SARP

SADC TRANSPORT

EFFICIENCY PROJEC

(STEP)

(690-0256)

PP

SEPTEMBER 13, 1993

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: ____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Southern Africa Regional

3. PROJECT NUMBER: 690-0256

4. BUREAU/OFFICE: USAID/Zimbabwe 06

5. PROJECT TITLE (maximum 40 characters): SADC Transport Efficiency Project

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 98

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4)
A. Initial FY 93 B. Quarter ____ C. Final FY 95

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

A. FUNDING SOURCE	FIRST FY 93			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	4,500	1,000	5,500	9,540	2,760	12,300
(Grant)	(4,500)	(1,000)	(5,500)	(9,540)	(2,760)	(12,300)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country						
Other Donor(s)						
TOTALS	4,500	1,100	5,500	9,540	2,760	12,300

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. PRIMARY TECH. CODE 2. Loan	D. OBLIGATIONS TO DATE 1. Grant	D. OBLIGATIONS TO DATE 2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	E. AMOUNT APPROVED THIS ACTION 2. Loan	F. LIFE OF PROJECT 1. Grant	F. LIFE OF PROJECT 2. Loan
(1)						5,500		12,300	
(2)									
(3)									
(4)									
TOTALS						5,500		12,300	

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

11. SECONDARY PURPOSE CODE

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

A. Code							
B. Amount							

13. PROJECT PURPOSE (maximum 480 characters)

To increase efficiency, reliability and competitiveness of the SADC surface transport system.

14. SCHEDULED EVALUATIONS
Interim MM 03 YY 96 MM ____ YY ____ Final MM 09 YY 98

15. SOURCE/ORIGIN OF GOODS AND SERVICES
☐ 000 ☐ 941 ☐ Local ☒ Other (Specify) 935

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

Clearance: Controller, USAID/Zimbabwe Mary L Lewellen 9/13/93

17. APPROVED BY
Signature: Ted D. Morse
Title: Ted D. Morse
Directot, USAID/Zimbabwe
Date Signed: MM 09 DD 13 YY 93

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM ____ DD ____ YY ____

AID 1350-4 (8-79)

SADC TRANSPORT EFFICIENCY PROJECT
(690-0256)

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.1

ACTION MEMORANDUM FOR THE MISSION DIRECTOR

FROM: Jim Harmon, PDIS

THROUGH: Patricia K. Buckles, CPDIS

DATE: September 9, 1993

SUBJECT: Approval and Authorization of the SADC Transport Efficiency Project (690-0256)

I. **ACTION REQUESTED**: It is recommended that you approve the project paper for the SADC Transport Efficiency Project (690-0256) and sign the authorization document for the project.

II. **BACKGROUND**: USAID has been an integral element in the long-term development program of SADC and the donor community to enhance regional transport capacity and efficiency. The initial phase of the program focused on replacing necessary infrastructure to allow for economic development in the region and reduced regional dependence on the South Africa transport system.

U.S. Government project support to the SADC Program of Action from 1981 to the current year is roughly $415 million, of which $281.5 or nearly 68 percent has been allocated to the transport sector. This reflects almost precisely the same proportion of all donor programmed support to transport in the SADC region ($7 billion of $10 billion).

In view of the massive investments made by USAID and other donors, and the dynamic nature of the transport sector, USAID/Zimbabwe commissioned the SADC Transport Investment Priority Assessment (STIPA) to provide an overall perspective on what had been done, where the SARP program might best direct future efforts, and how individual investments might be made to maximize the achievement of transport development objectives.

The STIPA team identified, evaluated and prioritized a list of recommended transport projects by transport corridor and for the region as a whole. The key finding was that dramatic increases in overall operational performance are not expected to be realized until management and operations efficiency are improved, even though a massive investment had been made to improve physical facilities of the various modes of transportation along SADC corridors.

