the study recommended that the charges levied against road users should be increased by a factor of at least three.

The role played by SR in regional transportation is more difficult to assess and easy to underestimate. However, evidence suggests that transit traffic over the past several years has hovered around 4 million tons per year. This is a very significant tonnage compared with other railways in the

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<sup>5</sup>ZCV Consortium, *Transport and Communications Sector Review and Policy Outlook Study for Swaziland* (draft prepared for the Government of the Kingdom of Swaziland), November 1993.



southern Africa region, such as the Tazara, Zambia, or any of the Mozambique railways. Although it is true that, once the port of Maputo has been revitalized, a considerable portion of the traffic transiting through Swaziland to South African ports will be diverted to Maputo, this event is not assured. In addition, even with the CFM(S) and port of Maputo functioning properly, that system may never achieve the efficiency of the South African ports/SR/SPOORNET transport system. Although the route to Maputo for many countries in southern Africa is often shorter, and tariffs will therefore be lower than for routes to South African ports, tariffs are only one of many important factors that shippers consider in selecting their transport mode. By far the most important factor in route selection is quality of service—an area in which the South African ports/SR/SPOORNET transport system will have an enduring advantage.

In summary, rail transport plays an important role in Swaziland's economy. Moreover, as the inequities in road-user charges are eventually eliminated, rail should become even more important. SR's role in regional transport will probably diminish as the CFM(S) is revitalized. However, by exploiting the full potential of the quality of service that can be provided by the South African ports/SR/SPOORNET transport system, SR should continue to be an important part of the region's economy.

## 3. Finance

### 1986 PRE-PROJECT RAILWAY FINANCIAL CONDITION

The opening of the northern link in 1986 involved financing of E 63 million, mainly in the form of foreign-currency denominated loans. The result of this large debt burden, in addition to the heavy operating losses SR incurred, was crippling to the previously healthy cash flow situation. This burden increased significantly as a result of heavy foreign exchange losses (approximately E 17 million at March 31, 1987) and consequently higher loan interest charges than expected.<sup>6</sup>

SRs' financial and cost accounting systems was best described as rudimentary. Existing systems lacked the structure and accuracy required to formulate a tariff structure adequate to recoup operating and capital costs. Its financial structure was not designed to track receivables, establish uniform tariff policies by various station managers, calculate commodity and route variable costs, or provide timely and accurate data on which management could make decisions. The organization did not adequately forecast revenues and expenditures or make adjustments based upon variations from forecasts. The financial viability of the organization had suffered through weak financial systems and controls.<sup>7</sup>

### CURRENT FINANCIAL CONDITION

SR's current financial situation has substantially improved since the beginning of the Regional Rail Systems Support Project. Specific improvements include the following:

- SR has generated operating surpluses during each of the last three fiscal years, and fiscal year 1994 is projected to end with an operating surplus of E 12.1 million and a net cash position (cash minus debt) of E -3.5 million (compared to a deficit of E 5.3 million and cash position of E -101.3 in FY 1986).
- The government has restructured the bulk of its ownership from debt claims to equity by converting infrastructure loans into equity and natural disaster loans into grants. In addition, SR has retired high interest rate commercial debt obligations and eliminated foreign exchange losses.
- SR's current traffic levels have remained relatively stable and the prospects for sustained traffic levels are encouraging. After adjusting for the temporary movement of drought-relief maize shipments, cross-border tonnage reductions of 0.3 million were more than offset by a 1.5 million increase in transit traffic tonnage.

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<sup>6</sup>Deloitte, Haskins & Sells, *Rail Systems Support Project Study*, Chapter 2: "Swaziland Railways." June 1988.

<sup>7</sup>RRSSP, Swaziland Component, August 1988.

- SR has reduced its cost structure through labor right-sizing and through more recent aggressive, fact-based negotiation with locomotive and wagon hire suppliers, which account for over half of the railway's operating costs.
- A rugged general accounting system is in place and functioning. This has allowed monthly performance reviews, the development of zero-based budgeting, and identification of cost activities requiring management attention.

Having addressed SR's capital structure, cost containment, and management processes, the project has greatly enhanced the railway's prospects for financial and economic viability. However, several areas of risk remain:

- The potential for the continuing diversion of traffic to both road haulers and an enhanced Maputo port is significant and likely to continue to erode traffic tonnage. Systems to manage service levels through wagon management would greatly reduce SR's vulnerability to these threats. Unfortunately, a system for local wagon control is not in place.
- Operating surpluses over the near term should be used to improve SR's competitiveness by increasing service levels. But because the capital allocation and business planning processes are still not formally established and there are only limited financial claims (interest, dividends) on operating cash flows over the next few years, no institutionalized discipline exists to limit expenditures to minimum-operating and economically viable capital uses.
- Because systems are not in place to effectively monitor and account for freight revenues and wagon hire expenses, a substantial portion of profits may go unrealized. Also, because the management of freight accounting processes is dispersed geographically, inconsistencies still exist in the flow of information. In addition, given the receipt of funds at numerous railway locations, the lack of a freight accounting system severely compromises efforts to establish strong internal controls. Traffic diversions to Maputo and to road haulers will inevitably increase the criticality of unrealized revenue and wagon hire overcharges.
- Because internal controls are still inadequate, the risk is probable of continuing losses from material purchasing (stores), accounts payable, and accounts receivable.
- Because operating information flows are irregular and inconsistent, the potential to misestimate traffic costs is significant, justification for raising rates in an increasingly competitive transport market cannot be based on such weak information flows.
- Organizing revenue accounting and costing traffic within the Traffic Department weaken rather than strengthen SR by deflecting the focus of the Commercial and Marketing Departments away from meeting customer requirements to management accounting activities. This weakness should raise management concerns regarding the accuracy of financial information reporting and the degree to which such structure reduces the reliability of performance indicators.
- The recent reorganization of the Finance Department has elevated the importance of SR's most vulnerable financial areas: hire charges, accident costs, accounts payable, overtime, and fraud. A newly created position of loss-control manager, in conjunction with watchful external auditors and redirection to the outside firm engaged for internal audit, have recently begun to institute validation procedures to reduce the railway's exposure.

## FISCAL YEAR 1994 PRELIMINARY FINANCIAL RESULTS AND INDICATORS

For FY 1994, SR's financial accounts are projected to show a net surplus of E 12.1 million (compared with E 14.2 million in FY 1993). Because of the restructured debt obligations, this is a true surplus in that there is no longer unpaid interest on debt. Although USAID contributions are included in this surplus, much of the USAID-funded expenditures were used for restructuring efforts that will be unnecessary as SR moves into the future. The surplus does, however, account for provision of housing, fuel for heating, and social services to employees and other noncommercial obligations.

Revenues are projected to decrease by E 8.2 million, from E 80.8 million in FY 1993 to E 72.6 million in FY 1994. Revenues from freight traffic fell 6 percent and accounted for E 4.4 million of the decrease. Revenues from miscellaneous and abnormal items decreased by E 3.7 million to E 8.3 million. (Recoveries from SPOORNET previous year's hire overcharges fell E 1.1 million to E 2.0 million.) FY 1993 results also benefited from a Government of Swaziland contribution of E 2.5 million. Finally, the cessation of drought relief shipments of maize (400,000 tons total) decreased revenues by E 7.1 million.

For the first time in 3 years, administrative expenses fell on a year over year basis as the full-year effects of labor right-sizing were felt. Despite a rapid escalation in overtime costs and assignment allowances (E 2.5 million), the reduction in administrative expenses overall is a bright sign. As work practices are adjusted consistent with SR's current staffing levels, railway management believes the expense growth in these areas can be reversed. Overall administrative expenses decreased by 5 percent, and freight revenue from goods transit decreased by 6.4 percent. Overall continuing expenses (excluding employee separation costs) increased by 5 percent (a reduction of 3 percent if accident costs are excluded). The lack of effective management information systems hampered the railway's ability to reduce expenses as rapidly as traffic revenues fell. Management is aware of the need to implement enhanced wagon control.

One of the financial goals of this project was to reduce SR's operating ratio from 146 percent in 1986 to 68 percent by 1993. The increase in the "as reported" total from 82 percent in FY 1993 to 83 percent in FY 1994 (see Table 3-1) reflects the effect of abnormal items in the two fiscal years. These abnormal items include current-year accident costs, recovery of overcharges in hire credits, grants by the Swaziland government, and terminal costs incurred in separating excess employees from the railway. After adjusting for the abnormal items, a comparison of adjusted operating ratios during the two years shows deterioration from 77 percent in fiscal year 1993 to 86 percent in fiscal year 1994 (76 versus 79 percent excluding accident costs).

**Table 3-1. FY 1994 Revenue Account**

	Expenses/Revenue (million E)	Operating Ratio (percent)	Net Surplus (million E)
As reported	60.5/72.6	83.3	12.1
Hire charge recovery (2.0)	60.5/70.6	85.7	10.1
Excluding Accident Costs (5.0)	55.5/70.6	78.6	15.1

### Balance Sheet Changes

The balance sheet has been radically reconstructed. As of March 31, 1994, the net position (cash plus equity minus total debt, in thousand E) is projected at

$$33,097 + 45,414 - 36,563 = 42,948.$$

By comparison, the net position as of March 31, 1986, was

$$5,357 + -116 - 106,713 = -101,472.$$

In terms of financial stability, a cash balance of E 33.1 million and debt of E 36.6 million mean the net cash position (cash minus debt) as of March 31, 1994, was E -3.5 million, compared with a projected cash flow in 1994 of 12.1 million. At the 1994 rate of cash generation, it would take about 3 years (E 36.6 million/E 12.1 million) to repay existing debt.

#### LONG-RANGE PROJECTIONS (1994-1998)

Fiscal year 1994 experienced a 16 percent reduction in cross-border tonnage. However, because of continuing uncertainty over security and efficiency relative to Maputo port, relative stability in the current traffic levels, and increasing domestic coal and transit traffic, increased tonnage is anticipated through 1998. Political uncertainties render financial projections beyond 1998 highly variable and suspect.

Assuming moderate annual rate increases (necessary as road competition increases), SR has the potential to generate positive cash flow over each of the next 4 years. Average yield (revenue per NTKm<sup>8</sup>) will fall as the mix shifts from higher-rated cross-border traffic to lower-rated transit traffic. Projected operating surpluses assume effective management of hire accounts and wagon control, as well as restraint in discretionary administrative expenditures.

Transit traffic, by contrast, continues to be stable. After adjusting for the cessation of drought relief maize shipments, tonnage actually increased 3 percent during FY 1994. These trends are promising and SR management anticipates increasing transit traffic as the effects of reduced sanctions on South Africa take hold.

On balance, these indicators suggest caution in applying price increases to price-sensitive cross-border traffic, especially given the high fixed-cost structure of SR and the fact that even the least profitable traffic is making marginal contributions to fixed costs.

#### FISCAL YEAR 1995

As formulated, the 1995 fiscal year operating and capital budget would generate a positive cash flow of E 5.6 million. This will allow aggressive management of newly scheduled loans that are priced at market interest rates. Operations are projected to generate E 18.7 million in cash before capital spending and debt-principal payments. Projected principal repayments would be E 7.6 million, and capital spending E 5.5 million.

The generation of surplus cash in FY 1995 actually increases the need for business planning and longer-term strategic planning. The wise use of these surpluses will position SR to survive and prosper in the post-Maputo era as regional traffic patterns change.

Table 3-2 presents the projected financial indicators for the fiscal year ending March 31, 1995.

**Table 3-2. Projected Financial Indicators for FY 1995**

Operating ratio	78.8
Operating surplus (E million)	16.9
Capital expenditure (E million)	5.5
Cash available before debt service (E million)	11.1

<sup>8</sup>Net ton kilometer.

