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REGIONAL RAIL SYSTEMS SUPPORT PROJECT 690-0247

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# Midterm Evaluation

*Swaziland Component*

SUBMITTED TO  
U.S. Agency for International Development

PREPARED BY  
Steven R. Ditmeyer  
Michael A. Voelker  
Thomas J. Oliverius  
*Burlington Northern Railroad  
Overland Park, Kansas*

Donald J. Fritz  
*Nathan Associates Inc.  
Economic and Management Consultants  
Arlington, Virginia*

November 1991

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**U. S. AGENCY FOR INTERNATIONAL DEVELOPMENT**

**REGIONAL RAIL SYSTEMS SUPPORT PROJECT**

**690 - 0247**

**SWAZILAND COMPONENT**

**MID-TERM EVALUATION**

**NOVEMBER 1991**

**Steven R. Ditmeyer  
Michael A. Voelker  
Thomas J. Oliverius  
Burlington Northern Railroad**

**Donald J. Fritz  
Nathan Associates, Inc.**

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## ACRONYMS AND ABBREVIATIONS

ACIS	Advance Cargo Information System
BN	Burlington Northern Railroad
CEO	Chief Executive Officer
CP	Chief of Party
E	Emalangenzi - Swaziland unit of currency
LTTA	Long-Term Technical Assistance (refers to the DeLeuw Cather/RITES team)
R	Rand - Republic of South Africa unit of currency
RRSSP	Regional Rail Systems Support Project
RTOS	Radio Train Order System
SADCC	Southern Africa Development Coordination Council
SATCC	Southern Africa Transport and Communications Commission
SR	Swaziland Railway
STIPA	SADCC Transportation Investment Priority Assessment
STTA	Short-Term Technical Assistance
TWC	Track Warrant Control
USAID	U. S. Agency for International Development
UNCTAD	United Nations Commission on Trade and Development

E1 = R1 = US\$0.37

US\$1 = E2.71 = R2.71

## **EXECUTIVE SUMMARY**

### **GENERAL**

The project team is doing a reasonably satisfactory job of running the railway. Leadership is strong, but there are important staff deficiencies that need to be corrected.

### **OPERATIONS ISSUES**

Safety concerns are ostensibly being addressed by the introduction of the Radio Train Order System (RTOS). In addition, event recorders should be installed on locomotives, and an official should be named to deal specifically with safety matters.

A revised crew scheduling procedure has been implemented to deal with crew availability and safety concerns.

Modern radios and radio procedures need to be incorporated into all aspects of railway operations for reasons of both safety and efficiency.

A system for determining the costs of maintaining rolling stock and facilities is urgently needed.

Decisions on whether or not to retain steam locomotives and vacuum brake wagons are now overdue. They should be made by the end of the year.

The two branch lines are in poor physical condition. Rehabilitation costs, commercial aspects, and financial returns must be evaluated before a decision is made to rebuild them.

Container operations, though limited now, need to be exploited as one of the few areas for potential near-term traffic growth.

Implementation of a wagon control system is proceeding almost on schedule.

### **FINANCIAL AND COMMERCIAL ISSUES**

The financial goals of the RRSSP have been successfully accomplished or are being addressed. Refinancing was done in the manner recommended. The agreement between

Spoornet and SR for the handling of transit traffic now appears to have resulted in profits for SR.

Development of the accounts/financial support functions of SR is proceeding well, with the exception that no suitable person has been found to take over the post of Director of Finance by the end of the project.

Some progress has been made in the financial/accounts function, but work still needs to be accomplished in: management reporting, general accounting, cost accounting, fixed asset accounting, budgeting, material management, and audit.

SR met their debt/equity ratio target, however, the ratio appears to be misnamed and not properly defined. An alternative target ("Net Position") is proposed.

Adjustments should be made in the calculation of the Operating Ratio to make it more meaningful. SR appears to be meeting its Operating Ratio goal.

One commercial loan was paid off and replaced by a Swazi government loan. Requests are pending for the forgiveness of two Swazi government and one Republic of South Africa loans.

SR now appears to be earning a profit on its through traffic from Spoornet. Interim financing of deficits by Spoornet is no longer an issue.

The "Five Year Business Plan and Corporate Strategy" needs to focus on key issues. The document should be produced less frequently, and a business planner should be hired to participate in its preparation.

SR now has a functioning Commercial Department. A sensitivity to and an understanding of the markets SR serves will be key to its success.

Tariffs do not yet reflect the costs of accommodating Swaziland export/import traffic, but they will be gradually adjusted to cover all costs of providing service by the end of the project.

## **TRAINING AND PERSONNEL ADMINISTRATION ISSUES**

Management training needs to drop down all the way to first-line supervisors. "Train the trainer" programs need to be emphasized. A more effective method of training senior management needs to be identified.

Training of operating staff is imperative. There is a shortage of skilled artisans in all departments. SR may not be large enough to support its own technical training center; it should avail itself of other training opportunities in the region.

Information systems must be selected before training on them can begin. Personnel and Administration Department has made progress in dealing with problem areas since the project began.

The first agreement with a union was recently signed. Both the union and management are learning how to act and react under this new arrangement.

## **CONCLUSIONS AND RECOMMENDATIONS**

The BN/Nathan team concurs with the STIPA recommendations for continued USAID support of SR management and for USAID funding of telecommunications equipment.

If RRSSP is continued, as recommended above, funds should be used to fund local accounting firm assistance on a number of projects, and to broaden the scope of the training programs.

DeLeuw Cather's home office provides adequate administrative support, but does not appear to get involved in a timely way in project staffing and technical issues. USAID must take necessary steps to increase DeLeuw Cather home office support to the project.

Improved coordination and communication is needed between the USAID-sponsored railway support projects in Southern Africa.

## OVERALL PROJECT STATUS

The evaluation team finds, generally, that the USAID-financed Swaziland component of the Regional Rail Systems Support Project (RRSSP) has been important for the Swaziland Railway (SR), and that, in a number of respects, the project has progressed as intended. The project, however, is seriously behind in the matter of staffing key positions and training, and cannot now be expected to attain its chief goal, that of developing a self-sufficient and financially viable railway, within the current time frame of the project.

The Chief Executive Officer and Chief of Party, John Avery, is a particularly strong, dynamic leader who has successfully run a developing railway. However, the initial Operations members of the DeLeuw Cather/RITES Long-Term Technical Assistance (LTTA) team were not strong, and the CEO/CP is hiring replacements.

Others on the DeLeuw Cather/RITES technical assistance team, namely G. C. Sharma (Finance), Ramesh Grover (Commercial), Gary Clark (Personnel), and Gordon Turnbull (Training), are performing their assignments in a satisfactory manner. The members of the team who had worked for National Railways of Zimbabwe - Avery and Carlisle - both express a "go slow" attitude to the implementation of newer technology (i. e. more diesels, computer systems, microwave radios, etc.) on the Swaziland Railway. They seem to believe that higher technology implies greater sophistication, and they are concerned about the Swazi work force's ability to handle it. The team members who had worked for the Indian Railways - Sharma and Grover - both doubt their ability to find Swazi successors. Only the team members who have never before worked for a railway - Clark and Turnbull - feel that Swazis can be found and trained both to run the railway and implement higher technology.

A key step toward SR development is the identification of the optimal organizational structure and staffing levels. This probably should have been done by the LTTA team, but they decided for political reasons to have a separate, independent study to be started shortly and completed by March 1992. The results of the study will be of importance for the next edition of the five year business plan.

The BN/Nathan team agrees with the change of management information systems development from an immediate LTTA objective of the project to a deferred STTA objective. An STTA study identified how information processing might be automated throughout the organization. Although the study was a good effort generally, the BN/Nathan team cannot agree with its recommendations to establish a separate information office within SR, develop software within the company, and employ 36 person-months of technical assistance for these purposes. Some near-term development of SR systems is undoubtedly desirable, but can be accomplished with fewer resources than recommended by the STTA study.

Progress has been made in the development of a budget process, and in tracking actual performances vis-a-vis the budget. The process requires the full involvement of all SR departments, however, which has not yet been achieved.