The major implication is that more efficient, reliable and cost effective operations must be a primary concern of SADC countries, and their achievement will require concerted attention to the policy and regulatory environment in which the rail, ports, and roads operate. The resultant development problem is that unusually high transport costs have reduced the competitiveness of SADC producers, thereby reducing incomes and employment throughout the region.

As the STIPA report documented, the systemic problem any new transport intervention must address is that the SADC regional transport system,

comprised largely of publicly-owned enterprises, is not delivering reliable, timely, consumer-oriented service. The operational deficiencies are evident in the region's transport statistics, which show that railways in the SADC region, in particular, have lost a signficant portion of traffic to road transport and southern corridor routes through South Africa.

The poor performance of railways, for instance, has been attributed to constraints such as excessive government control of operations, outmoded policies, dysfunctional regulations, lack of a commercial orientation, overstaffing, inadequate personnel management and incentive systems, and ineffective management and replacement of physical facilities and rolling stock. Tariffs are set below the cost of providing the service; border crossing procedures are cumbersome; and numerous permits, license fees, and foreign exchange restrictions have strangled regional trade. The net effect is a highly subsidized and inefficient transport system, burdened with high costs and operating losses that continue to drain national budgets and decrease the competitiveness of the regional business community.

The proposed project furthers ongoing efforts of SADC member states and the donor community to increase transport efficiency and reduce costs throughout the southern Africa region. Project funded activities represent a shift in donor assistance focus away from major capital investments, which characterized donor assistance in the 1980's, towards policy and regulatory constraint aleviation to enhance the transport sector's operational efficiency. Increased efficiency should increase the region's trade and product competitiveness, as well as improve the economic growth prospects and the standard of living for the region's inhabitants. A second major project benefit is a reduction of SADC member country national budget deficits as a result of restructuring heavily subsidized, debt-financed state-owned transport enterprises.

III. DISCUSSION: The project goal is to enhance the enabling environment for increased trade and investment in the SADC region. The project purpose is to increase the efficiency, reliability, and competitiveness of the SADC surface transportation system.

In order to achieve the project purpose, two main components are proposed:

- The provision of Policy Analysis Assistance for SATCC (PAAS) that supports the process of reforming policies focussed on improving regional transport efficiency. This will be implemented by the development of SATCC capacity to research, develop, and promote policies.

- The design of a Rolling Stock Information System (RSIS) with commensurate training and backup support.

Policy Analysis Assistance for SATCC (PAAS): The PAAS Component will finance five policy analysts who will work within the SATCC Technical Unit in Maputo to strengthen regional capacity to identify, analyze and prioritize transport policy constraints. The analysts will provide SATCC with the technical capacity to shift from their past focus on developing infrastructure projects to a new orientation on transport policy and regulatory reform.

The PAAS Component will also support a Policy Development and Implementation Support Fund to assist SATCC in furthering the adoption and implementation of policy reforms among national member states. Generally, the Fund will provide resources to strengthen the linkages between SATCC regional policy analysts and national level transport policy makers and transport operators. Specifically, the Fund will support activities such as workshops and seminars to increase awareness of regional/national transport policy constraints, articulate associated benefits resulting from an improved regulatory environment, help policy makers develop appropriate and comprehensive policy reform strategies, provide assistance and training in transport modelling, deliver assistance to parastatal transport enterprises in restructuring and privatization techniques, and finance technical assistance in specialized analytical work needed to resolve regulatory bottlenecks in the transport system.

Several key outcomes are expected to emerge, which include:

a. The formulation of a surface transport sector policy agenda for the SADC region;

b. Detailed analysis, design, and promotion of specific surface transport policies affecting, inter alia, pricing and investment policies, road taxation policies; vehicle axle weight policies; transport regulations, labor redundancy and retrenchment policies, railway restructuring and privatization policies, etc.;

c. Establishment of a regional transport data base;

d. Enhanced institutional capacity of SATCC/TU to undertake regional policy research, policy formulation and information dissemination through staff skill development, training and the application of computer-based transport policy models; and

e. The establishment of a regional institutional framework and mechanism for regional policy coordination and adoption, that leads to transport systems integration.