## FINANCIAL STRUCTURE

### Capital Structure

SR's capital structure is now manageable. The ratio of debt to equity was about 80 percent at the close of FY 1994. Interest coverage (operating surplus divided by interest expense) approaches 9 at the close of FY 1994—a healthy indication that the railway is able to manage interest expense. However, a measure of the railway's ability to service its current level of debt (the sum of cash flow minus capital spending, divided by debt payments) is still less than 1.0 in 1994, which implies a reduction in cash reserves. By the end of FY 1995, however, debt coverage is projected to rise to 1.9 despite aggressive debt retirement plans.

### Loan Restructuring

The Ministries of Finance and of Transport and Communications, in cooperation with SR, jointly submitted a Cabinet Paper in February 1993 that would convert a portion of the Government of Swaziland's ownership interests from debt to equity. The paper maintained that the government, as the principal owner of SR, had an obligation to contribute equity to the building of the railway infrastructure, and that the capitalization (proportion of debt to equity) of the railway should be financially sound and consistent with the role of the railway in the regional transportation market. It recommended that previously extended loans to build the Southern and Northern Rail Links—E 27.0 million and E 8.0 million, respectively—should be converted into equity.

The Cabinet Paper further stipulated that the government, as the Guarantor of SR, should make amends to the railway for damage caused by natural catastrophes. Specifically, it proposed that the cyclone damage loan of E 4.7 million and the Usuthu River Rail Bridge Loan of E 8.16 M be converted into grants. The Cabinet Paper was adopted as proposed and SR re-capitalization was officially enacted.

In addition, intergovernmental negotiations between Swaziland and RSA have progressed to the point where SR will be allowed to retire the original principal amounts associated with the RSA loan used to fund the National Railway Loan (NRL) over the next two years. Based in part on the lower-than-anticipated traffic levels defined in the NRL Memorandum of Understanding, RSA will forego interest in exchange for rapid repayment of the loan principal. As of March 31, 1994, the principal outstanding on the RSA loan amounted to E 8.0 million.

Table 3-3 presents the remaining debt as of March 31, 1995 after the Swaziland and RSA loan restructuring and anticipated debt servicing during FY 1995.

The conversion of government ownership from debt to equity was a fundamental step in recapitalizing SR on sound financial principles and is a significant contributor to the railway's financial and economic viability. It frees the railway to pursue sound commercial investments that will increase railway profitability and lower the cost of transportation within the Kingdom. Railway management recognizes the dangers of acquiring large amounts of debt during a period of anticipated traffic reductions.

Having removed the burden of an unmanageable capital structure, railway management can now focus more attention on managing operations that will become increasingly important as shifts in shipping lane patterns and declining traffic volumes materialize over the next several years.

Table 3-3. RSA Loan Status as of March 31, 1994

	Year	Amount (million E)	Status
<i>Short-term</i>			
Southern Rail Link	1978	27.0	Equity <sup>a</sup>
Northern Rail Link	1984	8.0	Equity <sup>a</sup>
Cyclone damage	1985	4.7	Grant <sup>a</sup>
Usuthu River Bridge	1987	8.2	Grant <sup>a</sup>
Railway Equipment	1987	1.3	Retire FY 1995
Debt	1989	9.9	2 percent: 10 years beginning TBD
Replace of Com1 loan	1990	12.7	2 percent: 10 years beginning TBD
<b>Subtotal</b>		<b>71.8</b>	
<b>Debt</b>		<b>23.9</b>	
<b>Equity</b>		<b>47.9</b>	
<i>Long-term</i>			
Republic of South Africa		8.0	FY 1995 and FY 1996 payments
Capitalized Interest		2.8	RSA foregoes <sup>a</sup>
Industrial development		4.6	9 percent: 10 years from June 1986
<b>Subtotal</b>		<b>15.4</b>	
<b>Total</b>		<b>87.2</b>	

<sup>a</sup>Accounted as equity in financial statements.

## FINANCIAL SYSTEMS

Financial systems form the core source of information needed to monitor SR's financial performance, control receipts and expenditures, and depict the financial implications of marketing and operations decision-making.

SR's financial systems have undergone marked progress during the Regional Rail Systems Support Project. SR has replaced manual accounting, which produced neither timely nor accurate financial statements, with computer-based accounting systems. The core of this system is ACCPAC, a commercially available financial accounting package. Financial statements are now produced on time and finance personnel are continuing to increase their productivity as a result. The existing payroll system, "ACCSYS," cannot feed information directly to ACCPAC, and the stores (material management) module will require additional vendor customization to work in a railway environment. The result is increased effort on an ongoing basis to integrate the results from three different systems. Efforts are ongoing to automate the exchange of information between the payroll system and the general ledger, to complete the stores customization, and to integrate the current cash book and accounts payable subsystems.

The Director of Finance has decided to use QED as a platform for developing a new payroll system that is compatible with ACCPAC. Currently neither the MIS Coordinator nor her staff have had experience developing systems with QED. Nor does the MIS Coordinator have a single programmer on staff to pursue development.

To create special management reports, the MIS Coordinator has developed methods to extract financial figures from ACCPAC and import these into Lotus 1-2-3 spreadsheets, at which point further analyses can be performed. This process has proved to be cumbersome as the MIS Coordinator is the only employee able to perform these operations. An alternative for the railway would be to purchase a report-writing module for ACCPAC to enable more straightforward use of financial information.

### FREIGHT ACCOUNTING

Freight accounting remains in need of improvement in several areas:

- A functioning system for freight revenue accounting has not been implemented to replace the manual system, which suffers from several procedural breakdowns.
- Because the management of freight accounting processes is dispersed geographically, inconsistencies still exist in the flow of information. Because funds are received at numerous railway locations, the lack of a freight accounting system severely compromises efforts to establish strong internal controls.
- Because SR relies on SPOORNET, the originating carrier, for tallies of traffic that has transited Swaziland, the railway is exposed to significant potential revenue losses.
- Because SR must wait until SPOORNET has completed its own internal accounting cycles, the revenue accounting cycle causes delays and inaccuracy in completing SR financial statements.

While the issue of freight accounting has been well-studied during the project, no solutions have actually been implemented.

After evaluating the merits of various freight accounting systems used by other railroads, SR initially decided to become a remote user of SPOORNET's INTAC system in part to ensure compatibility with SR's main service partner. When SPOORNET announced plans to develop and switch to the GEMINI system (which would combine the INTAC and SPRINT systems), issues of compatibility and cost-sharing caused SR to reevaluate its choice. (Chapter 4 discusses systems issues in greater detail).

From a financial control and management perspective, the lack of a freight accounting system constrains SR in two ways:

- SR must continue to rely on SPOORNET's accounting system for information on traffic transiting Swaziland. The recent resolution of overcharges indicates a need for SR to independently monitor its own traffic to ensure accuracy in billing and revenue collection.
- The time lag between actual movement of transit traffic and receipt of SPOORNET accounts reduces the value of financial monitoring for line managers whose actions are most influenced by current information. This lag also introduces mismatching of traffic and financial results during a given month, again reducing the value of the reports to line managers.

Accurate freight accounting information serves as one of the bases for proper estimation of costs for the various cross-border and transit traffic commodities. As variability in traffic levels increases, the costs incurred by the lack of a functional freight accounting system increase. Consequently, a swift decision is appropriate, even though a perfect solution (purchased or internally developed) may not be at hand.



## COST ACCOUNTING

Compared to the pre-project period, during which SR had no cost-estimating function at all, the cost system introduced over the past year has greatly enhanced SR's understanding of cost drivers and the links between operating efficiencies and ultimate traffic costs. A strength of the current cost model used by SR is its straightforward incorporation of planned operating and financial performance targets. The cost model also relies heavily on the reliability of historical operating statistics, which are used to associate operating relationships and costs. But because many of these operating statistics are inaccurate and incomplete, the model must rely on assumptions made by a consultant. Although statistical monitoring of operating characteristics did not exist in the pre-project period, substantial work is still required by MIS to ensure sufficient and consistent collection of information. Until this occurs, the full benefit of cost estimation activities will remain unrealized.

Structurally, it is not clear why SR would choose to transfer management of railway cost estimation from the Finance Department to the Traffic Department. (Nor is it understood why revenue accounting and management of the annual budget process benefit from being in the Traffic Department.)

There are several reasons why the Finance Department should continue to manage finance functions. Placing financial functions within the Finance Department frees marketing managers to focus on customer issues and the generation of traffic revenues, and frees operating managers to focus on critical operating efficiency and safety issues. The generation of revenue and elimination of accidents have been identified as the most significant remaining threats to the railway's financial viability.

The Finance Department should be involved in the timely monitoring of revenues and expenses to identify financial trends on which management should act. The delay in addressing wagon-penalty charges highlights the benefits of identifying significant financial performance during monthly budget reviews.

The ongoing validation of costing efforts is intimately linked with the financial planning function. There must be a discernible link between financial performance and traffic cost recovery.

SR management should understand that the placing of financial functions within the traffic department will weaken rather than strengthen SR by draining operating and marketing attention from important tasks and handicapping the financial monitoring function at SR.

## FINANCIAL MANAGEMENT

The project laid the groundwork for increasing effectiveness in using SR assets to generate financial returns. The large undertaking to identify the most significant elements of SR's cost structure, understand the behavior of those cost elements, and craft action plans to more effectively manage SR assets is commendable.

## EXPENSE CONTROL

Administrative expense growth in the pre-project period was uncontrolled. SR suffered from over-staffing, ineffective management of hire accounts, inefficient steam locomotive operations, and a lack of understanding of joint facility costs. Using the knowledge built through USAID-funded efforts, the railway was able to eliminate surplus employees through voluntary right-sizing efforts that significantly altered the railway's cost structure.

In addition, the USAID-funded technical assistance

- Was instrumental in uncovering inappropriate locomotive and wagon hire overcharges by SR's suppliers

- Supported the restructuring of business agreements that arrested the double-digit growth in hire rates
- Equipped SR management with sufficient facts to redefine its relationships to its suppliers. For example, 30 to 50 percent of annual hire charge increases were held to 3 percent for FY 1995.

### FINANCIAL PLANNING

SR has made significant progress in establishing a zero-based budgeting process in which the department heads justify their departmental requests. However, by entrusting the budget statement development process to a newly hired Manager of Market Research, it may prove difficult in practice for this individual to question planned expenditure by heads of departments. Nor is it practical for the CEO to engage in the detail inherent in a budget that involves a multitude of expense categories and several departments. This role requires the senior status of a department head if scrutiny of budgets is expected to take place.

Department heads are expected to account for their departmental budgetary performance at monthly senior management meetings, and the Finance Department provides the monthly variance reports used at these meetings. However, the Finance Department is not sufficiently staffed to provide all of the requested special reports (e.g., overtime in Civil Engineering) requested by various departments. Clearly, the departments would benefit from the capability to analyze expense behavior more thoroughly. The railway should seek to develop this capability in a thoughtful manner.

Finally, the lack of a working freight accounting system will continue to hamper the monthly estimation of revenue and the financial planning efforts because of continued reliance on SPOORNET accounting reports, which may be three to six weeks old.

### STRATEGIC COST STRUCTURE

SR's financial viability will in part be a function of a cost structure, relative to revenues, that results from strategic position. As noted previously, SR's reliance on SPOORNET and, less importantly, other suppliers for rolling stock and maintenance means the gains from restructuring have been at risk. SR has done a commendable job in using fact-based negotiation to reverse a historically disadvantaged relationship with a supplier that accounts for roughly half of SR's cost structure. This is a direct benefit of the trained Swazi management team and the culmination of years of analytical study into both SR and supplier cost structures.

Nevertheless, SR should selectively use higher rates on SPOORNET's transit traffic to recover unreasonable increases in transportation costs. It is likely SPOORNET would absorb these rate increases without passing them to the customer because it is in SPOORNET's financial interest to route via SR, and deliver to Durban or Richards Bay, rather than to route to CFM and Maputo. In addition, to the extent that SPOORNET or the South African ports has a strong relationship with a customer, the customer may also be willing to absorb rate increases. The ability to assess SR's negotiating strengths is a positive outcome of the Regional Rail Systems Support Project.