SR management is considering contracting functions such as maintenance of trucks and automobiles as well as track surfacing and even housing ownership and maintenance. This may be desirable both from the standpoint of financial cost savings and from the standpoint of quality of the work effort. Such contracting is worthy of consideration by management, and financial appraisals need to be prepared as soon as possible.

Suitable Swazi candidates have not been found to head up the Personnel and Administration, Commercial, Finance, Operations, and Internal Audit Departments. In addition, a business planner needs to be recruited. This inability to identify suitable trainees is contrary to the project covenant between USAID and the Government of Swaziland, wherein the latter undertakes to ensure that suitable candidates will be found for all posts.

## OPERATIONS ISSUES

### STAFFING AND ORGANIZATION

**The project team is doing a reasonably satisfactory job of running the railway. Leadership is strong, but there are important staff deficiencies that need to be corrected.**

The DeLeuw Cather/RITES team appears to be doing a reasonably satisfactory job of running the Swaziland Railway on a day-to-day basis. They have stabilized the deteriorating situation which they inherited in 1989, and were successful in generating a profit for the railway in fiscal year 1991. It is not clear at this mid-term stage of the project, however, that they will be successful at preparing Swazi counterparts for succeeding them in all positions and taking over and running a viable railroad.

The Chief Executive Officer and Chief of Party, John Avery, is a particularly strong operating man. However, his operations team was and is not strong, and individuals either have had or will have to be replaced. Thomas Myers has not proven to be an effective Director of Operations; he appears to have defined his role very narrowly, and seems to have little grasp of the overall functioning of the railway. The CEO/CP has decided to replace him with a new person who would serve as Director of Traffic, overseeing both the Operations and Commercial departments. The BN/Nathan team concurs with this decision. DeLeuw Cather has identified several promising (as well as some not very promising) candidates for the position, and the CEO/CP is in the process of interviewing them.

Chief Civil Engineer Bruce Dailey had to be relieved from duty in August because of a legal infraction in Swaziland. His temporary replacement, Jack Carlisle, is quite effective, and has identified bridge maintenance and water supply as two issues needing rather urgent attention. Neither had been addressed during Dailey's tenure. The long-term replacement, Joseph Strachan, who will join the railway in January, has had much more experience in supervising railway facility maintenance than did Dailey, who was a design engineer.

Some elements of the organizational structure of the Operations Department inhibit efficient train operations as well as the deployment of new systems. For example, train drivers report through the Traction Department to the Chief Mechanical Engineer. However, train guards and train control officers report through the Operations Department to the Director of Operations. The DeLeuw Cather/RITES team proposes to move the administration and supervision of train drivers to Operations to place all train service employees in the same organization and to reduce the workload of the Chief Mechanical Engineer to a manageable level. The BN/Nathan team concurs with this organizational change.

As another example, the head of telecommunications and the head of signaling currently report to the Chief Civil Engineer. Because of the importance of the new communications-based control system that is planned for installation, consideration should be given to bringing these functions together under a new Chief Electrical Engineer and separated from the Civil Engineering function.

## **SAFETY**

**Safety concerns are ostensibly being addressed by the introduction of the Radio Train Order System (RTOS). In addition, event recorders should be installed on locomotives, and an official should be named to deal specifically with safety matters.**

During 1990, Swaziland Railway experienced two serious collisions, both of which involved human error. They cost more than E14 million in claims and repairs. Both occurred on the main north-south line, which operates under the Van Schoor train token method. The first took place when the crew of a train which had been disabled but subsequently repaired moved it in violation of an operating rule. The second occurred when a crew violated the limits of the movement authority granted by the possession of a token, presumably because they had fallen asleep.

The Van Schoor token machines are old and in need of frequent maintenance. They are frequently disabled when there is theft of copper wire from open-wire pole lines between stations. There is no record of an accident being caused by such a circumstance, and operating rules cover the situation, but management is concerned, nevertheless.

Swaziland Railway management proposes to replace the Van Schoor token system with the Radio Train Order System (RTOS), which is virtually identical with the Track Warrant Control (TWC) system used on two-thirds of the BN network and on many other US railroads as well. However, neither of the two collisions would have been prevented had RTOS been in use instead of the Van Schoor token system. RTOS, like TWC and the Van Schoor system, is structured in such a manner that a single mistake by either a train driver or a train controller can cause a collision.

Swaziland Railroad plans to procure RTOS from Spornet, which designed it and which has agreed to supply all necessary hardware and training. Spornet operates with RTOS on its line between Golela and Richards Bay and on several other lines, and feels comfortable with it. However, even Spornet acknowledges that RTOS does not offer a safety advantage over the Van Schoor system.

The principal advantage of RTOS appears to be more efficient operations through improved communications, as well as reduced staffing requirements. Of the 26 Train Control Officers required for train operations with the Van Schoor machines, management intends to convert 6 (perhaps an excessive number) to wagon movement inspectors, and the other 20 will become redundant.

It should also be noted that the Spoornet diesel locomotives that are operated on the through trains as well as the others on hire from Spoornet are not equipped with event recorders, or even speed recorders. Consequently, Operations Department is not able to monitor the performance of the train drivers.

Swaziland Railway management should negotiate with Spoornet to have event recorders installed on all Spoornet locomotives that operate in Swaziland. That will enable train handling to be monitored and instances of speeding to be identified so that corrective actions or discipline could be initiated quickly.

Finally, there is no senior officer of Swaziland Railway who has "safety" in his title and who has responsibility for implementing and overseeing safety programs. Because of the concerns about safety that have been expressed by the Board of Directors, by Spoornet, and by employees, consideration should be given to the establishment of this function at a high level in the hierarchy. It conceivably could be given to one of the Chief Engineers reporting to the Chief Executive Officer.

## **TRAIN CREW SCHEDULING**

**A revised crew scheduling procedure has been implemented to deal with crew availability and safety concerns.**

In July 1991, a system for scheduling train crews, known as "crew working link", was established by the Operating Department to give drivers, assistant drivers, and guards a month-long schedule of their assignments. A major motivation for the system was to ensure that train crews received adequate rest between their assignments, since one of the collisions in 1990 was attributed to a train crew falling asleep.

The "crew working link" system did not work out, however, because Spoornet did not always deliver their trains to the interchange points on schedule, and because Swaziland Railway crews did not always honor their assignments. Consequently, the "crew working link" system was terminated in October and replaced by a more flexible crew assignment system. However, even with the new system, crew members are assured of 12 hours rest between assignments and 2 rest days per week.

Revised Timetables and Train Working Regulations were issued in September 1991 as planned.

## **TELECOMMUNICATIONS**

**Modern radios and radio procedures need to be incorporated into all aspects of railway operations for reasons of both safety and efficiency.**

Swaziland Railway uses an open-wire telephone system to connect stations with other stations, and the commercial telephone system to connect stations with headquarters in Mbabane. It does not yet have a network of base radios to provide complete coverage for communications between stations and trains. However, it does own a number of portable radios for communications between drivers and guards, and, when in close proximity, for communications between stations and trains. We did not see any in use during our field trip. Steps should be taken as soon as possible to procure the requisite batteries and battery chargers so that these portable radios can be placed in service.

The implementation of RTOS will involve the installations of base radios at about 50 km intervals along the railroad as well as mobile radios on locomotives and track trolleys. Even though RTOS is the only use currently envisioned for the radio network, the BN/Nathan team feels that Swaziland Railway should attempt to obtain sufficient channels from the government to permit use of radios for shunting and permanent way work and for radio-telephone connections between headquarters, stations, and mobile units in addition to RTOS.

As Swaziland Railway computerizes, it will need data communications capabilities between headquarters at Mbabane and the principal stations Mpaka, Matsapha, and Sidvokodvo. It will also need to receive data regarding trains, wagons, and revenues directly from Spoornet's information system rather than by paper copy as at present.

If Swaziland Railway were larger, it might make sense for them to have a microwave radio system to tie headquarters with the operating stations and the base radios, rather than to continue with the open wire line, which apparently is intended in the future. Even though the terrain is favorable for microwave, the amount of telecommunications traffic is not.

However, it might be more rational and economic for Swaziland Railway to become a tenant on a microwave network that would be implemented by the Posts and Telecommunications Corporation to join together the major cities and towns of Swaziland, a number of which are served by the railroad. The railway would still need to install light-density microwave to its remote stations and passing loops.