Rolling Stock Information System (RSIS): The RSIS Component will fund a regional railways' needs assessment and detailed system design; this is a necessary, up-front activity to answer critical questions on the technical viability of an RSIS. The assessment will research rail telecommunications capacity in the region, the numbers of rail yards needing service in each railway, the nature of existing systems, and the technical sophistication of each of the region's rail networks. The assessment will produce concrete recommendations on which of a number of existing RSIS technologies are most appropriate in southern Africa.

The needs assessment/detailed systems design will be used by USAID, SATCC and the SADC railway administrations to make a "GO or NO GO" decision on

whether to amend the project to establish and implement an RSIS throughout the region. It is important to note that only the needs assessment/detailed system design is funded under this initial authorization of funds. Upon the completion of this phase, a "GO or NO GO" decision will be made on the basis of technical viability and acceptance of an RSIS by the regional railways. If the decision is to proceed with establishment of the RSIS, the project paper and authorization will be amended to add funding for Implementation Phases I and II. The project amendment is expected to provide the following key outputs: Phase I Implementation - RSIS establishment in at least three countries, and Phase II - RSIS establishment in remaining countries.

Project Implementation: The PAAS Component will be implemented by USAID/Mozambique; it is expected that the Mission's proximity to SATCC will strengthen A.I.D.'s oversight and management. The RSIS Component will be implemented by USAID/Zimbabwe; this is consistent with USAID/Zimbabwe's Southern Africa Regional Program (SARP) mandate and ability to provide management oversight region-wide. Since the two project components will be implemented as separate activities, project funding be obligated in two separate corresponding bilateral agreements with the Government of Mozambique, the SADC Transport and Telecommunications Sector Coordinator.

A.I.D. will also provide financing for the services of Project Manager for each of the components, two evaluations, and annual audits.

IV. ISSUES: The following issues were identified during the Mission and technical review process and addresses in the project paper.

IEE: The IEE recommended and received Bureau Environmental Officer concurrence for a categorical exclusion. However, in compliance with recent guidance for policy based projects, the environmental impact of policy reforms under the PAAS component will be reviewed during project implementation on a case by case basis as part of the selection process for project funded analysis and advocacy. In the case of the RSIS, if a "GO" decision is reached the, IEE will be reexamined during the project amendment that will fund the establishment of the system.

Social Soundness and WID Analyses: While the project design recognizes the importance of this analytical perspective, detailed analyses could not be meaningfully carried out in the original design. Instead, the project paper calls for these development issues to be addressed as components of the selection process for specific policy reforms under the PAAS component. Under the RSIS, these perspectives will be examined in detail during the detailed design phase.

Contracting: All RFPs will specify that institutional contracts valued over $100,000, not awarded to Gray Amendment entities, will include the requirement that at least 10% of the contract value be subcontracted to disadvantaged enterprises or individuals.

Competition: The project design maximizes the opportunities for competition, and will, to the greatest extent practicable, encourage the utilization of U.S. contractors and commodities.

Procurement Integrity: The project paper recognizes the fact that the contractor selected to carry out the detailed RSIS systems degign will be excluded from any further activity in actual establishment of the system. The RSIS RFP will include an appropriate provision.

V. CONGRESSIONAL NOTIFICATION: This project is contained in the FY 1993 Congressional Presentation. Although the authorized level of funding is $20 million in the CP, the actual level of this authorization is $12.3 million. This reflects the Mission decision to fund only the detailed design of the RSIS, whereas the CP information envisaged full funding for the establishment of the system. The proposed $5.5 million FY 1993 obligation is within the 10% level already justified to Congress and therefore does not require a TN.

VI. AUTHORITY: You were delegated authority to authorize the SADC Transport Efficiency Project in STATE 44660. Delegation of Authority No. 551, revised, states that you may authorize projects with a life of project of up to $20 million. The proposed $12.3 million level of funding for this project is therefore within your authority to authorize.