## 4. Information Management

### PRE-PROJECT CONDITION OF MANAGEMENT INFORMATION SYSTEMS

Before the Regional Rail Systems Support Project, SR's management information systems (MIS) were either slow and inaccurate, or nonexistent. Specifically,

- The then-existing (financial) systems suffered from a number of constraints in that there were delays in producing trial balances.
- The structure of the general ledger made it difficult to extract a profit-and-loss account or any other management information.
- Reconciliation of control accounts were complex and difficult to check.
- Delays in processing of data through the general ledger caused serious delays in production of annual statements, which greatly limited their usefulness.
- The SPOORNET account reconciliations were of concern because of the use of SPOORNET as the source for data. In the opinion of Deloitte, Haskins & Sells, it was vital that SR be able to create its own data on hire charges and transit revenues for posting purposes. This would ensure the SR accounting system's independence, provide a basis for checking information from SPOORNET, and speed the process of generating monthly management statements.<sup>9</sup>

### CURRENT CONDITION OF MIS

Financial reporting information is now being provided to senior management quickly and consistently. However, development of systems in support of financial control (e.g., validation of accounts payable and revenue recognition) has not progressed beyond the study phase. The processes to support these control functions are still manual, and often only done on a historical basis.

The process of discovering and billing SPOORNET for overcharges and underappropriation of revenues, which is done manually, is time-consuming.

The recent wagon-hire penalty charges for failing to return wagons to SPOORNET on time (E 2.0 million) highlight the need for reporting wagon control information.

Progress in MIS has occurred primarily in the accounting area involving implementation, integration, and support of commercial off-the-shelf systems. No systems development has taken place to date.

### FINANCIAL SYSTEMS

SR's financial systems have undergone marked progress during the project. The railway has replaced the manual accounting system that was not able to produce timely or accurate financial statements, with computer-based accounting systems. The core of this system is ACCPAC, a commercially available financial accounting package. Financial statements are now produced on time and the productivity of the finance staff is continuing to increase as a result. The existing payroll system, "ACCSYS," cannot feed

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<sup>9</sup>Deloitte, Haskins & Sells, Chapter 2.

information directly to ACCPAC, and the stores (material management) module will require additional vendor customization to work in a railway environment. The result is a continuing effort to integrate the results from three different systems. Efforts are also under way to automate the exchange of information between the payroll system and the general ledger, to complete the stores customization, and to integrate the current cash-book and accounts-payable subsystems.

### OTHER MANAGEMENT INFORMATION SYSTEMS

The use of operating data in the cost-model and wagon-hire charge calculations is an example of how several information systems at SR will need reliable operating data. Part of MIS development will be to determine what information elements are needed by various individuals within the railway, and how to design the collection, storage, access, and security of these data.

Failure to ensure integrity of data at this primary level will unavoidably compromise the accuracy of information used in accounting for revenue, expenses, and costs. The entire railway MIS is dependent on the integrity of the underlying data. Although the MIS Coordinator has not had sufficient opportunity to focus on these issues, their resolution is necessary for downstream information systems.

Also needed is a system that consolidates the information developed by all SR departments and that directly provides the information necessary for corporate planning. This can be accomplished by installing a senior MIS professional either at the Director level or as staff reporting directly to the CEO.

### WAGON CONTROL

SPOORNET's SPRINT wagon-tracking system was introduced on SR in early 1992. The system falls far short of SR's tracking requirements in that it registers only wagon movement into and out of Swaziland. Internal location and status for the approximately 400 to 600 units in the country at any given time cannot be recorded. SR has "read only" access to a mainframe database maintained in the RSA.

At the completion of the project, USAID/Zimbabwe, on behalf of SADCC general managers, provided funding for a needs assessment and design contract to develop detailed specifications and a scope of work for implementing a regional rolling stock information system (RSIS). This system would be implemented over a 5-year period and would provide SADC railways with technology to (1) exchange information among the various regional systems on the movement and location of wagons and locomotives and (2) establish a computerized locomotive and wagon management system. SR has been participating in the needs assessment.

While it may be tempting for SR to wait for regional solutions to present themselves, the system may not be completed for some time to come. SR should consider developing a simple, independent wagon control system serving its immediate needs, with a view toward later upgrading and integrating with the regional system.

### CONCLUSIONS

Overall conclusions on MIS include the following:

- Organizing MIS under the Finance Department will hinder the development of a railway MIS because MIS will require a railway "storehouse" of information that should be used for several MIS applications.
- The current level of computer literacy and analytical experience within the departments is insufficient to satisfy senior management's legitimate need for ad hoc reports.

- The current technical skills of the MIS section are insufficient for systems development.
- The regional RSIS is uncertain and several years away.
- Delays in implementing local wagon control resulted in wagon penalty payments approaching E 2.0 M for FY 1994.

### RECOMMENDATIONS

The ET recommends the following activities for SR:

- Install separate systems development from other MIS support functions. This will allow intensive pursuit over the next year to complete wagon control and freight accounting systems and establish a reliable base of railway data.
- Free current MIS section to
  - Accelerate the pace of computer familiarization within SR
  - Act as a technical resource as staff encounter computer difficulties
  - Assist staff in using software systems
  - Manage the physical acquisition, support, and maintenance of computer assets.
 Given the railway's exposure to computer technology, such support may be necessary for several years.
- Purchase a report-writing module for ACCPAC to eliminate the need for manual transfer of data into Lotus spreadsheets. This will allow more employees to extract useful information from ACCPAC from which to write reports. At a cost of E 700, the opportunity cost of the MIS Coordinator's time alone provides sufficient payback, without counting the benefit in expanding report creation to more employees.
- Proceed with local wagon-control systems development, but keep USAID/Zimbabwe informed of developments that may be relevant to the RSIS project.

## 5. Corporate and Business Planning

The purpose of the strategic and business plan is to identify and assess SR's problems and opportunities and develop appropriate strategies and action plans.

### PRE-PROJECT CONDITIONS

Before the project began, SR lacked a clear framework of objectives and operating and performance standards. In addition, cash flow projections, tonnage estimates, training requirements and operational requirements existed at the departmental level, but did not form part of a coherent strategy with defined goals and objectives for 3, 5, or 10 years into the future. As a result, SR's management was not focused on specific goals and appeared often to be misdirected.<sup>10</sup>

### CURRENT SITUATION

The FY 1994 Corporate Strategy and Business Plan (May 1993) was developed by SR's senior management team, under guidance from the LTTA team, with the hope of institutionalizing strategic business analysis and planning. A manager of market research recently hired in the Traffic Department was assigned responsibility for preparing the FY 1995 plan.

The railway has also decided to prepare the plan once every two years rather than every year. The ET does not agree with this decision because of the uncertain external environment—including the efficiency of Maputo port, developments in the RSA, and prospects for regional integration—and the need for extreme flexibility in meeting future challenges.

The ET's recommendation is consistent with that made in the November 1991 Midterm Evaluation. This evaluation recommended that business planning take place annually, but that a thorough "corporate plan" need only be produced once every five years, provided *annual* progress reports are prepared (resulting from the *annual* planning process) to track and analyze any difficulties between intended and actual progress.

### INSTITUTIONALIZATION OF CORPORATE PLANNING

Given the departure of the LTTA team managing the corporate strategy and process, there is concern that the recently-hired market research specialist does not have sufficient authority or status to lead the business planning process. This is especially important because with annual planning (or budgeting) so intimately linked with longer-term planning, this individual has also been given responsibility for developing the annual budget.

The decision to assign such critical responsibilities (which are properly discharged by the Finance Department) to a newly hired specialist in the Traffic Department poses significant risks to SR. It is also puzzling given the successes the Director of Finance has had in restructuring debt, negotiating containment of rolling stock hire charges, eliminating locomotive repositioning costs,

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<sup>10</sup>Deloitte, Haskins & Sells, Chapter 2.

and carrying out the final implementation of the ACCPAC accounting system. As the CEO has noted, it is because of the Director of Finance's leadership that the railway is on firmer financial ground.

### FINDINGS

The risks associated with nonexistent or poorly led business planning include missed revenue opportunities and slow recognition of threats to railway profitability. In a marketplace subject to rapid developments and reversals, such lack of vision could prove damaging.

Within the current organizational structure of SR, the best department to manage budgeting (annual planning) and business and corporate planning is the Finance Department.

### RECOMMENDATIONS

The SR board and CEO should commit the resources (e.g., staff) required to

- Formally incorporate business and corporate planning as goals for each department head
- Establish as significant goals of the Director of Finance (1) coordination of annual and five-year business planning and (2) development of the budget statement and business plan.

Since SR has rejected the annual-report approach recommended in the mid-term evaluation, the ET strongly recommends that the results of annual planning be recorded in 5-year plans and performed annually.

## 6. Marketing

### PROJECT OUTPUTS

One of the desired project outputs was to install capacity in SR for implementing a more aggressive marketing strategy. This strategy would increase revenues by (1) expanding the range and quality of products and services available to customers (thereby increasing SR's share of the transport market), (2) setting appropriate tariffs by taking into account both costs that need to be recovered and pricing strategies of the competition, and (3) lowering marketing costs.

The purpose of a marketing strategy is to provide top management with a detailed road map for the planning and supervision of all marketing activities for the following year. It serves as an important tool for improving communication within the departments in SR, and for guiding management action. The Finance Department, for example, has an integral relationship with the plan because the plan describes forecasted sales and marketing costs critical to the management of cash flow.

The objective of installing capacity was achieved, and SR has fully accepted the need for a "marketing concept" that gathers marketing planning, sales, advertising, research, and other related functions into one marketing team. A good start was made with the implementing of a professional marketing strategy. This is a considerable improvement compared with a year ago. At that time the introductory section of the SR Business Plan for fiscal years 1994 through 1998 stated that "it was unclear as to how current railway management will organizationally maintain ongoing strategic planning and shorter term business planning because this function does not exist but is needed in view of SR's dynamic, not static future." This concern was valid at that time. However, at the time of this final evaluation, the basic framework for strategic marketing planning has been established. Senior management has completed training and is now in place, and places high priority on the need for a marketing strategy. (The goals of the CEO and the Director of the Traffic Department are outlined in Appendix A.) A well-qualified market research analyst recently joined the Marketing Department and the Marketing Department is now much better prepared to develop and implement a marketing strategy. Most important, the commitment by top management to excel in marketing will provide the force essential for developing a good marketing strategy.

The marketing strategy completed in May 1993 was not yet a stand-alone document, but was incorporated into the Business Plan for 1993-1994 through 1997-1998 published in May 1993. It is the intent of SR to publish the marketing strategy for 1994/1995 through 1998/1999 as an independent document and separate from the next business plan. This is appropriate for such an important document. It is also more secure because the marketing plan, of course, contains sensitive information that should not be widely distributed.

A key element in the development of a marketing plan is the availability of data on costs and operating statistics provided by the accounting and management information systems of SR. These systems, however, are still under development by SR. As they become operational, the quality of the marketing plan will improve, and less time will be required to prepare or revise the plan.

During the early stages of the project, insufficient emphasis was placed on surveys to collect the basic data and information needed for an effectively functioning Marketing Department. For



example, it is only now that the Marketing Department is starting to collect data on the nature, origin, destination, and costs of commodities carried by trucks that enter and exit Swaziland. These data are vital in setting competitive prices and estimating market share and the strengths and weaknesses of the competition. Another important area where data collection should have started long ago, and where the data vacuum is hampering development of the strategy, is on understanding the industries that form the clientele of SR. In all fairness it must be said that the marketing adviser organized a comprehensive survey of SR's client industries in 1991. His report, however, was not properly documented, and was therefore not very well distributed.