The skills needed to maintain the microwave network should be available in the Swaziland work force, although not initially in the railway work force. Training of the present telecommunications technicians would enable them to do unit replacement of components. Individual components needing repair would be sent back to the manufacturer, a common practice even on BN.

## **EQUIPMENT AND FACILITIES COSTING**

**A system for determining the costs of maintaining rolling stock and facilities is urgently needed.**

There are no systems in place on Swaziland Railway to capture the costs of maintenance of individual locomotives, freight cars, and bridges, as well as of signals, the telecommunication system, and track sections. The establishment of such systems, and the tying of them into the railway's accounting and statistical systems, should receive immediate high priority attention from the DeLeuw Cather/RITES team. Special systems need not be designed specially for Swaziland Railway; systems designed for small and medium-sized railways in the United States and elsewhere should be evaluated by DeLeuw Cather home office staff for their applicability to the Swaziland Railway.

## **LOCOMOTIVES AND FREIGHT WAGONS**

**Decisions on whether or not to retain steam locomotives and vacuum brake wagons are now overdue. They should be made by the end of the year.**

The nine steam locomotives, of which five are active, are quite elderly and appear to require an inordinate amount of maintenance in comparison to their level of use. If the data generated in the aforementioned costing study confirms the empirical evidence, Swaziland Railway should retire its fleet of steam locomotives and obtain replacement diesel locomotives.

Because these locomotives would be used only in shunting and local train service, the purchase of new diesel locomotives would not appear to be economically justified. Alternatives include:

- (a) Lease or purchase of a couple of used locomotives from either Mozambique or Namibia where they are surplus due to a decline in traffic; or
- (b) Rental of additional locomotives from Spoornet.

Even under alternative (a), it would be desirable for Swaziland Railway to contract with Spoornet for maintenance and repairs. This issue was to have been dealt with by July 1991. CEO Avery indicates that a decision will be made by the end of the year. It will need to be addressed and included in the next edition of the "Five Year Business Plan and Corporate Strategy".

All 430 freight wagons owned, and the 92 leased, by Swaziland Railway are equipped with vacuum brakes. Of those, only about 200 are in usable condition. (Many of the wagons which return from Mozambique have missing brass braking system components.) Most, but not all, of the through freight which traverses Swaziland Railway is in wagons equipped with air brakes. The locomotives on those trains, as well as those which are hired from Spoornet, are equipped for both vacuum and air brakes. Swaziland Railway's own steam locomotives are equipped to handle only vacuum brakes. Spoornet plans to eliminate all vacuum brake wagons and have only air brake wagons by 1996. In addition to being more reliable, air brakes stop trains in a shorter distance than vacuum brakes.

Swaziland Railway, therefore, has a decision to make regarding its fleet of wagons. It is generally not feasible to retrofit a vacuum brake wagon with air brakes. Furthermore, because of the age of most of the Swaziland Railway cars, even if a retrofit were technically feasible, it might not be economically feasible. The retirement decision will have to be made on the basis of the aforementioned costing study. In the meantime, heavy repairs on wagons should be held in abeyance until the completion of that study.

Methods of acquisition of new wagons could include:

- (a) Outright purchase
- (b) Long-term lease
- (c) Rental from Spoornet, and
- (d) ownership by shippers

This issue also was to have been dealt with by July 1991, and again, CEO Avery indicates a decision will be made by the end of the year. It will need to be addressed and included in the next edition of the "Five Year Business Plan and Corporate Strategy".

Swaziland Railway has freight wagons rebuilt at both its own facility in Sidvokodvo and at an adjacent contract shop. During our field trip, it appeared that the contract shop was by far the most productive of the two.

#### **BRANCH LINE REHABILITATION**

**The two branch lines are in poor physical condition. Rehabilitation costs, commercial aspects, and financial returns must be evaluated before a decision is made to rebuild them.**

Both branch lines of the Swaziland Railway, Matsapha - Phuzumoya and Mpaka - Goba (actually the through line to Maputo), are badly deteriorated, due to the heavy iron ore traffic that the lines originally carried. Laid in the early 1960's with 40 kg/m (80 lb/yd) rail on wooden sleepers, the track's surface and alignment are not good and the rail, ties, and ballast are all in need of replacement. The Italian government has proposed a loan to the Swaziland government for the rehabilitation of these lines. (They would provide a grant to Mozambique for the rehabilitation of the Goba - Maputo line segment.)

Current tonnages on both lines are light (much less than one million gross tons per year on each), but the former serves Swaziland's principal industrial area, and the latter serves one of the major sugar-loading stations. The Chief Civil Engineer is examining the least-cost alternatives for the rehabilitation of these lines. In conjunction with the Commercial and Financial Departments, a full cost/benefit analysis will need to be done. This issue should be dealt with in the next edition of the "Five year Business Plan and Corporate Strategy".

## **CONTAINER OPERATIONS**

**Container operations, though limited now, need to be exploited as one of the few areas for potential near-term traffic growth.**

The only potential for near-term traffic growth on Swaziland Railway would appear to be in the shifting of more import and export traffic into containers that would move by railway instead of highway.

Swaziland now receives a small portion of its imports in containers that arrive at the port of Durban and are shipped via rail over Spoornet and Swaziland Railroad to Matsapha Station. In some cases, the goods are unloaded from the containers and loaded into trucks for delivery to the consignees. This transloading adds both time and cost to the shipment, making this method more costly and less desirable than trucking of the containers directly from Durban to the consignees in Swaziland. It also introduces opportunities for damage to or pilferage of the commodity being shipped.

To become more competitive in this market, Swaziland Railway should consider entering into agreements with shipping agents and the major trucking companies (Unitrans and Cargo Carriers) to establish an intermodal hub center at Matsapha. An agreement already exists with a local trucking company for it to move containers between Matsapha and the various consignees, and shippers, in Swaziland.

Costs and revenues will have to be examined carefully, to make sure that the container service can be operated at a profit. This is yet another issue for the next edition of the "Five Year Business Plan and Corporate Strategy".

## **WAGON CONTROL SYSTEM**

**Implementation of a wagon control system is proceeding almost on schedule.**

The short-term technical assistance report prepared by Mr. Chandra of RITES is an excellent analysis of the alternatives for a wagon control system. An important factor in the analysis is that virtually all of Swaziland Railway's interchange of traffic is with Spoornet.

Swaziland Railway pays Spoornet a flat rate on a daily basis for wagons used for import/export traffic and hourly for loaded transit wagons. Empty transit wagons are free. Spoornet pays Swaziland Railway a daily rate on SR owned and leased wagons during their stay on Spoornet. The fact that more than one-third of Swaziland Railway's total operating cost consists of the payment of hire charges on wagons and locomotives is the principal motivation for the establishment of a wagon control system.

Alternatives considered but rejected included the development of an independent system for Swaziland Railway, application of the Advance Cargo Information System (ACIS -

developed by Germany with funding by UNCTAD for SATCC countries), and application of the system under development by the Mozambique Railway. Recommended by Mr. Chandra and adopted by Swaziland Railway management is application of the Spoornet operating information system. The BN/Nathan team concurs.

The schedule for implementation appears to have slipped by about one month. However, computer terminals to connect Mbabane and Mpaka with the Spoornet system should be installed and operational and staff should be trained by mid-December 1991.

## **FINANCIAL AND ECONOMIC ISSUES**

### **SUMMARY**

**The financial goals of the RRSSP have been successfully accomplished or are being addressed. Refinancing was done in the manner recommended. The agreement between Spoornet and SR for the handling of transit traffic now appears to have resulted in profits for SR.**

Concern about the future viability of Swaziland Railway was the basic impetus that gave rise to this project, and the overriding purpose of the project is to ensure that SR will be a financially viable railroad. At the start of the project, financial viability issues included:

- A large amount of long-term debt, chiefly resulting from construction of the north-south line during the late 1970's and early 1980's.
- Very limited equity.
- Profitability of the north-south main line.
- Profitability of the older branch lines, and the financial desirability of rehabilitating these lines.
- Levels and structures of tariffs and rates.