VII. RECOMMENDATION: That you approve the project paper for the SADC Transport Efficiency Project (690-0256) and sign the authorization document for the project.

APPROVED: Ted D. Morse
Ted D. Morse, Director

DISAPPROVED: _____
Ted D. Morse, Director

DATE: Sept. 13, 1993

Attachments:

Project Authorization
Project Paper

Clearances:

CPDIS: P.K. Buckles (draft) Date: Sept 1, 1993

RLA : M. Alexander (Alexander/Harmon fax) Date: Sept 2, 1993

CONT : M. Lewellen MR Date: 9/13/93

RTA : S. Mintz (draft) Date: Sept 1, 1993

RCMO : C. Lyons (draft) Date: July 22, 1993

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PROJECT AUTHORIZATION

NAME OF GRANTEE: Southern Africa Development Community (SADC), represented by the Government of the Republic of Mozambique

NAME OF PROJECT: SADC Transport Efficiency Project

PROJECT NUMBER: 690-0256

1. Pursuant to the Foreign Assistance Act of 1961, as amended, the Foreign Operations, Export Financing and Related Activities Appropriations Act of 1992 and Africa Bureau Delegation of Authority 551, I hereby authorize the SADC Transport Efficiency Project for the Southern Africa Development Community represented by the Government of Mozambique ("Grantee"), involving planned obligations not to exceed $12,300,000 in grant funds over a period of five years from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB allotment process, to help in financing the foreign exchange and local currency costs of the project. The planned life of the project is five years from the date of initial obligation.

2. The SADC Transport Efficiency Project ("Project"), will consist of two components to be the subject of separate grant agreements with the Government of Mozambique, SADC's designated representative for the transport sector. The overall project purpose is to increase the efficiency, reliability and competitiveness of the SADC surface transportation system.

The Policy Analysis and Assistance for SATCC (PAAS) component will be managed by USAID/Mozambique. This grant will fund assistance to the Southern Africa Transport and Communications Commission (SATCC) headquartered in Maputo. Technical assistance, training, studies and minor commodity procurement will be provided to enhance SATCC's institutional capacity to research, formulate and disseminate coherent regional transport policies, and to structure and manage a policy development staff. In addition, the PAAS component will finance a Policy Development and Implementation Support Fund to provide for special project needs for studies, seminars, data bases and related activities.

The Rolling Stock Information System (RSIS) component is envisioned as a three phase undertaking. The first phase will be managed by USAID/Zimbabwe as the headquarters of the Southern Africa Regional Program. The initial phase will finance feasibility studies to determine the needs and prospects of a regional rolling stock information and management system. Based on the results of the feasibility studies/needs assessment, the contractor or grantee will draft an implementation plan for two subsequent phases (not funded under this authorization) to install and commence operations of the RSIS in as many of the SADC countries as may be deemed feasible. The initial phase will also entail substantial dialogue with SADC members. The decision to proceed with the implementation phases or abort them will depend on the outcome of the feasibility study/needs assessment and country response to the proposals.

3. The Project Grant Agreements, which may be negotiated and executed by the officers to whom such authority is delegated in accordance with A.I.D. regulations and delegations of authority, shall be subject to the following essential terms, covenants and conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Commodities, Nationality of Suppliers

Commodities financed by A.I.D. under the project shall have their source and origin, and the suppliers or commodities or services, except for ocean shipping, shall have their nationality in countries included in A.I.D. Geographic Code 935, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the Grantee and the United States.

b. Conditions Precedent to Disbursement

First Disbursement. Prior to the first disbursement of funds under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement may be made, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D. a statement of the name of the person holding or acting in the office of the Grantee's representative specified in the Grant Agreement and the names of any additional representatives, together with a specimen signature for each such person.

c. Covenants

Taxation.