The Marketing Department, in collaboration with the Finance Department, is well aware of these weaknesses, and is beginning to systematically collect this information. The Marketing Department's budget for research this year is E 100,000. This is a generous budget and probably close to the absorptive capacity of this department for FY 1995. As the Marketing Department expands in the future, the research budget could be increased proportionally.

The remainder of this chapter (1) reviews the key steps that must be taken to develop a marketing strategy and (2) discusses the progress SR has made in incorporating these steps into its next marketing plan.

### ANALYSIS OF THE EXTERNAL ENVIRONMENT

SR's awareness of the difficult external environment it will be operating under in the near future has lent urgency to their efforts to reduce costs and expand revenues. Typical issues include traffic diversion to Maputo, a decline in the regional economy, and the intensifying truck competition. Defining the various scenarios and their implications for traffic and costs is too big a task for the Marketing Department. Fortunately, the department need not spend its scarce resources on developing these scenarios because considerable analysis has already been done. Especially noteworthy is an extensive discussion in the ZGV Consortium's report<sup>11</sup> that defines the impact of several possible short- and long-term scenarios for railway traffic demand. The Marketing Department is well aware of these studies and is combining them with its own experience in preparing the strategic plan.

### SALES PROJECTIONS

The business plan published in May 1993 specifies tonnage projections by transit and cross-border traffic as well as by major commodity. Table 6-1 presents historical traffic for FY 1990 through 1994, and the estimated traffic for FY 1995 as developed for the recently completed FY 1995 budget. Cross-border traffic is projected to increase by 16 percent during FY 1995. The increase is largely accounted for by coal from the Maloma mine, which appears to have overcome its start-up problems. After sugar, coal is the most important cross-border commodity for SR, and coal may soon become the most important commodity carried by the railroad. Transit traffic is expected to increase by 7 percent. The postulated 15 percent increase in rock phosphate, SR's most important transit traffic commodity, is large enough to outweigh losses in general goods and container traffic. The projected increase in total traffic during FY 1995 is about 10 percent and again, is largely accounted for by the growth in coal transport. Without the coal increase, the overall traffic would have grown by a more modest 7 percent.

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<sup>11</sup>ZCV Consortium, *Transport and Communications Sector Review and Policy Outlook Study for Swaziland*, November 1993.

Table 6-1. Actual and Projected Traffic, FY 1990-1995 (000 tons)

	Fiscal Year					
	1990	1991	1992	1993	1994 <sup>a</sup>	1995 <sup>b</sup>
<b>Cross-Border Traffic</b>						
Sugar		426	422	410	239	250
Coal		121	121	110	40	144
Pulp		65	40	70	125	125
POL		77	98	90	75	116
Cement (imported)		26	69	80	80	85
Maize and wheat		6	0	2	65	68
Molasses		69	57	60	80	60
Containers		0	9	11	20	40
Timber		139	114	60	50	27
Citrus fruit		29	32	22	19	21
Fertilizer		17	19	25	21	21
General goods		32	23	21	20	20
Cement (exported)		0	0	0	25	18
Canned fruit		21	13	14	10	14
Bricks		4	3	7	0	0
Subtotal	1,177	1,032	1,025	982	869	1,009
<b>Transit Traffic</b>						
Rock phosphate		1,485	1,320	1,753	1,568	1,800
General goods		1,800	1,080	1,433	600	500
Phosphoric acid		107	95	78	120	185
Vermiculite ore		67	83	62	85	150
Containers		240	249	225	150	100
Citrus fruit		123	110	110	84	90
Copper		43	59	45	30	30
Maize	11,111	0	0	0	23	0
Subtotal	4,307	3,368	3,006	3,706	2,658	2,855
Total	5,484	4,400	4,031	4,688	3,527	3,863.8

Note: FY 1995 begins April 1, 1994, and ends March 31, 1995.

These projections were made with the assistance of the STTA and, since this was the first attempt, were based on simple techniques such as analyzing historical data and trends and comparing them with personal knowledge of the individual industries. The next plan, now under preparation, will use more sophisticated techniques that do not depend so much on simple extrapolation. A marketing research analyst was recently added to the marketing staff to carry out this work.

### ESTABLISHING TARGET MARKETS

SR's strategy over the last several years has been to focus on high tonnage traffic such as sugar, molasses, and coal, as well as the somewhat lower-volume POL and container traffic. In the 1993/1994 business plan it was pointed out that the lower-volume traffic, such as containers, should not be neglected. This is especially important because of the feasibility of transporting pulp and other commodities where trucking has made inroads. The Marketing Department also correctly realizes that, because of possible diversion of its transit traffic, SR must focus on increasing cross-border traffic. The identification of target markets is an important step for SR because it has such limited resources, and it is impossible for such a small railway to be all things to all people.

## MARKETING AND SALES OBJECTIVES

SR's marketing strategy must establish marketing and sales objectives in order to achieve its goals. This is done by establishing marketing objectives broken down by sales area, salesperson, and commodity. It must be both time- and quantity-specific. An example would be: "to transport 100,000 tons of coal by December of next year." These objectives are time consuming and difficult to set up, and currently appear to be beyond the capabilities of the Marketing Department. However, when SR establishes bonus or incentive plans (as is planned for some future time), the establishment of marketing and sales objectives will be necessary.

## PRICING

Pricing for each upcoming year must be established for each product line. This is probably the most important decision within a marketing strategy. Prices are seldom established solely by the Marketing Department, although marketing should have an important voice in the discussions.

The established prices must agree with the overall marketing strategy set by top management. For example, if the objective is to capture market share from trucking or other railways, the setting of a high price to offset the previous year's losses is questionable.

Pricing strategies must be verbalized and documented. If the price strategies cannot be stated, the prices will probably reflect simple rule-of-thumb measures based, for example, on inflation.

SR's weak pricing strategy is a big handicap to maximizing profits. Although the railway is devoting considerable attention to proper pricing, the necessary data and tools for establishing appropriate prices—except for the computerized costing model developed by an STTA transport economist—are not yet available. These data and tools include competitor prices, competitor profit margins, the cost to SR of transporting the commodity, and the elasticity of transport demand with regard to tariffs. As these data and tools are developed, and as the MIS becomes operational, the level of effort for establishing appropriate tariffs should diminish, at which point the department can concentrate on expanding existing markets and developing new ones.

## MARKETING PERSONNEL

The SR Marketing Department is quite small. Under the Director of Traffic is an Assistant Director of Traffic who oversees two senior marketing officers, and an officer in charge of advertising and promotions. The senior marketing officer is in charge of specific commodities and is responsible for maintaining client contact. Although there is also a market research analyst, he does not work full-time within the Marketing Department and must share his time with developing the business plan.

If possible, the marketing force should be expanded. In addition, the Marketing Department should create a budget for hiring outside consultants for specialized tasks, such as preparing studies of developments in the sugar, coal, and rock phosphate industries. Other areas would include studies of the trucking industry and competitive pricing strategies. These consultants need not be expensive. For example, graduate students working for their MBAs or economics degrees could be employed at low cost and for short periods to work, under the guidance of their professors, on these specialized studies. This would also allow the Marketing Department to assess the student as a candidate for possible employment in the future. The E 100,000 budget for research should go a long way toward recruiting the necessary temporary assistance.

## FIELD TRIPS

A 1-day field trip was made with a marketing representative to visit two of SR's important clients.

## COAL

The Malorna mine, which opened about a year ago, is the most important coal producer in Swaziland. Located in the southern part of the country, it produces a high-quality anthracite that is in great demand in Europe. The mining started out open-pit, but will soon be replaced by horizontal shafts. Coal reserves are very large. Though initial production was low, the mine is now operating 24 hours a day. The general manager estimated that the production rate in March would be 20,000 tons, and that this rate would increase to 30,000 tons per month later this year.

SR built a coal loading spur about 26 kilometers from the coal mine, which provided equipment for loading wagons. The siding is served by a shuttle of about eight subcontracted 30-ton capacity trucks running over a rough gravel road between the mine and the loading spur. Though this shuttle must be expensive, it does not appear to be an obstacle to marketing the coal. Since the coal mine is one of SR's better customers, construction of a 26-kilometer spur to the mine head to eliminate the expensive truck shuttle and boost the production rate is an investment that should be analyzed.

Anthracite coal is quite fragile, and rough handling can significantly reduce its price. The coal is shipped to Durban, which has the facilities required for properly handling the anthracite. Since the coal mine siding is located only about 40 kilometers from the southern border, SR does not get much haul out of the coal traffic.

It would be more profitable to SR if the coal were shipped via the northern route to Maputo because this would yield either a 146-kilometer haul to Goba or a 153-kilometer haul to Mananga. The coal mine would also benefit because of the shorter distance to Maputo. Unfortunately, although Maputo has a large coal terminal, it does not have the equipment needed to properly load the anthracite. However, this specialized equipment is modest in cost and could be installed in the future (there are currently no concrete plans to do so). If that happened, the reduced transportation costs to the coal mine could result in a significant increase in production rate.

## CITRUS

Citrus is an important seasonal commodity for SR. The world market for citrus is good, and is growing at an annual rate of 3 to 5 percent. Considerable sugar land is being converted to citrus. Fortunately, the railroad still has a firm hold on citrus transport. The picking season runs from April through September, coinciding roughly with the sugarcane harvesting season. With the exception of the citrus purchased by Japan and emergency shipments by truck when rail is not available, most of the fresh citrus is shipped by rail to Durban, with some going to East London.

Maputo used to be the traditional port of export. However, pilferage (Swaziland growers lost 300 tons in 1993) became too costly, and the growers switched to Durban. At the request of the customer, and because it has the best refrigerated warehouses, Cape town is used for exports to Japan. The Japanese, who are extremely fastidious about the quality of the fruit, also request that the citrus be sent by road.

The growers are reasonably well satisfied with rail service to Durban. The normal transit time is 2 to 3 days, well within the 10 days before degradation of quality starts. Refrigerated wagons are not needed if the transit time can be kept to within 10 days. However, there are too many discouraging deviations where transit times approach the 10-day limit.

Though rail is used by the growers, trucking is very price-competitive. If rail service were to become worse, massive diversion to trucking could be expected. It is therefore important to maintain and even improve the level of service to this important customer. It is equally important to maintain pressure on the Government of Swaziland to rationalize truck-user charges, thereby forcing the truckers to charge higher rates.

# 7. Training Program

## OVERVIEW

On November 13, 1990, DeLeuw Cather International Limited (DCIL), in association with RITES, submitted a Senior Management Training Program (SMTP) for the Long Term Assistance Project. Thirty-one senior officers participated in the program.

### Methodology

In 1990 the LTTA assigned to each department developed, in consultation with the available SR managers, an analysis of training needs of top management staff including functions performed, functions that should be performed, and training needs. Information on available training resources was developed and a resource database was developed. A database was also developed on the designated trainees.

### Training Needs

The LTTA team identified 31 SR senior officers that needed to be trained and who were deemed capable, after training, of filling a senior management position.

### Training Organization

To successfully implement SR training it was determined that the LTTA team and SR must

- Plan and develop a program and effective curricula
- Produce or obtain training material
- Enter into contracts with external training resources
- Implement training courses
- Identify, select, and train instructors where necessary
- Monitor, coordinate, validate, and evaluate courses
- Report performances
- Submit budget.

### Training Policies

The LTTA team recommended a training policy recognizing the concept of line responsibility for planning, organizing, implementing, and reporting training activities. This policy is under implementation by SR management, but has only been partly successful. (Training policies appear in Appendix B).

## Training Program

The SMTP was developed to enhance the skills and knowledge needed to administer currently assigned tasks. Needs were also identified for a few positions based on skills and knowledge needed to fill a new position. The program includes a series of training units, a schedule of which appears in Appendix B, Table B-1.