Strategies of the project to deal with these issues included:

- Financial restructuring of SR to lower its debt/equity ratio, and better enable the railway to survive in the future, and to make necessary capital investments.
- Discussion between SR and Spoornet to ensure that SR losses, if any, from north-south line operation would be covered by, at least, "soft bridging financing".
- Adjustment of tariffs and rates to better enable the railroad to make profits from all traffic.

### **STAFFING**

**Development of the accounts/financial support functions of SR is proceeding well, with the exception that no suitable person has been found to take over the post of Director of Finance by the end of the project.**

Recruiting attempts have been made in conjunction with Coopers and Lybrand, (SR's external auditors) and so far, have not yielded a Director of Finance candidate. The Assistant Director of Finance is new in the position and even though he is well liked, enthusiastic and has future potential, he needs development in both formal education and practical experience. If he develops, he may be a candidate for the Director of Finance position in five years. Given the lack of internal candidates, the search outside Swaziland Railways must be accelerated to fill the Director of Finance position.

Extending the Director of Finance's term is an option. However, this is not recommended at this time. Extending the contract may only serve to further delay the recruiting process. The technical assistance emphasis should now be on turning over the department and less emphasis on day-to-day activities. The longer this position is vacant, the less on-the-job training can take place.

## **DEVELOPMENT OF THE FINANCIAL/ACCOUNTS FUNCTION**

**Some progress has been made in the financial/accounts function, but work still needs to be accomplished in: management reporting, general accounting, cost accounting, fixed asset accounting, budgeting, material management, and audit.**

A major goal of the project is to have an improved financial management plan and system in place providing essential accounting and budgeting information on a regular basis. Movement toward this goal has progressed well under the direction of the LTTA/Director of Finance. The highest priority of gaining control of the day-to-day operations has occurred. As with any accounting/finance department regardless of its age or history, improvements can always be made. Progress has been made since the project's inception, but work needs to be accomplished in the following areas:

### **(a) Management Reporting**

This includes not only financial reporting results on a monthly basis but also includes statistical reporting and variance analysis.

The monthly closing process is completed on a monthly basis with roughly a 2-3 month lag. The latest statements available in mid-November relate to the August close. A primary reason stated for the delay was that SpoorNet reports are not received until six weeks after the month end. Additional time is then required to reconcile the statements. The size and impact of SpoorNet on the monthly results is obviously very large.

The issue involved is the reliance upon SpoorNet for information rather than having the information developed on a timely basis at Swaziland Railway. On average six trains per day traverse the north-south line

and the revenue and expense per car is generally known in advance. By establishing proper controls within Swaziland Railway the impact of these transactions should be known when they occur. This would allow closing the monthly financial books on an accrual basis in a much faster time frame and issuing timely reports to management. By delaying two to three months after a month is closed before issuing results does not allow for correcting trends and delays management decisions. In addition, improved controls would provide for better reconciliations with SpoorNet. The Wagon Control System may help this process.

The distribution of monthly management reports to Heads of Departments is occurring. The reports include Income Statements, Balance Sheets, Cash Flows and Statistical data and Departmental expense reports. Comparisons are made to Budgets with Variance numbers stated. There appears to be little formal management reporting which explains the variances, whether the variance will continue, and what, if any, corrective action may be planned.

(b) General Accounting

General accounting appears to be well managed. There are certain areas which require more attention and these are being addressed. A major control step which must be implemented is the reconciliation of wagon hire expenses to wagon hire revenues. At a macro-level, this means that when a wagon is utilized, a cross-check must be done to determine the revenue for this wagon was properly billed and the expense for that wagon is also correct. Examples of paying for wagons that may not have been on the system or wagons that were on the system but had no matching revenue record have surfaced in conjunction with the Wagon Control System Study. This is a critical area and relates to accelerating the monthly close if performed properly.

According to the LTTA/Director of Finance and the LTTA/Director of Commercial, the age of receivable from all but one customer is within acceptable limits. This area must be monitored monthly and is a candidate for systems development. Accounts Receivable and Billing is done at the Station Master level including the collection of payments occasionally made with cash.

The payroll function is also an area of importance, especially because of the practice of paying some employees by cash due to the lack of banking facilities at their locations. Also, some employees were paid double-time for working Sundays when they should not have been. The issue has been addressed.

In response to the 1990 train wrecks, for both budgeting/planning and actual results, an accrual is now being made on an annual basis setting aside E5 million for potential future accidents. By establishing this liability reserve an attempt to smooth out financial results is the objective. Although no liability currently exists, there is some question as to whether this becomes a self-fulfilling prophecy. From a financial viewpoint Swaziland Railway appears to be waiting for an accident to occur rather than attempting to prevent one. Hopefully this reserve will not be required.

If an accident of a large magnitude were to occur whereby the expenses involved were greater than the established reserve, the excess expense must be charged directly to the income statement. At no time should the reserve account become a debit balance. The magnitude of the accrual of E5 million appears large when capital spending for Swaziland Railway in 1991 was E1.7 million and in 1990 was E1.5 million. This accrual has no cash flow impact. Although this is very conservative accounting, no change is currently recommended given the objective of smoothing the income statement.

#### (c) Cost Accounting

Several studies have been completed, all of which recognized the need for a strong cost accounting system. The impact of a properly functioning cost accounting system is critical for several reasons. Of primary importance is understanding the relationship and profitability regarding transit traffic. The profitability of the north-south line and the development of post-completion audits on this line is based upon proper cost accounting. The import/export traffic and related cost-based tariff pricing will highlight those products, assets, or geographical segments which are not contributing to profits. Without this data, investment decisions on line segments become hazy at best.

A change in the basic account structure was required to properly establish a costing system. This change is designed to facilitate Activity-Based Costing which becomes the backbone of a good costing system.

In addition, the following items should be addressed in development of the costing system:

- Segregated potential activities that may be divested in the future. This may include the housing or automotive maintenance functions.

- Segregated and analyze the cost of steam versus diesel locomotives for all related expenses including fuel, maintenance, and lease payments.
- Develop geographical income statements to isolate the contribution of each particular line segment. This would facilitate the development of the income statement on the north-south line currently required by the Memorandum of Understanding and currently performed by Coopers and Lybrand.
- In conjunction with a Fixed Asset Register, develop expenses and investments by line segments. Also establish expenses on a line segment basis such as road maintenance to reduce arbitrary cost allocations.
- Develop costing measures to assist in pricing potential back-haul moves.
- Develop costing for replacement and not historical cost of replacing consumable assets such as locomotives, wagons and roadway. The charge could be replacement cost depreciation, lease payments or additional charges for interest expense on the purchase of the asset to arrive at an annuity cost.

Progress has been made in this area but due to the reconfiguring of the accounting system has fallen behind original objectives.

The income statements once developed and as supported by Coopers and Lybrand studies show the north-south line generating a net profit for 1991 and an accumulated profit through March 31, 1991, (ignoring the impact of the derailments).

The remainder of the organization should be structured so it also earns a profit to prepare for the day when traffic may be diverted.

By recognizing, identifying, and segregating the public policy costs currently incurred by the Swaziland Railway and the below-market interest rate loan received from the government, an income statement can then be developed which determines the impact of each segment of business.

This exercise becomes vital to determining the right-sizing of the work force in future years and is obviously very dependent upon a proper cost allocation system.

#### (d) Fixed Assets Accounting

A study on Asset Valuation, completed in August 1990 determined the replacement value of assets and update service lives for depreciation purposes. The asset lives were generally lengthened, thus reducing depreciation expense beginning in fiscal 1991. At first glance, the lives may appear rather long when compared to railroads in the United States. However, the utilization per year in Swaziland is much less than it is in the United States.

One area of concern was the change from 10 years to 40 years life for roadway. This seems too long especially given the history on the Goba Line which was built in 1964 and is currently a candidate for rehabilitation. This puts the life of the Goba Line at 27 years, well short of the 40 years recommended.

Another option to use in depreciation would be to use a volume measure in depreciating an asset. For instance, roadway expenses are generally thought to be affected more by volume than by years. An alternative is to estimate the roadway's capacity in a statistic such as Gross Tons, then to depreciate the roadway based upon consumption of this amount. This would more accurately reflect the wear and tear on the line in a year when volume is high and vice versa. This would also facilitate better cost accounting logic as you can relate who used the Gross Tons and properly charge that user. The maintenance of asset register by line segment also enhances this calculation.