(a) This Agreement and the Grant will be free from any taxation, duties, or fees imposed under laws in effect in the territory of the Grantee,

(b) To the extent that (1) any contractor, including any consulting firms, any personnel of such contractor financed under the Grant, and any property or transaction relating to such contracts and (2) any commodity procurement transaction financed under the Grant, are not exempt from identifiable taxes, tariffs, duties or other levies under laws in effect in the territory of the Grantee, the Grantee will, as and to the extent provided in and pursuant to Project Implementation Letters, pay or reimburse the same with funds other than those provided under the Grant.

Prohibited Uses of Grant. The Grantee agrees that funds made available under the Grant may not be used for the following:

(a) support of military, police, paramilitary or other security forces, or for retired personnel of such forces:

(b) performance of research concerning or inducement to abortion as a method of family planning;

(c) procurement of luxury goods or gambling equipment;

(d) repayment of interest or principal of public or private debts.

Project Evaluation. The Parties agree to establish a monitoring and evaluation program as part of the Project. Except as the Parties may otherwise agree in writing, there will be an evaluation at the midpoint of the project and a final evaluation during the fifth year of the Project. The first evaluation will assess progress toward planned objectives, identify problems (including possible adverse environmental impact) and recommend modifications in the Project, if necessary to resolve any problems. The final evaluation will assess progress toward planned objectives, identify lessons learned and determine the desirability of follow-on efforts.

d. PAAS Grant. The Grant Agreement for the PAAS component shall be subject to the following additional conditions and covenants:

Conditions Precedent to Disbursement of the Policy Development and Support Fund. Prior to the first disbursement of funds under the Policy Development and Implementation Support Fund, or to the issuance by A.I.D. or its agents of documents pursuant to which such disbursement may be made, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., the following:

(a) Evidence that a Policy Unit has been appropriately located within the SATCC and allocated facilities, staff and authority to carry out its functions;

(b) Evidence that a Head of the Policy Unit has been appointed.

Environmental Protection Covenant. The Parties agree that environmental protection is fundamental to sound development. Accordingly, the Grantee will establish procedures for review of the potential environmental impact of policies proposed for SATCC's adoption and for the mitigation of any negative impact.

Signed: _____

Ted D. Morse
Director
Southern Africa Regional
Program

Dated: Sept. 13, 1993

SUBJECT: SADC Transport Efficiency Project
(690-0256)

Clearances:	JHarmon, PDO	Draft	Date: 8/27/93
	PKBuckles, CPDIS	Draft	Date: 9/1/93
	MLewellen, CONT	[signature]	Date: 9/13/93

Drafted by M. Alexander, RLA, 26 Aug., 1993

Project Development Participants

Project Development Officer	:	Jim Harmon	USAID/Zimbabwe
Technical Considerations	:	Samuel Mintz	Regional Transport Advisor
Technical Analysis	:	Robert McAfee	Contract
Economic Analysis	:	Douglas Rasbash	Contract
Administrative and Institutional Analysis	:	John Miller/ Tony Davis	Contract Contract
Technical/Policy Analyst	:	Duane Lougee	DOT PASA
Policy Analysis	:	Gavin Maasdorp	Contract
Monitoring/Evaluation	:	Samuel Tadesse	Contract
Procurement Planning	:	Christine Lyons	REDSO/ESA
Consultations and Comment	:	SATCC Staff	Mozambique
		Regional Railways	SADC Region
Administrative Support	:	Rudo Jimmy	USAID/Zimbabwe