## Complementation Plan

Five tasks were involved in the complementation plan:

1. Prepare for training unit delivery
2. Monitor and control unit delivery
3. Evaluate effectiveness
4. Report program implementation
5. Support managers training abroad.

A schedule of training programs for each designated department manager appears in Appendix B, Table B-1.

In general, the program was successfully presented and received. It has provided SR with a well-trained and knowledgeable staff who, during the transition period, successfully assumed their responsibilities. Unfortunately, the ET feels that the program has fallen short in one area, as discussed in the next paragraph.

## TRAINING ORGANIZATION

The SR employee trained for the Training Manager position (shown on the organization chart in Appendix B, Figure B-1) resigned just after completing his extensive training and before assuming that position. This left a gap in the implementation of the newly developed training program, a situation made even worse by the scheduled departure of the LTTA training officer. No suitable replacement could be found, and the employee finally assigned to that position was neither familiar with nor prepared to assume the responsibilities of the position. Item 5.3 of the Fourth Year Work Plan states:

The Training Advisor completed his on-site management of the Senior Management Training Program in November, 1992. A number of training units required completion and overall management of this effort was turned over to the SR Training Manager.<sup>12</sup>

When questioned about the implementation status of the remaining program, the Director of Personnel and Administration referred the ET to the Training Manager. The Training Manager flatly denied any knowledge of the remaining program or ever having been given any responsibility over them. What information could be found was supplied by project staff.

The Training Manager, essentially, is a facilitator. He was selected for the position merely because he was "next in line" when the designated Training Manager resigned. Since assuming the job he has received little direction and even less support.

The 1993 monitoring report<sup>13</sup> recommended that SR formalize internal training policies to lend coordination, direction, and appropriate authority to ongoing and initiated efforts. It also

<sup>12</sup>DeLeuw, Cather International Ltd., 1993. *Fourth Year Work Plan*. Swaziland Technical Assistance Project.

recommended that the title of Training Manager be elevated to Assistant Director. No action has been taken by SR on these recommendations. The 1993 Monitoring Report also stated "the Management Team members, with the exception of the Training Manager, are highly motivated." Unfortunately, the Training Manager is unhappy with his situation, and his performance does not warrant a promotion to Assistant Director. SR should consider two alternatives:

1. The current Training Manager could be given proper direction and support. He could be transferred to SR Headquarters in Mbabane (he currently lives in Sidvokodvo) and told that when he establishes the Training Department as a vital and important function on SR he might be considered for the title change. The Director of Personnel and Administration will have to work closely with him to provide counsel and support. In any case, the Training Manager will have to prove himself.
2. Reassign the existing Training Manager and his staff, abolish the department as it now exists, and recruit a qualified training specialist for the new position of Assistant Training Director stationed at Mbabane.

In summary, the unexpected departure of the newly trained training Manager, and his replacement by an untrained person, leaves a gap in the implementation of the training program. It is not yet apparent how serious this gap is. A lesson learned—and it is an old lesson—is that when considerable project funds are expended on training an individual, even if for only a few months, there should be legally binding provisions that obligate the individual to serve with his organization for a stipulated time period after the training.

#### CURRENT STATUS

According to the latest available information, the SMTP is near completion. Course status is as follows:

- Scheduled      53
- Completed     47
- Canceled       4
- In progress    2

In the ET's opinion, the SMTP was a most successful component of the Regional Rail Systems Support Project (Swaziland component). With the exception of the Chief Engineer, senior staff members are in place and generally doing quite well. (In some instances their performance has been outstanding.) Much of their success can be attributed to the training they have received. It has not only provided them with the knowledge to perform but also with confidence in their own ability.

The only major problem, as discussed earlier, is the resignation of the Training Manager who had been trained to assume the responsibility for the program when the LTTA training expert left. The timing could not have been worse.

Following is an update on the two training programs still in progress.

#### *Mr. Timothy Ndlovu*

The training of Timothy Ndlovu will be completed by March 31, 1994. Mr. Ndlovu has completed his Associate Degree program. He was assigned to track maintenance gangs at various

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<sup>13</sup>Burlington Northern, October 1993. *Monitoring Visit*. Regional Rail Systems Support Project 690-0247, U.S. Agency for International Development.

locations on the Burlington Northern Railroad for a period of 2 months to gain first-hand knowledge of proper maintenance techniques, project management, crew supervision, and hands-on experience. He is currently taking technical training courses at the Burlington Northern technical training center in Overland Park, Kansas, and at the Management (Leadership) center in Fort Worth, Texas. Some of his technical courses have included class 1 and 2 work equipment training, foreman (maintenance of way) training, welding training (flat and four positions), and thermite welding training.

#### *Financial Skills Builder*

The other course currently in progress is Finance for Non-Financial Managers—the "Financial Skills Builder" (FSB). The following individuals are attending this course:

- Director of Traffic
- Director of Personnel and Administration
- Assistant Director of Finance
- Assistant Director of Commercial
- Chief of Mechanical
- Engineer in Training
- Business Planner.

The course was initially presented by RITES personnel with poor results. Because of the poor results it was decided to repeat the training but with a different approach. A self-tutorial computerized training system titled "Introduction to Finance for Non-Financial Managers" was purchased and Mr. T.H. Glasspool of the Swaziland College of Technology was selected as facilitator. Classes are held on Monday and Friday with the last class scheduled for Monday, March 28. Since the course is self-instructing, a participant is required to make up any class that his schedule may not allow him to attend. The software is available to the students.

It now appears that the course will not be completed by the following:

- Chief Mechanical Engineer
- Director of Traffic
- Director of Personnel and Administration

It also appears that the reason for the relatively poor success of this training program was timing. It was offered when many of its participants were assuming their positions as the LTTA team was leaving. Because of the heavy work load, conflicts in scheduling prevented regular attendance. The team recommends that the course be offered at a more convenient time and that an SR staff member who has successfully completed the program be used as an instructor.

### TRAINING POLICIES

SR has three training policies (see Appendix B, Annexes 1 through 3):

1. Departmental policy
2. Management Training policy
3. Training policy.

The policies clearly establish procedures, requirements, and responsibilities. However, because of the lack of a commitment from senior managers and a weak training department, they are not being implemented. In fact, it appears that little effort is being extended to meet policy requirements. A total of E 600,000 was budgeted for training in the FY 1994 budget year but available figures indicate that less than half of that was spent.



When asked why only half of the budgeted training money was spent, senior manager responses were vague and elusive. It is clear that the funds (£ 300,000) were not spent for training, and part of the explanation may be the lack of a qualified Training Manager.

### TRAINING NEEDS ANALYSIS AND PROGRAM

The SMTP was, with a few exceptions, very successful. Besides providing SR with a well-trained and highly motivated staff, it has also left the railroad with a comprehensive training needs analysis, a recommended training program, and a senior management aware of the critical importance of training.

The needs analysis was prepared by Gordon Turnbull before his departure. It contains detailed information outlining the following:

1. Activity
2. Need
3. Audience
4. Number to train
5. Whom to provide
6. Course title
7. Length
8. Estimated cost
9. Resource available to accomplish.

The training program, also supplied by Mr. Turnbull, outlines training by department and section for the entire railroad.

Unfortunately, the Training Manager has made little use of the analysis and program. The ET recommends that SR make proper use of these documents.

# 8. Operations

## OVERVIEW

### Staffing and Organization

With the exception of the Chief Engineer, the SR management team is in place and is performing a satisfactory job of running SR. It appears that the transition from the DeLeuw Cather/RITES team is being accomplished more smoothly than had been anticipated at the mid-term evaluation. Overall the SR management team appears to be managing the day-to-day function of this railroad in a professional manner. This chapter outlines the major improvements and cost reductions the project has achieved.

### Major Improvements and Cost Reductions

SR realized many benefits in the phase-out of the steam locomotives, including a reduction in staff of 330 employees, or 31 percent. In addition, the installation of a railroad train operating system will be a major factor in reducing accidents on SR. It is a much safer and more efficient system than the token system. It also reduced by 10 the number of trains controlling officers needed to operate the system. Finally, SR is in the initial stages of installing an information system.

### Safety

The appointment of a Safety Officer and the creation of a Safety Program will have a major impact on SR by reducing injuries and accidents. It will also improve employee awareness, attitude, and morale.

### Transit Time

It is believed that transit time has been reduced significantly. However, the process of data collection to keep track of transit times is only just now starting.

Transit time reductions have many benefits to both SR and the customer. It provides major cost saving benefits by reducing locomotive and wagon hire charges.

## REORGANIZATION

There has been little change in SR structure during the 5 months since the last monitoring visit. Previous monitoring reports recommended the following restructuring:

1. Divide the Traffic Department into two units: (1) Operations and (2) Marketing and Commercial.
2. Appoint a single officer to develop and manage the Safety Program.
3. Have the Operations Department assume responsibility for train operations employees.
4. Create a position to develop and monitor the 5-Year Business Plan.

### 5. Create the position of information officer.

Following is the respective status of these suggestions since the October monitoring visit:

1. Marketing and Commercial remain separate departments, each headed by an Assistant Director reporting to the Director of Traffic. SR is considering the recommended reorganization but has not implemented it because it considers neither the Assistant Director of Marketing nor the Assistant Director of Commercial properly qualified. The ET agrees with that appraisal.
2. Mr. N. Kris Mnisi has been appointed Safety Manager and a Safety Department has been created. He reports to the Director of Traffic. This safety effort is discussed in detail later in this chapter.
3. This recommendation appears to be working well and is accepted by all parties concerned.
4. This recommendation has been accepted and implemented. The 5-Year Business Plan is scheduled to be updated biennially. The ET is pleased that the position was created but recommends the 5-year plan be updated annually.
5. This recommendation has been accepted and implemented. The ET is pleased with the establishment of the position, but believes it should have been established at the Assistant Director level rather than the Manager level.

### MATSAPHA INLAND CONTAINER DEPOT

The inland container port at Matsapha has been open since April 1, 1993, with both 6- and 12-meter capacity. The current usage fluctuates between 140 and 190 units per month. This volume represents a decline from the initial traffic levels of 200 units per month and is well below capacity. SR has contracted for drayage service.

### EAST-WEST LINE REHABILITATION

SR's East-West line (Matsapha-Phuzunoyya and Mpaka-Siwani) is under intensive maintenance because of its deteriorating condition and lack of long-term rehabilitation. Consequently, a maximum timetable track speed of 40 kilometers per hour has been established with further restrictions in specific areas that are much slower. The primary problem is sleeper quality. The sleepers are original and were installed in October 1964.

Part of the material to be used in the rehabilitation of the East-West line will come from the Kadake-Matsapha uplift, which is currently under contract and is 70 percent complete with completion expected on April 30, 1994. A total of 65 kilometers of track is being uplifted, leaving 130 kilometers of 40-kilogram rail available for salvage. Of this, 70 kilometers is considered salvageable with the remaining 60 kilometers considered scrap. Essentially none of the sleepers will be salvageable. The track ballast is being screened, placed in bottom dump gondolas, and spread on the East-West line. An estimated 30,000 cubic meters of ballast will be salvaged. SR has 20,000 cubic meters of ballast stored at Lubkhu that, along with the 30,000 cubic meters of salvaged ballast, will meet the ballast requirements of the East-West line rehabilitation.

The cost of the intensive maintenance, including uplift, has been funded by the GOS as follows:

- FY 1992: E 0.76 million
- FY 1993: E 2.50 million
- FY 1994: E 1.17 million

An additional E 900,000 has been sought from the government to complete the project.

The Italian Government has offered a loan of US\$12 million to rehabilitate the East-West line. The cost estimated by the Italian consultants is higher than the original SR estimate of between E 30 and 40 million and possibly more than a South African contractor would charge. The loan would be made to the Swaziland government and would be issued in progress payments. This may be less attractive to the Swazi government.