Depreciation expense is currently charged to the Railway Board only. For activity-based costing purposes, this expense if cost justified should be charged to the consuming department.

The Fixed Asset Register would be a leading candidate for computerization as it usually contains many records. In addition, depreciation expense reports, additions, and disposal reports could be generated quickly from this system.

#### (e) Budgeting

Major progress has been made in development of annual plans and in the strategic planning process, providing for better financial controls and improved financial results through better variance analysis and cash flow forecasting. One of the key components in planning is the participation of those who are responsible for the actual results in the development of the plan. The participation of some departments is not at the level normally required in a planning process. It appears the

Commercial department is heavily involved in developing forecasted revenue plans, and in conjunction with the Director of Finance, develops the annual plan. Other departments, most notably Operations and Personnel and Administration, should play a more active role in this process.

By encouraging participation, priorities for the upcoming year can be better established. There becomes a sense of ownership over the budget and those responsible for actual results can better explain variances because they understand how the budget was developed.

**(f) Material Management**

It currently appears that the purchasing function within Swaziland Railway is decentralized with little cross-department synergies, especially at the Headquarters level. An alternative is to centralize the purchasing, material management, and stores function. This should be reviewed to determine which system works best at SR.

A computerized inventory control and accounting package should be obtained for the storekeeping function. (One package was purchased in 1986 but was not installed). Staffing levels should be examined when such a package is implemented. Better control of inventory can improve cash flow (through reduced inventory levels) and reduce expenses (by reducing duplications). The use of economic order quantities, lead times, and carrying cost can all lead to improved operations. The control of material inventory will become important if the decision to rehabilitate the branch line is approved, especially on the sale or reuse of materials currently on the line. A more detailed analysis of this area was completed by STTA/Rites in June 1990.

**(g) Audit**

The internal audit staff consists of a Chief Internal Auditor and two assistants. The reporting relationship of this department is unclear as to whether they report to the CEO or the Director of Finance. The department is perceived as being ineffectual and weak. Concerns were expressed that if this department reports to the CEO, it would not receive the attention it requires. If the department reports to the Director of Finance, a potential conflict of interest arises as the Accounting/Finance functions which report to the Director of Finance are areas often audited by the internal auditors.

The BN/Nathan team feels that the reporting relationship should be directly to the CEO and not to the Director of Finance. The CEO

must lead this department and play an active role in managing the people. If this area is not recognized as a forceful partner, its effectiveness deteriorates and financial controls become lax, thus increasing the chance for fraud and potential worsening income statements.

Due to the scarcity of qualified people the internal audit function should continue to be managed externally by Aiken and Peat/KPMG. Their findings can be reviewed with the Director of Finance, but they should be reported directly to the CEO and not to the Director of Finance who then informs the CEO. In addition, Aiken and Peat should coordinate with the external auditors, Coopers and Lybrand, to develop a comprehensive approach to the auditing function and avoid duplication of effort and areas of omission.

### INDICATORS OF FINANCIAL VIABILITY

SR met their debt/equity ratio target, however, the ratio appears to be misnamed and not properly defined. An alternative target ("Net Position") is proposed.

One goal of the project was to improve Swaziland Railway's debt/equity ratio from 408 percent to 150 percent by 1991. Upon review of the calculation, the title of the ratio appears to be misnamed. The ratio is not the standard Total Debt divided by Total Equity as determined from the Balance Sheet at a point in time. In reality, the ratio is "Long-term loan divided by revenue" as stated in the RRSSP project document dated August 1988. The base point is 1987 unaudited financials:

$$\frac{\text{Long-Term Loans}}{\text{Revenue}} = \frac{101,214}{24,778} = 408\%$$

As of March 31, 1991 this ratio is:

$$\frac{\text{Long Term Loans}}{\text{Revenue}} = \frac{91,910}{60,708} = 151\%$$

The currently defined ratio has several disadvantages when used as a performance measure:

1. It is difficult to identify any potentially useful purpose of this ratio, since, without knowledge of operating costs, the ratio gives no clear indication of the probability of an enterprise being able to meet its debt servicing requirements.
2. It may encourage obtaining revenue regardless of its respective profitability.

3. It does not take into consideration the cash balance which could be used to retire debt if desirable to do so based upon interest rates.
4. It does not indicate increased equity through profits.
5. It does not include the short-term portion of long-term debit. This is debt due within one year but has not yet been paid.

The use of a Total Debt to Total Equity ratio, as normally determined, would be of little use due to the negative Total Equity position which Swaziland Railway was in until recently. This situation would distort the ratio.

A better measure to monitor performance would be to take into consideration the change in key balance sheet accounts as follows:

$$\text{Cash} + \text{Equity} - \text{Total Debt} = \text{Net Position}$$

For 1987 this would be:

$$2,892 + (13,761) - 93,396 = (104,265)$$

For March 31, 1991, this would be:

$$16,095 + 29 - 95,140 = (79,016)$$

This shows the progress being made towards improving the net position in the balance sheet and takes into account profits (not just revenues), cash balances and short-term debt still to be paid. An objective should be set for 1993 which could come from the Business Plan.

To be consistent and to measure the operating performance, any transfer of the Swaziland or Republic of South Africa loans from debt to equity should be excluded from the calculation unless repaid by Swaziland Railway. The objective of converting loans to equity should be covered under a different objective. This measurement should be restricted to the operating progress Swaziland Railway is making.

If this recommendation is rejected, the measurement ratio should be restated as Long-Term Debt to Total Revenue ratio for clarity.

## OPERATING RATIO

Adjustments should be made in the calculation of the Operating Ratio to make it more meaningful. SR appears to be meeting its Operating Ratio goal.

Another goal of the project is to reduce SR's operating ratio (expenses divided by revenues) from 146 percent to 68 percent. The base ratio of 146 percent appears to be from the 1986 audited financials.

$$\frac{\text{Expenses}}{\text{Revenues}} = \frac{16,449}{11,152} = 147\%$$

This goal appears to be on track, as the following years indicate:

<u>Year-ending</u>	<u>As stated in Annual Report</u>		<u>As modified to include all expenses</u>	
1987	<u>33,924</u> 25,495	** = 133%	<u>35,020</u> 25,495	= 137%
1988	<u>48,960</u> 40,212	** = 122%	<u>51,460</u> 40,212	= 128%
1989	<u>43,949</u> 49,320	** = 89%	<u>45,949</u> 49,320	= 93%
1990	<u>44,731</u> 50,343	* = 89%	<u>46,731</u> 50,343	= 93%
1991	<u>40,870</u> 60,708	* = 67%	<u>55,150</u> 60,708	= 91%

\*\* Excludes extraordinary items  
\* Excludes abnormal items

Four items directly impact the 1991 calculation which must be addressed when analyzing the progress toward this goal. These might fall into the classification of "financial engineering" changes.

First is the recovery from Spoornet of E2.3 million for employment of Swaziland Railway crews for the period April 1986 to March 1990. Thus, this recovery is not related to 1991 financial results and should be excluded when measuring 1991 and reflected in years 1987 to 1990 financial results.

Second is the modification of the depreciation service lives which extended the years life for many assets which still have Net Book Values. The impact of this was to reduce comparable depreciation expense by E3.7 million in 1991.

Third is the impact of extraordinary and abnormal items (derailments and previously foreign exchange losses) in the calculation. These expenses should be included in the calculation, as even though cases of derailments may involve large monetary losses and may occur sporadically and (hopefully) infrequently, they nevertheless represent costs of doing business.

To exclude these derailment expenses may encourage a riskier policy of improving the operating ratio by reducing expenses in such areas as track maintenance, control systems and training which would in the long run be counterproductive for the Railway.

Fourth is the impact on the financial results of the "soft" loans from the Republic of South Africa (E8 million and Swaziland Government interest bearing loans (E22.4 million at 2% per annum) and non-interest bearing loans (E49.2 million).

Assuming the current borrowing rate equals the savings interest rate (a conservative assumption) at 15 percent, this equals to savings of about E10.3 million annually in interest expense. (This may be offset by public policy of overemployment and high fringe benefits).