Project Review Participants

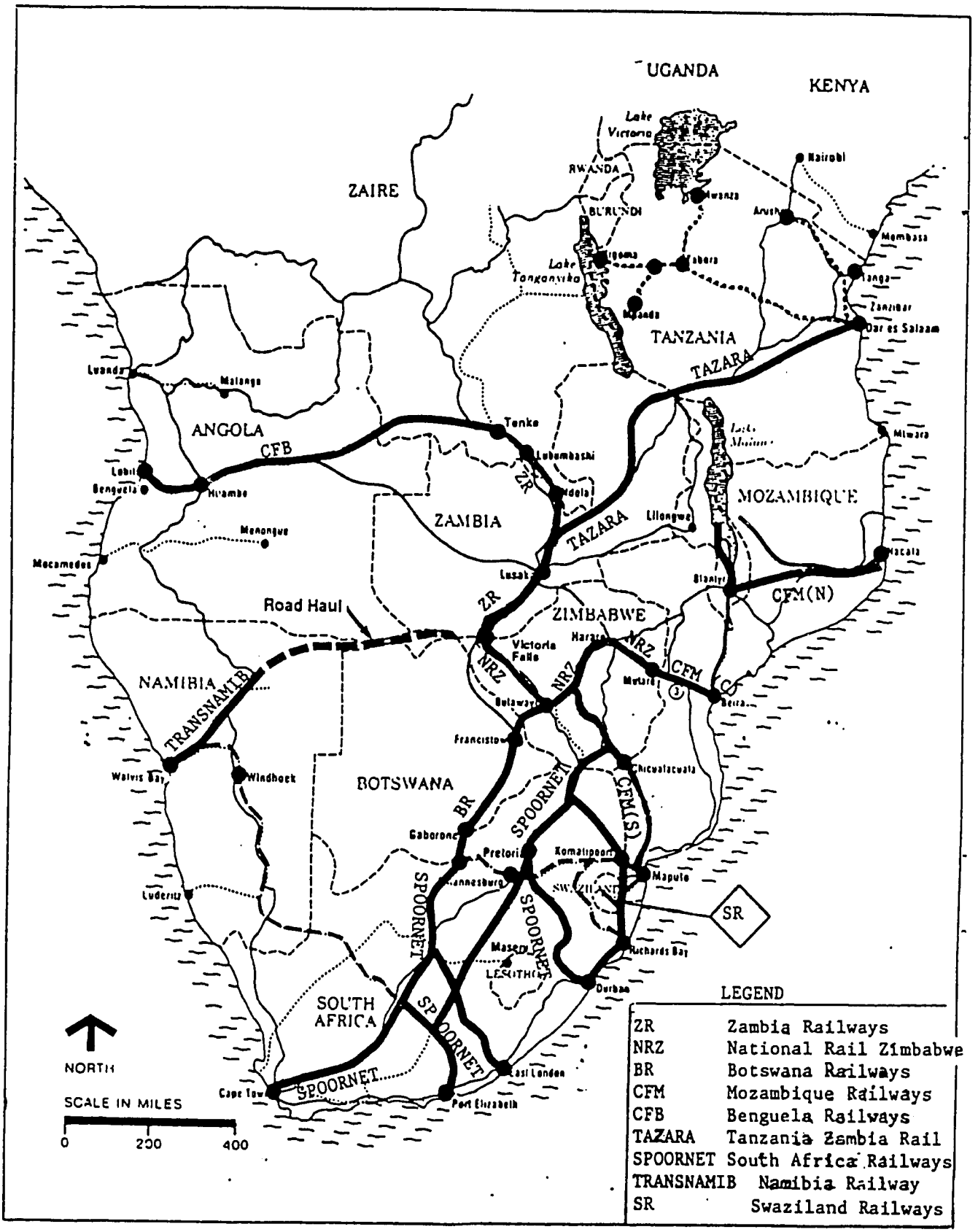
Programmatic	:	Ted D. Morse	Director
		Stephen Spielman	Deputy Director
		Margot Ellis	Program Officer
		Patricia K. Buckles	CPDIS
Financial	:	Mary Lewellen	Controller
Legal	:	Margaret Alexander	Reg. Legal Advisor