The terms of the loan offered by the Italian government are very liberal. They will lend US\$12 million at no interest for 12 years and then 1 percent per year over a 30-year repayment period. The ET recommends that although it can be considered a gift, this loan should be carefully considered.

The North-South line, with its concrete sleepers and 48-kilogram continuous welded rail, is considered to be in excellent condition.

### OPERATING EMPLOYEES TESTING

The goal of eliminating all train accidents may be noteworthy and ambitious but certainly not realistic. The elimination of train accidents caused by human error, however, is certainly feasible. The major accidents that have taken place on SR in recent years have been devastating in the cost of both life and property. They have had a major financial impact, and if SR is to remain viable it must make every effort to eliminate or at least reduce train accidents. Two possible methods of achieving improved performance in this area would be crew efficiency testing and random drug testing.

Crew efficiency testing is a method of unannounced testing of crew compliance of train movement operating and safety rules. Failure to comply with rules could result in appropriate disciplinary measures. The ET will furnish Mr. Mahlalela with all necessary information on efficiency tests as performed in the United States, including Federal Railroad Administration rules and requirements, so that he and his direct reports can determine its usefulness to SR. The ET recommends that SR implement an efficiency testing program.

Because of the increased number of drug- and alcohol-related accidents on U.S. railroads, federal legislation was passed that requires, among other things, random drug testing of all operating crews involved in train movement. It also outlines and stipulates disciplinary action required in the event of failure. The ET will give SR the information and requirements for drug testing and the data resulting from these tests. The ET recommends that SR implement a drug testing program.

### MOTIVE POWER AND ROLLING STOCK

A 200,000-liter fueling facility is being constructed by the supplier, Shell Oil Company, at Mpaka with an April 1, 1994 completion date expected. The facility will be equipped with high-speed fueling nozzles to reduce train delay time. It is expected to save SR 42 cents per liter. Employees assigned to fuel locomotives should be informed of the importance of expediting the process. Lengthy delays could result in unnecessary locomotive and wagon hire, thus negating much if not all of the potential savings. Initial use of the fueling facility should be supervised to ensure that the facility is used properly and efficiently. Time consumed should be recorded by supervisor to establish delay criteria.

SR is currently leasing five road locomotives from SPOORNET for shunting. These heavy road locomotives are difficult to shunt, have excessive horsepower, and are expensive to lease. SR should investigate the lease or acquisition of rehabilitated shunting locomotives to replace those currently leased from SPOORNET. Shunting locomotives are smaller and cheaper to operate than road locomotives. Only diesel electric should be considered.

SPOORNET supplies an additional locomotive, at no lease cost, to be used as a spare.

SR has received 23 of the 24 wagons rehabilitated in 1993 and 1994 by SPOORNET at a cost of E .5 million. These wagons are used to transport sacked cement. The last wagon to be rehabilitated is

currently in shop and was scheduled to be delivered some time in March, 1994. No approved wagon rehabilitation work is currently pending implementation. Future plans will depend on traffic requirements.

### PROPERTY MANAGEMENT

The phase-out of the steam locomotives and right-sizing of staff reduced the importance of Sidvokodvo and increased that of Mpaka. A study of the consolidation of operations at Mpaka and the transfer of SR employees from Sidvokodvo to Mpaka was completed in November, 1993.

The study recommends gradual implementation of the transfer because of the high capital costs. It also mentions an alternative to the construction of additional housing, namely, the purchase of the Emaswati Colliery village, which is currently abandoned. Information received indicates that there are legal problems involved that preclude obtaining the village. An alternative solution not mentioned in the study may be the daily transportation of the employees to and from Mpaka until future downsizing and attrition make transfer of the employees financially feasible. The consolidation will certainly benefit SR and should not be discounted.

### CHIEF ENGINEER

Mr. Srinivasan of RITES, currently the Acting Chief Engineer, is scheduled to depart on October 31, 1994. On April 1, 1994, SR will assume his salary and expenses. When he leaves, there should be a successor in place by then to fill that important position. However, finding a replacement will not be easy. One of the reasons for this difficulty is that both SR and the LiTA team felt it was important, and it is a legal requirement, that the position of Chief Engineer be filled by a degree civil engineer. However, they were unable to find one. At the time of the October 1993 monitoring visit it was considered to include Mr. Timothy Ndlovu, after training, as one of the candidates to assume the responsibilities of Chief Engineer in November 1994. Mr. Ndlovu has now obtained an associate degree in the United States and is receiving additional technical training to assist him in accepting the responsibilities of Chief Engineer. He is returning from the United States on March 28, 1994.

SR has other candidates that can be considered for the position of Chief Engineer. Last October Bafana Matsebula, a degree civil engineer, approached SR seeking employment. He was hired and starting October 1993 was placed on a 2-year training program to prepare him for the responsibilities of a civil engineer.

The position of Chief Engineer is an important one, and SR should carefully weigh the available options. The main questions to be taken into consideration include the following:

1. Will Mr. Ndlovu be able to handle the Chief Engineer's position on November 1, 1994? The ET believes he will, although it has had limited contact with Mr. Ndlovu and has never met Mr. Matsebula. Most of its conclusions are derived from interviews with various senior managers whose opinions differ.
2. What are the chances that Mr. Ndlovu or Mr. Matsebula will be recruited away from SR? The ET believes this is a distinct possibility, although less for Mr. Ndlovu.
3. If the East-West line rehabilitation starts before or at Mr. Srinivasan's departure, would Mr. Matsebula or Mr. Ndlovu be prepared and strong enough to manage a contractual project worth between E 37 million and E 57 million? The ET recommends consideration be given to holding Mr. Srinivasan over, through at least the early stages of the project, at SR expense.

4. Will the Electrical and Communications Engineer, Mr. Alfred Mthethwa, and the Mechanical Engineer, Mr. Million Nkwanyane --both degree engineers--resent reporting to an inexperienced, newly hired engineer? The ET believes they would.
5. Will the Electrical and Communications Engineer and the Mechanical Engineer resent reporting to Mr. Ndlovu? The ET believes this would be of major concern.
6. Should SR consider assigning the Electrical and Communications Engineer and the Mechanical Engineer to Traffic --reporting directly to Mr. Stevenson Ngubane--where their functions and responsibilities more clearly lie? This transfer would not overburden the Director of Traffic if the Assistant Directors of Marketing and Commercial are reorganized into a new department. The Electrical and Communications Engineer should perhaps be renamed Communications Engineer.
7. Another possible option that could be considered is as follows. When Mr. Srinivasan leaves on October 31, 1994, Mr. Ndlovu would be appointed to a new position of Director of Maintenance-Permanent Way and report to the CEO, Mr. Gideon Mahlalela. Upon Mr. Matsebula's return from training he could be titled Civil Engineer in Training and would work under the direction of Mr. Ndlovu until he has enough practical experience to assume the position of Chief Engineer.

Because of all the complex and interrelated issues of professional qualifications, legal requirements, personalities, and the limited resources and organizational flexibility of SR, the task of replacing Mr. Srinivasan will be formidable. However, the effort will be worthwhile because of the importance of installing efficiency and cost savings in maintenance of way, and the possible rehabilitation of the East-West line. The ET hopes the above suggestions are helpful to SR in making its decision.

### SAFETY

On November 10, 1993, at the recommendation of the Regional Rail Systems Support Project Monitoring Team, SR created the position of Safety Officer. The position was filled by a scheduled employee, Mr. N. Kris Mnisi. Mr. Mnisi has been a Train Driver and SR employee for 5 years. He is the first person on SR Safety Committees that have been established at the levels (see Figure 8-1) whose sole function is improving safety and reducing injuries and accidents.

Although the Level 1 and 4 committees have started off well, Levels 2 and 3 are lagging somewhat—with the exception in Level 2 of the Traffic and Finance Departments, which are starting with a major safety emphasis.

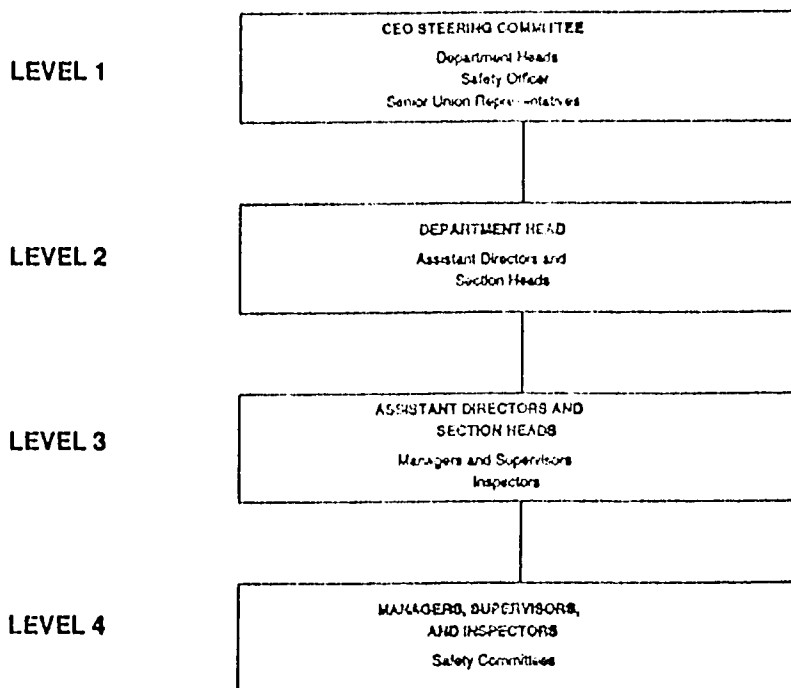
Further, although both the position and its occupant are new, Mr. N. Kris Mnisi has initiated a strong effort to meet an SR goal of becoming the safest railroad in southern Africa. He is hardworking and enthusiastic. He has the support of the CEO and top management and the ET believes the SR safety effort is well designed, staffed, and supported.

### RADIO TRAIN OPERATING SYSTEM

With the exception of the railroad north of Mklotane (Mklotane to Komatipoort), the Radio Train Operating System (RTOS) is installed and fully operational. A contractor is currently installing radio equipment north of Mklotane with a March 31, 1994 completion date expected. The employees using RTOS have been well trained. The introduction of this system is a major step toward the reduction of train accidents and has been well received and accepted by train operating employees.

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Figure 8-1. Safety Committee Levels



The introduction of RTOS will reduce the number of Train Controlling Officers needed from 20 to 10. This provides either (1) another opportunity for work force reduction or (2) a source of trainees for the position of Locomotive Driver. Train Controlling Officers are fully familiar with operating rules, train authority, and the movement of trains. This makes them ideal engine-driver candidates. Their promotion to drivers would allow SR to release six expatriate engineers currently working on one-year contracts and provide an additional four drivers to relieve a perceived shortage. Currently SR is unable to discipline drivers who violate operating and safety rules because a suspension or dismissal could result in trains held for lack of a driver. The railroad recognizes this problem and the drivers are fully aware of it.

#### ACCIDENT STATUS

Historically SR has had an inordinate number of major railroad accidents, the majority of which have been caused by human error. The installation of RTOS, along with a reorganization of the Traffic Department, will go a long way in reducing such incidents. The ET has made additional recommendations (on issues such as training, efficiency testing, safety, and drug testing) that, if implemented, could further reduce human-error accidents. The financial analysis assumes an elimination of such accidents if all of these programs are implemented and maintained.

## LABOR UNION

The Transport and Allied Workers Union was introduced in SR in 1989. At the time of the last monitoring visit, the Union Recognition Agreement between SR and the union, which formally acknowledges labor representation, was tied up in industrial court by the exclusion clause, which determines which employees are exempt from the agreement. The courts have decided that grade C-4 employees and above are exempt; this totals about 60 SR management personnel. The final draft of the Union Recognition Agreement has been completed and it appears to be near signing.