In reviewing these adjustments for 1991, the following roll-forward of the operating ratio tells a different story:

As reported	<u>Expense</u>	<u>40,870</u>	=	67%
	<u>Revenues</u>	<u>60,708</u>		
1. Subtract Spoornet/Swazi Crew recovery of prior years		<u>40,870</u>	=	70%
		<u>58,377</u>		
2. Add back impact of depreciation service life charge		<u>44,533</u>	=	76%
		<u>58,377</u>		
3. Add back abnormal items (primarily derailments)		<u>58,813</u>	=	101%
		<u>58,377</u>		
4. Add back Government Interest Expense Subsidy		<u>69,113</u>	=	118%
		<u>58,377</u>		
5. Subtract Public Policy Social Burden Expenses		<u>60,000</u>	=	103%
		<u>58,377</u>		

To reach the objective of 68% under this scenario by March 31, 1994, (end of project is December 1993) still requires much work.

## CAPITAL STRUCTURE AND LOAN PORTFOLIO

One commercial loan was paid off and replaced by a Swazi government loan. Requests are pending for the forgiveness of two Swazi government and one Republic of South Africa loans.

In 1990, the LTTA/Director of Finance completed two documents titled "A Report on Capital Structuring of Swaziland Railway" (July) and "Swaziland Railway Debt Financing" (April). These two reports address the liability side of the Balance Sheet. As a result of these reports, the SR Board forwarded to the Swaziland Government (Ministry of Works and Communication) and to the Republic of South Africa requests for the forgiveness of the following loans: Swazi Government no-interest E49.2 million, Swaziland Government low-interest E22.7 million, Republic of South Africa low-interest R8.0 million.

A Standard Chartered Bank loan at 12 percent interest rate was retired and replaced by a Swazi government loan at 2 percent in March 1990. There appears to be no immediate need to prepay any additional debt since the remaining amounts all carry interest rates which are less than what can be earned on the current cash balances.

The subject of loan forgiveness and conversion to equity raises several issues. One, from a financial standpoint, is the positive effect this action will have on the financial statements. The impact to the 1991 Revenue Account (Income Statement) would be minimal because these loans have either a very low interest rate (2 percent) or no interest at all. The impact of this conversion would appear in the debt servicing/retirement of principal. If all requested loans were converted, it would reduce SR's debt position from total debt as of March 31, 1991, of E95 million to about E15 million, which approximates SR's year-end cash balance of E16 million, and thus would allow SR to be virtually debt free. This would allow them a clean slate going forward.

One drawback of the debt forgiveness strategy is that it may only encourage future management to request from the government additional grants when times are tough, rather, than as a stand alone entity, to be completely responsible for all its actions and the resulting consequences.

A major consideration which needs to be addressed in conjunction with this are the social service/public policy costs. The SR should be allowed to size its work force free from any intervention by government if they are to be treated as an independent company. This means identifying and taking required action to properly size itself given the business strategy. If there are public policy reasons (i. e. unemployment levels) why this action is not in the best interests of the nation, these excess costs should be identified separately. The ability of SR to achieve this may tie in with the strategy of debt restructuring.

During the past two years, the financial outlook for Swaziland Railways has improved. The financial performance of Swaziland Railway has been better than expected (even with the two major derailments) and the resolution of issues in Mozambique now appears further away in time, which bodes well for SR.

A key document used to support the ability or inability to support debt servicing (principal and interest) is the "5 Year Business Plan and Corporate Strategy Document"

which was prepared in February 1991. Included in this document are Financial Statements including Income Statements and Cash Flows. Two items in the Cash Flow Statement should be updated:

1. Actual Cash Balance at 1991 year end was E16.1 million versus a projection of E7.2 million or an increase of E8.9 million due primarily to reduced cash expenses.
2. The cash flow logic appears to have two errors which must be modified: the first is the requirement to add back to the cash flow statement those expenses which have been subtracted as operating expenses but are non-cash expenses such as Depreciation expense; the second is to adjust the cash flow for any cash changes in the Balance Sheet due primarily to working capital changes. (For example, if material inventory grows year after year, that would be an additional use of cash).

Since the development of the Business Plan, a new Asset Service Life should have been integrated into actual results which should be integrated into the financials. This reduced reported operating expense by extending the service life of certain assets. the growth in depreciation expense also appears to be high, given the capital spending program forecasted in the Business Plan. This item should be a calculated number based upon capital spending, depreciation lives, and retirements. These two adjustments will not impact cash flow as depreciation expense is a non-cash item.

## **SR/SPOORNET MEMORANDUM OF UNDERSTANDING**

**SR now appears to be earning a profit on its through traffic from Spoornet. Interim financing of deficits by Spoornet is no longer an issue.**

At the time the RRSSP began, it was believed that construction on the north rail link was a losing proposition for SR, and the project therefore included assistance to SR for involving Spoornet in the coverage of past and anticipated operating losses on the link. Spoornet financial responsibility was based on a Memorandum of Understanding between Spoornet's predecessor, the South African Transport Services, and SR, signed in 1981, and subsequent business agreements. As there was some dispute regarding the interpretation of the memorandum and subsequent business agreements, the RRSSP included, a legal assessment of Spoornet's responsibilities to SR.

It concluded that Spoornet and its predecessor had no legal responsibility for guaranteeing traffic volumes or revenues on SR's north-south line, but that Spoornet and/or the government of the Republic of South Africa had a legal responsibility to provide "bridging" financing to cover operating deficits. Any such financing, moreover,

must be on "soft" terms. SR, however, also had a responsibility to provide evidence of operating revenue shortfalls, which must be based on unavoidable costs.

The Republic of South Africa has invested R3 million in SR and has provided an R8 million loan on soft terms (4 percent interest, 10 years grace, 20 years for repayment). SR management contends that it would be in the spirit of the Memorandum of Understanding for the Republic of South Africa to convert the soft loan to a "contribution" (equity). This overstates SR's case because:

- The memorandum extends only to soft loans and not to equity.
- The memorandum makes clear that Spoornet and the Republic of South Africa are responsible for providing financing only to cover operating losses, whereas the north-south line is now profitable.
- SR has, in any case, never provided for Spoornet and the Republic of South Africa (or even for SR's own management) the required financial assessment which would form the basis of any financing request.
- The financial assessment must be based on unavoidable costs, and the more than E14 million in accident costs in fiscal 1991 probably must be classed as avoidable costs, in which case SR earnings from north-south line operation were quite large over the year.

## **BUSINESS/CORPORATE PLANNING**

**The "Five Year Business Plan and Corporate Strategy" needs to focus on key issues. The document should be produced less frequently, and a business planner should be hired to participate in its preparation.**

The DeLeuw Cather/RITES team, with some STTA input, provided a "Five Year Business Plan and Corporate Strategy" in May 1990 and February 1991. These plans were to identify SR's problems and opportunities, assess them, and develop strategies and action plans to correct the problems and seize the opportunities. Both plans contained fairly detailed examinations of traffic prospects and of the financial results therefrom. The first plan was actually the better of the two because it also presented an assessment of the problem of railway social costs, and identified the cost-cutting opportunities for the railway in connection with these costs.

The second plan should have identified the causes of limited achievement, during the intervening nine months, in connection with reducing railway social costs and in connection with all other targets of the first plan, such as the establishment of a wagon control system.

The business plans were flawed in that:

- They do not reflect a drive to attain financial self-sufficiency, but instead espouse continued reliance on government subventions for past and future investments.
- They do not address all problems and opportunities of the railway.
- Investments are included without any critical assessments.
- They do not present complete strategies for attaining certain goals, for example, improving service standards, reducing motive power costs, and improving operational safety.
- The second plan did not adequately track the objectives of the first, with the exception that reasons for altering traffic forecasts were adequately presented.

In addition to the flaws of the first two business plans which have been produced, the entire approach might desirably be altered by:

- Institutionalizing the planning process by recruiting a business planner to work closely with the LTTA team and the STTA person assigned to draft a plan.
- Producing a thorough "corporate plan" only once for each five-year period, and producing progress reports in each of the intervening years. The progress reports would be devoted to tracking, and to analyzing any difficulties between intended and actual progress toward attaining all corporate objectives.
- Relying on the annual financial plan (budget) to set targets for the individual year, based on the latest available information.

The 1992/93 - 1996/97 plan is important for SR. It should be produced after the scheduled staff sizing study is completed in March 1992, after the financial analyses being recommended by the BN/Nathan team have been completed (hopefully, not later than April 1992), and after the financial performance for fiscal 1992 is known (probably, by end June 1992). This plan should be based on all of these analyzes. Specifically, the SR 1992/93 - 1996/97 corporate plan should address the following:

- The returns to SR and to Swaziland (the latter will be substantially lower) on the north-south line investment, and strategy to maximize the returns. The strategy must include optimization of the traffic, service reliability, speed, safety, and costs.

- Branch line rehabilitation.
- Steam locomotive and vacuum brake wagon retention or replacement.
- Identification of the optimal choices regarding the railway's residential housing; the railway training school and options for ensuring satisfactory staff training; the automotive workshop; construction; medical services; and other functions and activities that might be spun off or contracted out.
- Staff retrenchment, redeployment and recruitment strategy and costs.
- Import/export traffic service quality improvement, to attract and retain local traffic.
- Long-term traffic strategy of the railway.

#### **DEVELOPMENT OF THE COMMERCIAL FUNCTION**

**SR now has a functioning Commercial Department. A sensitivity to and an understanding of the markets SR serves will be key to its success.**

The project is developing an SR commercial function, where none existed before, through the assignment of an LTTA member to the Commercial Department, and through the conduct of an STTA study. The study on "Marketing Strategy", completed in February 1991 identified traffic possibilities of the railway, and included a survey to identify customer views regarding SR services. The LTTA member attached to the Commercial Department is in the process of correcting the failings of SR services, and has had some successes:

- SR is now able to guarantee 48-hour transit time for petroleum trains (34 tankers) moving from South Africa to Matsapha, and also for canned fruit moving from Matsapha to South African ports.
- SR has recaptured most wood pulp traffic by entering into an agreement with Viamax, a subsidiary of Spoornet, to provide the appropriate "concertina" wagons. The arrangement with "Viamax represents SR's first multi-year traffic contract in recent times.

SR's reliability in delivering wagons for loading and unloading at specified times must be improved. The wagon control system will be essential. SR currently retains Spoornet wagons for an average of six days, and the institution of improved wagon control should permit reducing retention time to just four days, representing a considerable cost saving to SR.

Despite the improvements in the Commercial Department which have and are occurring, there is not yet any assurance that the function will effectively continue after the end of the project. The Commercial Department must recruit a marketing person, who can quickly be trained to adapt to railway marketing. The department must also coordinate with national, regional, and municipal planners in Swaziland to better ensure that industrial development takes into account transport needs and costs.

National transport policy affects SR's commercial prospects. The STTA identified a need to make road haulers pay adequately for the road construction and maintenance costs that are incurred by government for their accommodation. This is certainly desirable. The STTA report estimated that this would raise road hauler costs by about 10 percent, which seems a reasonable estimate based on the proportions of vehicle operating costs represented by taxes in countries where road users do cover all road costs.

The subsequent LTTA team have adopted this stand, and have referred to this in a number of reports. Unfortunately, the team has not recognized that a national transport policy that calls for full payment of road costs by road users also generally (and appropriately) calls for full payment of costs by other transport modes. Several LTTA reports call both for raising road taxes to make the competitive situation between road and rail "equitable" and for subsidizing the railway (in at least one case, those opposing transport policies are called for in the same paragraph).

Even more egregious are suggestions that freight traffic should be earmarked for different modes, and that the railway has a right to sit on or at least advise a board that issues licences to truckers. The marketing study talked of modal transport distances being "transgressed". The economically desirable and world-wide trend is toward reduction of transport regulation (other than safety regulations) especially in regard to freight traffic. There has been ample evidence that the marketplace, albeit imperfect, is still preferable to government regulatory bodies for determining modal splits for freight, and the charges for freight transport services.

## **TRAFFIC COSTING AND TARIFFS**

**Tariffs do not yet reflect the costs of accommodating Swaziland export/import traffic, but they will be gradually adjusted to cover all costs of providing service by the end of the project.**

Tariffs do not yet reflect the costs of accommodating Swaziland export/import traffic, and perhaps it will be desirable that only short-term variable costs of some of this traffic be covered by tariffs. What is clearly desirable, however, is that the costs of accommodating each and every current and potential traffic flow be identified as accurately and as soon as possible, since both management and Government should be aware of these costs.



## **TRAINING AND PERSONNEL ADMINISTRATION ISSUES**

To the extent that suitable trainees have been found for some posts, intended training appears well thought out and designed. For training to get underway effectively in some areas, however, decisions are required on organizational restructuring, staff sizing, and procedures, including especially the introduction of automated procedures.

### **MANAGEMENT TRAINING**

**Management training needs to drop down all the way to first-line supervisors. "Train the trainer" programs need to be emphasized. A more effective method of training senior management needs to be identified.**

The senior management training program might have been better designed in regard to the training of two top officials now undergoing multi-year training at universities in the United States. More appropriate training might have been provided at much less cost over shorter periods of time. The delay in assigning these two staff members to their intended SR positions means that their critical on-the-job training will be foreshortened from what it desirably might have been during the project, at least within the current time frame. There are the added disadvantages of these extended training programs that they make the individuals being trained more marketable, and therefore, difficult to retain within SR, and they may result in lowering staff morale and creating management difficulties because other staff view the multi-year trainees as having been excessively privileged.

The LTTA training advisor has developed a specific training program to meet specific training needs. It is, however, obvious that the training requirements of SR go well beyond what has been identified and what is being addressed. A total of 31 positions have been identified for training. There seems to be an assumption that much of the training offered will have a natural flow down from top management recipients of training to middle management non-recipients of training. A reluctance of Swazi management staff to instruct their subordinates has been detected in most interviews. This reluctance appears to be part of their social make-up. Possibly they are apprehensive of having subordinates as knowledgeable as themselves.

It is vital to SR's success that training of middle management and first line supervisors be addressed. The training for this group should include not only management and supervisory skills but also technical/skills knowledge and it should include "train the trainer" programs for the first line supervisors.

These people who are so critical to the success of a railway should be provided with the ability to recognize the skills or lack of skills of the craftsmen they supervise and be able to instruct as necessary. Until SR is prepared to offer technical skills training and

retraining to its journeymen craftsmen the first line supervisors will have to be responsible to satisfy this need.

The reluctance of Swazis to tell subordinate Swazis "what to do" will have to be addressed. The fact that they should have little apprehension of losing their job to a better trained subordinate will not offset the problems of managing personnel with which the supervisor has a closer relationship. They may be sharing the same compound and they probably were promoted from the ranks of the employees they supervise.

The training for Swazis must be "Swazi-ised" and should be designed so that the trainer is not telling but helping his subordinate. It appears that Swazis are team-oriented and enjoy team meetings that can address their needs as a group. Through instructor-led discussions, training can be accomplished in a way that will be accepted by the Swazis.

There are 118 SR employees classified as management. Of this number 31 are classified as senior management leaving 87 middle managers and first line supervisors to receive training.

#### **OPERATIONS STAFF TRAINING**

**Training of operating staff is imperative. There is a shortage of skilled artisans in all departments. SR may not be large enough to support its own technical training center; it should avail itself of other training opportunities in the region.**

There are approximately 1100 SR employees. The project team has addressed the training needs of 31 of these employees. The BN/Nathan team recommends the training of an additional 87 management employees leaving 982 employees whose training needs have not been considered and therein lies the SR's greatest training need.

The training of SR's non-management employees must be addressed. Certainly some training and retraining needs can be provided by first line supervisors. Other training needs cannot and will not be met without comprehensive formal training programmes offered by SR, local technical institutes, or railway training centers outside of Swaziland. Other training considerations could be video interactive computer based training (CBT), selected correspondence courses and other non-railway companies.

SR's Chief Civil Engineer indicates that in the Engineering Department there is one journeyman bricklayer and one journeyman painter. There are no journeymen carpenters, no journeyman plumbers, and no certified flat - or four-position (construction) welders. Thermite welds on rails are being performed by employees not properly trained and not qualified to do the work. The fact that SR has only one journeyman bricklayer is a problem in that this craft is responsible for maintaining all bridges and culverts. The lack of skilled craftsmen is not unique to the Engineering Department but rather the standard for the railroad, and its criticality cannot be overstated.