It is unfortunate that the union is a trucking-dominated organization both in staff and membership. The Director of Personnel states that although much progress has been made toward developing a union representation team whose interest lies in the future of SR and not with road haulers, much remains to be done. The scope of emerging labor relations issues must be considered one of SR's major weaknesses.



## **Annex 1**

# **GOALS OF SWAZILAND RAILWAY'S CHIEF EXECUTIVE OFFICER**

### **MARKET SHARE**

1. With the help of senior management, design and distribute the mission statement for Swaziland Railway by August 31, 1993.
2. By December 31, 1993, identify all companies that may have a product that could be shipped through Swaziland by railway.
3. Design a marketing strategy to determine the transportation needs of the companies above with railway potential by March 30, 1994.
4. Establish system for comparing current costs, schedules, transit times, billing information, and claims settlement between Swaziland Railway (SR) and competitors by October 30, 1993.
5. Design strategy for maintaining revenues generated by transit traffic to accommodate forecasts of decreasing growth and/or diversion in transit traffic by November 30, 1993.

### **COST CONTROL**

6. Identify additional job functions that can be discontinued, combined, or redesigned in order to eliminate them by November 30, 1993.
7. Reduce train delays by 30 percent by September 30, 1994.
8. Reduce operating ratio from 80 percent to 70 percent by March 31, 1994, and to 65 percent by March 31, 1995.
9. Evaluate efficiencies of motor vehicle fleet and reduce numbers and fuel consumption by 25 percent by December 31, 1993.
10. Reduce locomotive fuel consumption by 25 percent by December 31, 1993.
11. Establish system for reporting variances to monthly budget within 10 days of the end of each month by September 30, 1993.
12. Identify sources of low-interest rate loans starting January 1, 1994 and continuing quarterly assessment.
13. Prepare strategy paper to present to government to encourage government funding of infrastructure development by March 31, 1994.
14. Evaluate current contracts and renegotiate long-term contracts for locomotive and wagon leasing from other railways where possible starting February 1, 1994.

### **CUSTOMER SERVICE**

15. Implement customer survey to determine satisfaction with SR service (equipment, schedules, rates) by November 30, 1993.

### **UNIONS**

16. Encourage formation of union that consists strictly of railway employees by March 31, 1994.
17. Identify permanent management team for union meetings by September 1, 1993.

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## Annex 2

# GOALS OF SWAZILAND RAILWAY'S DEPARTMENT OF TRAFFIC

### 1. RESTRUCTURING AND REDEFINING OF DUTIES AND RESPONSIBILITY

- 1.1. Complete restructuring of the Commercial, Marketing, and Operating sections in view of the introduction of new operating systems, changing Commercial and Marketing environment by December 31, 1993.
- 1.2. Redefine duties and responsibilities for each job category according to new structure by December 31, 1993.
- 1.3. Identify training needs for each job category according to Item 1.2 by December 31, 1993.

### 2. RECRUITMENT FOR VACANT POSITIONS

- 2.1. Complete selection process and recommend candidate for appointment of a Safety Officer by November 15, 1993.
- 2.2. Advertise the post of Market Research and Development Manager by November 30, 1993. Complete selection process and recommend candidate for appointment by December 15, 1993.
- 2.3. Complete selection process of Train Assistants by October 30, 1993.
- 2.4. Advertise internally eight positions for Wagon Controllers by November 30, 1993, and complete selection process by November 30, 1993.
- 2.5. Advertise one vacant position for Supervisor (Train Personnel) by November 30, 1993, complete selection by November 15, 1994, and confirm acting appointment.

### 3. TRAINING

- 3.1. Start the training of 10 Trainee Diesel Locomotive Drivers by November 22, 1993.
- 3.2. Start the retraining of Train Assistants (formerly Diesel Driver Assistants) in their new role by January 3, 1994.
- 3.3. Prepare a training program with the assistant of the Training Center for the Safety Officer by November 15, 1993, and start orientation program within the Railway by December 1, 1993. Start formal training by January 30, 1994.
- 3.4. Prepare a training program for the Market Research and Development Manager by November 30, 1993. Start orientation program within the organization by December 1, 1993, followed by formal training in the rail transport business and transportation in general by January 3, 1994, to be completed by May 31, 1994.
- 3.5. Start the retraining of all employees in the Commercial and Operation sections affected by the restructuring and redefinition of duties and responsibilities, for example, Station Masters, by January 3, 1994.

18. Advise and review above management team's objectives for union meetings at least 2 weeks before meetings.
19. Establish specific dates for quarterly meetings with the union by October 1, 1993.

#### HUMAN RESOURCES

20. Establish systems for identifying training needs at all levels of the organization by September 30, 1993.
21. Redesign productivity bonus strategy for disbursements to be included in December 1993 paychecks by November 30, 1993.
22. Analyze SR corporate culture and design human resource management strategies that are consistent with and supported by that culture by January 1994.
23. Reduce absenteeism by 50 percent by March 31, 1994.
24. Design or obtain training program for first-line supervisors by March 31, 1994.

#### SAFETY

25. Improve Safety Index by reducing incidents per man-hour by 10 percent each quarter starting January 1, 1994.
26. Ensure that all accidents be fully investigated and that starting September 1, 1993, the report by HOD is completed within 2 weeks of the accident.

#### POLICY

27. Prepare report on National Transport Policy Study (including railway rehabilitation projects), which is agreed to by the Government of Swaziland and SR, by October 15, 1993.
28. Identify litigation strategy for Usuthu Causeway incident by October 15, 1993.
29. Identify legal strategy for dealing with incorrectly purchased steel by October 15, 1993.
30. Establish schedules for annual two-day trolley line tour of sections beginning September 6 and 7, 1993.

#### WORK IN PROGRESS

31. Advise on, review progress of, and prepare final reports for the following projects with the aid of advisers:
  - a. KaDake track deployment project
  - b. Sale of KaDake housing to National Housing Board
  - c. Recoup monies from Maloma Coal Loading Facility
  - d. Track maintenance program
  - e. Radio train operating system
  - f. Wagon location control system
  - g. Cost reduction measures by HOD
  - h. Monitor joint ventures on Sugar Spurs
  - i. Design, develop, and implement Safety Program
32. Advise on, review progress of, and prepare final reports for the following USAID projects:
  - a. Automated Systems Development
  - b. Management by Objectives Training
  - c. PWM Management

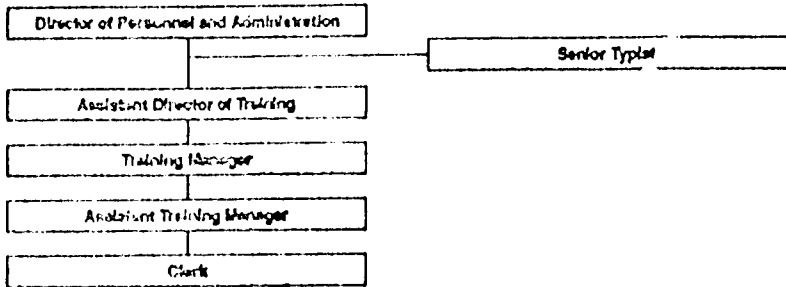
- d. Training Re-evaluation
- e. Accounting
- f. 1993-1994 Business Plan
- g. Contracting Out Activities
- h. Railway Board Structure

33. Evaluate and determine implementation status of all consultants' reports created for SR from January 1, 1989, to present by December 31, 1993.

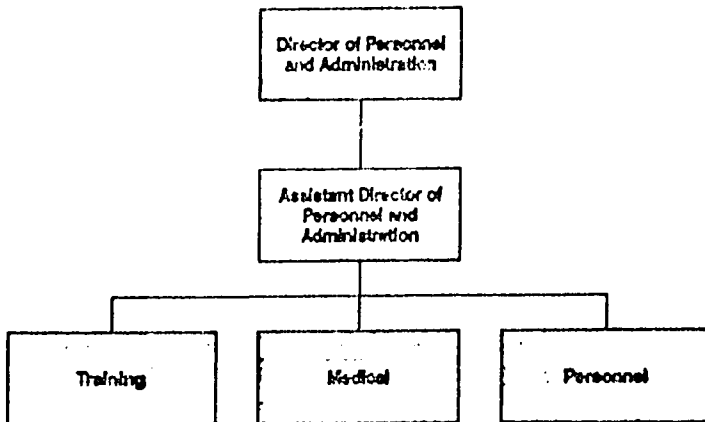
Table B-1. SWAZILAND Railway Senior Management Program Schedule

Area	Unit Number	Unit Title	Number of Trainees	Proposed Location	Quarter												
					1990		1991			1992				1993			
					4	1	2	3	4	1	2	3	4	1	2	3	4
SUPERVISION	101	Senior Management Seminar, Sessions A and B	30	Swaziland		30				30							
	102	Orientation to Swaziland Railway System	30	Swaziland			30										
	103	Management Information Systems	30	Swaziland				30									
	104	Project Management	20	Swaziland						10	10						
	105	Management Effectiveness Program, Intamsho, USA	1	United States	1												
	106	Master in Business Administration Degree Program	1	United States				1	1	1	1	1	1	1	1	1	1
	107	Management by Objectives	1	Swaziland		1											
	108	Public Speaking	7	Swaziland			7	7									
	109	Job Rotation within Swaziland Railway	1	Swaziland			1										
	110	Attachment to Foreign Railway System	1	Zimbabwe				1	1								
FINANCE	201	Preparation of Performance-Based Budget and Budget Control	30	Swaziland						30							
	203	Finance for Nonfinancial Managers	20	Swaziland						20							
	204	Advanced Bookkeeping and Cost Accounting & Attachment	1	India				1									
	205	Cost Accounting and Cost Allocation	1	Swaziland				1									
	205.1	Cost Accounting and Cost Allocation/Attachment	1	India					1								
	206	Capital Budgeting and Loan Analysis	1	Swaziland				1									
	206.1	Capital Budgeting and Loan Analysis/Attachment	1	India					1								
	207	Control Procedures for Salaries, Wages, Allowance Bills	1	Swaziland						1							
	207.1	Control Procedures for Salaries, Wages/Attachment	1	India							1						
	208	Internal Audit	1	Swaziland			1					1					
ENGINEERING	301	B.Sc. Degree Program or Higher National Diploma	1	United States				1	1	1	1	1	1	1	1	1	1
	302	Attachment to Zimbabwe Railways, On-the-Job Training	1	Zimbabwe		1	1	1	1	1	1	1	1	1	1	1	1
	303	Railway Operating Practices	2	Swaziland				2									
	304	Job Costing and Record Keeping	3	Swaziland					3								
	305	Value Engineering Techniques and Assessment	2	Swaziland				2									
	306	Introduction to Maintenance Management Systems	8	Swaziland			8										
	307	Implementation of a Maintenance Management System	8	Swaziland			8										
ADMINISTRATION	401	Basic Computer Skills for Managers	20	Swaziland			10	10									
	402	Effective Communication Skills for Managers	30	Swaziland			15	15									
	403	Dynamic Reading	1*	Swaziland					1*								
	404	Improving English Language Skills	20	Swaziland						20							
PERSONNEL	501	Manpower Planning, Manpower Inventory Analysis	8	Swaziland		8											
	502	Labor-Management Negotiating Skills	3	Swaziland				3									
	503	Calculation of Labor Turnover and Absenteeism Rate	3	Swaziland			3										
COMMERCIAL	602	Swaziland Railway Marketing Course, Session 2	3	Swaziland													
	602.1	Swaziland Railway Marketing Course/Attachment	2	Regional Railway	12												
	603	Claims Prevention and Management and Attachment	3	Regional Railway				3									
	604	Transport Planning and Project Appraisal	2	Swaziland													
	604.1	Transport Planning and Project Appraisal/Attachment	2	India									2				
	605	Rail Freight Pricing Principles and Practices	3	Tanzania				3									
	605.1	Rail Freight Pricing Principles and Practices/Attachment	3	India									3				
606	Basic Traffic Planning and Forecasting/Attachment	3	Regional Railway			3											

Figure B-1. Organization of Personnel and Administration, Training Department



The actual organization that has evolved is as follows.



- 3.6. Start the training of Wagon Controllers in their new positions by December 1, 1993, to be completed by December 31, 1993.

4. MARKET RESEARCH AND DEVELOPMENT

- 4.1. Conduct Market Survey for inward and outward traffic in Swaziland brought in by road transport. Start survey January 1, 1994, and complete by February 28, 1994.
- 4.2. Research potential market, determining total product and commodity inflow and outflow of Swaziland. Start research January 1, 1994, and complete by June 30, 1994.
- 4.3. With the information obtained from Item 4.1, establish percentage share of the market using rail transport for inward and outward traffic. Identify commodities that are mostly transported by rail and those that are not. Start exercise on August 1, 1994, and complete October 31, 1994.
- 4.4. After completion of the analysis in Item 4.2, devise strategies for increasing Market share culminating in the production of a market plan for Fiscal Year 1995-1996. Preparation of the market plan to start November 1, 1994, and completed February 28, 1995.

5. TRAIN OPERATIONS IMPROVEMENT

- 5.1. Review train service for import and export traffic around customer needs and expectations by February 28, 1994.
- 5.2. Redesign train service to meet customer needs and establish a monitoring system that will ensure consistency and reliability. The monitoring system to be in place by February 28, 1994.
- 5.3. Set norm transit times and continually measure performance against the following pairs of points :

- Komatipoort-Golela
- Golela-Komatipoort
- Matsapha-Golela
- Golela-Matsepha
- Mlawula-Golela
- Golela-Mlawula
- Phuzumoya-Golela
- Golela-Phuzumoya
- Phuzumoya-Mlawula
- Mlawula-Phuzumoya
- Mpaka-Siweni
- Siweni-Mpaka
- Komatipoort-Matsapha
- Matsapha-Siweni
- Siweni-Matsapha

Norm times to have been determined by December 31, 1993.

- 5.4. Compile accident statistics for the past 5 years from April 1, 1987, to March 31, 1993. Start compilation December 1, 1993, and complete December 31, 1993.

- 5.5. Reduce train accidents (minor and major) by 50 percent by September 30, 1994.
- 5.6. Introduce a safety awareness program starting November 15, 1993, and continuously monitor thereafter.
- 5.7. Introduce a wagon control and information system by January 1, 1994. Expected results of the wagon control system will be
- Reduced wagon turnaround time, the norm for foreign wagons to be 4 days.
  - Improved wagon ordering system, ensuring timely supply to customers, avoiding oversupply, which affects hire charges.
  - Reduced hire charge expenses through effective control and elimination of penalty hire charges. Work with customers in reducing offloading and loading times. Introduce incentives to motivate customers to load and offload wagons in the shortest time possible.
- 5.8. Initiate collection and analysis of statistical data from which performance indicators can be derived. Transform performance indices to a management information system for decision making. Start setup of data collection system by April 1, 1994. Data will be categorized as follows:
- Train lengths (by route)
  - Train loads
  - Wagon loads
  - Train kilometers
  - Locomotive use
  - Locomotive kilometers
  - Locomotive hours
  - Wagon kilometers
  - Loaded wagon trains by route
  - Empty wagon trains by route
  - Traffic flow by direction
  - Locomotive failures in section
  - Train accidents (minor and major) by location, time of day, weather conditions, and so on
  - Causes of train accidents, categorized by human error, technical (either wagon or track), and other. Classify human error by
    - Speed
    - Sleep
    - Violation of operating rules
    - Train handling
    - Lack of experience
    - Lack of knowledge
    - Incompetence
    - Conflicting instructions given by the controller
    - Drunkenness
    - Other
- Classify technical defects by
- Broken axle or axles
  - Loose brake gear



- Failure of braking system
  - Parted load (failure of coupling)
  - Broken rail
  - Unfastened rail
  - Washaways
  - Loose fish plates
  - Points defects
  - Other
- Classify other causes by
- Obstructions on the track, that is, objects placed on the rail
  - Animals on the track
  - Level crossings with road vehicles and other motorized equipment
  - People on track.

5.9. Initiate discussions with the union on fitness testing of all train crews when they sign on duty and immediately after an accident has occurred. When agreement is reached, make the procedure mandatory.

## 6. COMMERCIAL AND MARKETING

- 6.1. Review all documents used in this section and redesign them with the objective of reducing paperwork but improving information content in fewer documents. Start exercise January 1, 1994, complete by February 28, 1994, for implementation April 1, 1994.
- 6.2. Allocate ledger account holders with account numbers by December 31, 1993.
- 6.3. Review current policies and procedures concerning opening of ledger accounts by customers. Reconsider surety bond and bank guarantees as requirements to be fulfilled by prospective account holders. Start review January 1, 1994, and complete by February 28, 1994. Make recommendations to the Chief Executive Officer (CEO) and the Railway Board for change of policy.
- 6.4. Prepare contact and special rates policy by January 31, 1994. Submit recommendations to the CEO and the Railway Board for consideration and approval by February 1994.
- 6.5. Complete 1994-1995 traffic revenue budget by December 31, 1993.
- 6.6. Complete, by January 1, 1994, revision of rates for the fiscal year beginning April 1, 1994 and ending March 31, 1995. Submit revised rates for approval by the Railway Board in February 1994 for the board meeting of that month.
- 6.7. Devise a short-term marketing strategy for import and export and for transit traffic to be implemented by April 1, 1994.
- 6.8. Complete customer survey and finalize report by January 31, 1994.
- 6.9. Introduce total logistics concept when dealing with client transport needs. Improve and extend door-to-door service by April 1, 1994.
- 6.10. Extend transport services beyond merely transporting goods from point to point to getting involved in other transport-related services that add value to the transport service. Examples of such added-value services are

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- Helping customers with information on customs and excise procedures, import duties, and export levies when applicable, import permits and other requirements of the Ministry of Commerce and Industry for import and export of goods.
- Advising clients on requirements of the Ministry of Finance, Central Bank, and commercial banks concerning money transfers and Foreign Exchange Regulations on Remittances.

The service could start by having relevant application forms and related documents available at a price (if any) to customers. Start the service at Matsapha Station by July 1, 1994.

- 6.11. Establish a customer support and information system at Railway Headquarters and at Matsapha Station by January 1, 1994. Information to clients will initially be on cargo movement flowing toward Matsapha and other destinations within Swaziland. The sprint wagon tracking system already installed at Matsapha and Mbabane will be the main source of information to clients.
- 6.12. Prepare by November 30, 1993, a schedule for rates negotiation with customers under contract and special rates.
- 6.13. Prepare a schedule for customer care workshops aimed at Locomotive Drivers, Train Assistants, Train Planning Officers, Train Control Officers, and Shunters. Complete schedule by December 31, 1993, and begin implementing February 8, 1994.

## 7. WORK IN PROGRESS

- 7.1. Train six Train Assistants.
- 7.2. Convert vacuum train drivers to airbrake.
- 7.3. Install sprint terminal in Matsapha.
- 7.4. Select trainee Train Assistants from potential candidates to form a class of 14 trainees.
- 7.5. Restructure Commercial, Marketing, and Operating sections.
- 7.6. Redefine duties and responsibilities along the lines of multiskilling and to meet the requirements of the new structure.

Goals Reviewed: \_\_\_\_\_

**CHIEF EXECUTIVE OFFICER**

\_\_\_\_\_  
**DIRECTOR OF TRAFFIC**

DATE: \_\_\_\_\_

Next Review: January 20, 1994

## Appendix B

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### TRAINING

*Annex 1. Training Policy 1: Departmental Responsibility*

*Annex 2. Training Policy 2: Management Training*

*Annex 3. Training Policy 3: Training as Work*

*Table B-1. Swaziland Railway Senior Management Program Schedule*

*Figure B-1. Organization of Personnel and Administration, Training Department*

## Annex 1

### **TRAINING POLICY 1: DEPARTMENTAL RESPONSIBILITY**

Every department manager and supervisor has a fundamental part in Swaziland Railway's training efforts. Each is responsible for work assigned to his or her unit and for the personnel assigned to do that work. All managers and supervisors are responsible for seeing that all employees are properly trained to do their work effectively and efficiently. The specific training roles of department managers and supervisors are as follows.

#### **Department Director**

1. Identify the work performance requirements of personnel under his direction and requisition training to meet those requirements.
2. Cooperate with Swaziland Railway's Personnel and Administration department in activities such as identification of training needs, budget allocation, and training effectiveness evaluation.
3. Ensure that training concepts and methods are properly applied on the job.
4. Request remedial training needed to ensure effective work performance.

#### **Subordinate Department Managers**

1. **Assess training needs.** Each Department Manager is in the best position to know the individual strengths and weaknesses of the assigned personnel. Evaluating the performance of subordinate personnel, the manager should also be able to recognize the knowledge and capabilities needed to improve performance.
2. **Cooperate with training efforts.** Department Managers must assume that all training efforts are aimed at assisting them in improving work performance. Cooperation with training personnel is in the best interest of each manager, supervisor, and employee. While this may mean releasing needed employees for training, it also means that the long-term benefits of quality training and improved performance are worthy goals.
3. **Ensure on-the-job application.** If concepts and methods covered in training are not applied on the job, the whole training process becomes a wasted effort. Departmental managers must provide an environment that ensures that employees can apply what they have learned. The connection between training and the actual work is vital to improving work performance and is a primary reason why managers and supervisors are the best persons to ensure that their subordinates apply what was learned in training.

## Annex 2

### TRAINING POLICY 2: MANAGEMENT TRAINING

1. The Director of Personnel and Administration shall identify institutions best suited to meet the needs of the respective departments and keep an up-to-date record of the institutions' capabilities.
2. Every attempt will be made to meet training needs by using Swaziland Railway internal resources. These resources include on-the-job-training, use of the Swaziland Railway training center and seminars, particularly those staffed with Swaziland Railway personnel.
3. Should Swaziland Railway resources be unable to meet or inappropriate for the training needs of programs, second priority should be given to institutions inside Swaziland. The Director of Personnel or his Deputy (Training Manager) will act as liaison officer for Swaziland Railway department directors and the local institution in contract preparation and recommended award, subject to approval of the Chief Executive Officer (CEO) and evaluation of training.
4. If local institutions are unable to meet or are inappropriate for training need, third priority will be given to regional institutions. The Director of Personnel and Administration or his Deputy (Training Manager) will act as liaison officer for Swaziland Railway department directors and the departmental institution in contract preparation and recommended award, subject to approval of the CEO and evaluation of training.
5. If departmental institutions are unable to meet or are inappropriate for training needs, fourth priority will be given to institutions abroad. The Director of Personnel and Administration or his Deputy (Training Manager) will act as liaison officer for Swaziland Railway department directors and the institutions abroad in contract preparation, recommended award, subject to approval of CEO and evaluation of training.

### Annex 3

## **TRAINING POLICY 3: TRAINING AS WORK**

**PURPOSE:** Establish relationship between training and regular work.

**POLICY:** Training is provided to improve work performance and is regarded as part of all regular work. It should be planned, approved, directed, and controlled by each supervisor just as any other work. Training is part of the work responsibilities. The employee should apply the concepts and methods covered in the training to actual work.

Because employees can best learn how to do their work by doing it on the job, training should be integrated into the daily routine whenever possible. Training programs should be conducted

1. On the actual work site by qualified instructors or individuals who normally supervise the work;
2. During regular working hours. On many occasions certain types or aspects of training may have to be conducted away from the work site or during nonworking hours.
3. At external training institutions.

**RESPONSIBILITY:** All Swaziland Railway managers and supervisors.