SR cannot afford to provide all required training for its staff with its own facilities and teaching staff, and should avail itself of other training opportunities available in the Southern Africa region, rather than attempting to develop its training school at Sidvokodvo. This school probably should be shut down, and it would be desirable that a financial appraisal be done as soon as possible to assess SR's options for obtaining essential training of staff. To the extent that formal training specific to SR operations need be provided, this can be accomplished at the SR Headquarters, or elsewhere where suitable rooms can be found to present courses not requiring equipment of other sizable course materials.

The current project training program, except for the long-term training, is well-designed for what it is intended for, but the overall training effort is much too narrowly focused. Middle management and supervisors also require training, and the sooner the better, except only that the staff sizing study, scheduled to be conducted during January-March 1992, must first be completed. Training should include some "train the trainer" programs for middle and lower management staff who will have considerable on-the-job training responsibilities.

### **INFORMATION SYSTEM TRAINING**

**Information systems must be selected before training on them can begin.**

Some of the training programs scheduled for financial staff and senior management are based on management information systems, and, since these systems have not been selected, the courses cannot be offered.

In addition, training of any existing and new staff is also critical, especially computer-related training which is quickly becoming mandatory in Finance/Accounting functions. This training plan must be developed in conjunction with the definition of what management information system is to be used. Once a system is chosen, training should begin immediately with that system. In the meantime, training should occur in generally-used software packages such as Lotus 1-2-3. This early training can also facilitate familiarity with computers and reducing anxiety levels towards an emerging technology.

### **PERSONNEL ADMINISTRATION**

**Personnel and Administration Department has made progress in dealing with problem areas since the project began.**

Prior to the start of the RRSSP, SR's Personnel and Administration Department had the following staff: Director of Personnel and Administration, Personnel Manager, Manager Training, two Personnel Officers, two Training Officers and an Administration Officer. Two new Assistant Director positions are being established.

There are an additional 63 employees working in other sub-departments that are assigned to Personnel. These include secretaries, drivers (ambulance), assistant drivers and mailmen.

Some of the problems that existed at the time of the LTTA team's arrival were: no established employee policy manual or policies; slow or no response by Personnel Department to employees concerns, questions or complaints; no tracking of allowance, promotions, or personal changes; no forms for record keeping, except for vacations; very little information supplied from field and departments for employee records. The information received was not promptly recorded (about a two month delay).

The Personnel Department completed a job evaluation in 1989.

Overall, the Personnel staff is currently performing satisfactorily and there has been notable progress on the problem areas since the project started. The current Director is knowledgeable in personnel matters and is aware of his responsibilities, but is not an able leader. His retirement will provide an opportunity for improvement in the Personnel Department.

#### **LABOR MATTERS**

**The first agreement with a union was recently signed. Both the union and management are learning how to act and react under this new arrangement.**

The LTTA team has been heavily involved with labor matters following the signing of a labor agreement with the Transport Workers Union representing all employees of SR. SR and the union, however, are currently far apart on the interpretation of the exclusion portion of the agreement, the union wanting to allow eight (the CEO and seven directors) and the company wanting 115. Court hearings concerning this item are scheduled to be held November 18 through 22, 1991. Union/management negotiating meetings are also scheduled for the same time. It appears that when agreement is finally reached, it will not have a major positive impact on either the railroad or its employees.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **SADCC TRANSPORTATION INVESTMENT PRIORITY ASSESSMENT**

**The BN/Nathan team concurs with STIPA recommendations for continued USAID support of SR management and for USAID funding of telecommunications equipment.**

In 1990, USAID-Harare commissioned the SADCC Transportation Investment Priority Assessment (STIPA) which was to provide a prioritized list of transport investments and interventions that will enhance the competitive efficiency, service, and capacity of the Southern Africa regional transport system. Included in the list of 48 projects evaluated were three that involved Swaziland Railway: Rail Support ranked 24th and needing \$2 million; Communications ranked 33rd and needing \$2.5 million; and Dieselization ranked 46th and needing \$40 million.

The BN/Nathan team concurs with the recommendation for funds for the continued rail support and for telecommunications equipment. As discussed previously in this report, the team believes there are much lower-cost alternatives than spending \$40 million for new diesel locomotives, as considered in the STIPA report.

### **PLANS FOR CONTINUATION OF RRSSP**

**If the RRSSP is continued, as recommended above, funds should be used to fund local accounting firm assistance on a number of projects, and to broaden the scope of the training programs.**

The preparation of five-year business, or corporate, plans should not come to an end with the end of the RRSSP, and it would be useful for SR, therefore, to have an individual permanently on staff who would carry on this effort, and do the business researched necessary to provide a firm basis for the plan.

Some project funds should be used to have a local accounting firm work with SR staff on various urgently required financial assessments including:

- Identification of SR transit traffic operating costs and computation of the Swaziland and SR rates of return on north-south line investment, employing end of fiscal year 1992 residual value, and under various traffic scenarios for the period through fiscal year 2000, with end of fiscal year 2000 residual value. The analysis should also be done including actual accident costs, with alternative presumptions regarding future accident costs.

- Identification of the costs of handling SR import/export traffic, in total and by commodity. Estimation of the potential returns to SR on proposed branch line rehabilitation projects (with cost estimates furnished by SR, and various traffic scenarios, through fiscal 2010, furnished by the SR Commercial Department).
- Identification of all costs not required for railway operation, such as excess staff costs, housing costs, medical services costs, training school costs, automotive workshop costs, municipal costs, and any other costs not strictly required for operation of the railway.
- Identification of the financial desirability (excluding the financial ramifications of differentials in work quality) of contracting out a variety of mechanical, electrical, and civil engineering functions, including, but not necessarily limited to, wagon rehabilitation, diesel locomotive maintenance, telecommunications operations and maintenance, permanent way maintenance, road vehicle maintenance, and all construction activities. The existing contract for the internal audit function also requires financial evaluation.
- Identification of the implications for staff wagons, salaries, incentives and fringe benefits, of transit traffic and import/export traffic earning potentials and SR cost minimization for the accommodation of the traffic levels associated with these earnings potentials.
- In order to strengthen its negotiating position, an analysis should be completed to determine the competitive costs incurred by Spoornet to route around SR's north-south line including track capacity, track condition and incremented cost issues.

Consideration of increasing and extending USAID assistance to the Swaziland Railway should take place after completion of the staff sizing study, the completion of all of the aforementioned financial assessments, the closure of the books for fiscal 1991/92 and completion of the third business/corporate five year plan. In order to structure a project extension, as well as to evaluate the suitability of new SR department heads and other designates, the BN/Nathan team should return around June 1992.

The recommended project extension should include two new and important training objectives:

- The scope of the training program should be substantially broadened to include all middle and lower management, and the other staff to be retained by SR.

- Long-term relationships should be entered into between SR and training organizations, including the training schools of other railways in the Southern Africa region, for the purpose of training SR staff including future staff, beyond the end of the project.

## **CONTRACTOR HOME OFFICE SUPPORT**

**DeLeuw Cather's home office provides adequate administrative support, but does not appear to get involved in a timely way in project staffing and technical issues.**

DeLeuw Cather's home office appears to be doing a satisfactory job in providing routine administrative support to the long-term technical assistance team. However, they appear to be falling short in providing technical support to the team. For example, they have not provided any information or guidance to the team on matters regarding computerized financial and accounting systems appropriate for an organization like the Swaziland Railway.

Furthermore, they appear to have fallen short in the level of assistance they have provided to the Chief of Party in regards to personnel matters such as outplacement of team members and recruitment of replacements. There does not seem to be much high level interest in the project at the DeLeuw Cather home office.

## **USAID RAILWAY PROJECTS IN SOUTHERN AFRICA**

**Improved coordination and communication is needed between the USAID-sponsored railway support projects in Southern Africa.**

There appears to be little communication between either the railways, USAID offices, or USAID contractors regarding the various USAID-sponsored railway support projects in Southern Africa.

The BN/Nathan team believes that USAID should undertake steps to improve communications, perhaps by establishing a railway coordinator for Southern Africa, by doing a wider distribution of reports, and even by holding annual and semi-annual conferences. These steps should increase the effectiveness of the USAID funds spent for supporting the railways of Southern Africa.

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