LIST OF ACRONYMS AND ABBREVIATIONS

AAR	-	American Association of Railroads
ACIS	-	Advanced Cargo Information System
AID	-	Agency for International Development
ASAR	-	Association of Southern African Railways
BCG	-	Beira Corridor Group
BLSN	-	Botswana, Lesotho, Swaziland, Namibia
BN	-	Burlington Northern
BR	-	British Rail
CFM	-	Caminho de Ferro de Mocambique
CIDA	-	Canadian International Development Agency
CIF	-	Cost of Commodity, Insurance and Freight
CMA	-	Common Monetary Area
COMESA	-	Common Market of Eastern and Southern Africa
CN	-	Canadian National
CSO	-	Central Statistics Office
DFA	-	Development Fund for Africa
DOA	-	Delegation of Authority
EEC	-	European Economic Community
GDP	-	Gross Domestic Product
IRCS	-	Integrated Railroad Control System
M&E	-	Monitoring and Evaluation
MTC	-	Ministries of Transport and Communications
NPV	-	Net Present Value
NRZ	-	National Railways of Zimbabwe
PID	-	Project Identification Document
PSC	-	Personal Services Contractor
PSO	-	Public Service Obligation
PTA	-	Preferential Trade Area
PTC	-	Post and Telecommunications Corporation
RDSS	-	Regional Development Strategy Statement
RFP	-	Request for Proposal
RMA	-	Rand Monetary Area

RMI	-	Railcar Management Inc.
RTC	-	Regional Training Council (SADC)
RSA	-	Republic of South Africa
RSIS	-	Rolling Stock Information System
SACU	-	Southern Africa Customs Union
SADC	-	Southern Africa Development Community
SADCC	-	Southern African Development Coordination Conference
SARP	-	Southern Africa Regional Program
SATCC	-	Southern Africa Transport and Communications Commission
SIDA	-	Swedish International Development Agency
SP	-	Southern Pacific
STEP	-	SADC Transport Efficiency Project
STIPA	-	SADC Transport Investment Priority Assessment
ST/TA	-	Short-Term/Technical Assistance
TU	-	Technical Unit (SATCC)
UNCTAD	-	United Nations Conference on Trade and Development
UP	-	Union Pacific
UPT	-	Union Pacific Technologies
USAID	-	United States Agency for International Development
ZR	-	Zambia Railways

SOUTHERN AFRICA RAILWAY SYSTEM



1. SUMMARY AND RECOMMENDATIONS

1.1. Recommendations

The Project Development Committee recommends authorization of $12.3 million in grant funds for the SADC Transport Efficiency Project, of which $5.5 million will be obligated in FY 1993. This obligation is comprised of $4.4 million for Policy Analysis Assistance to SATCC and $1.1 million for the needs assessment/detailed design of a SADC Regional Rolling Stock Information System (RSIS).

1.2. Project Summary

Excessively high transport costs have reduced the competitiveness of SADC regional producers and have had a resulting negative impact on investment, employment, and incomes. The proposed project furthers ongoing efforts of SADC member states and the donor community to increase transport efficiency and reduce costs throughout the southern Africa region. Project funded activities represent a shift in donor assistance focus away from major capital infrastructure investments, which characterized donor assistance in the 1980's, towards policy and regulatory constraint alleviation to enhance the transport sector's operational efficiency. Increased efficiency should increase the region's trade and product competitiveness, improving economic growth prospects and the standard of living for the region's inhabitants. A second major project benefit is a reduction of SADC member country national budget deficits as a result of restructuring heavily subsidized, debt-financed state-owned transport enterprises.

The project is comprised of two components: Policy Analysis Assistance for SATCC (PAAS), to be implemented by USAID/Mozambique; and development of a regional Rolling Stock Information System (RSIS), to be implemented by USAID/Zimbabwe.

The PAAS Component will finance five policy analysts who will work within the SATCC Technical Unit in Maputo to strengthen regional capacity to identify, analyze and prioritize transport policy constraints. The analysts will provide SATCC with the technical capacity to shift from their past focus on developing infrastructure projects to a new orientation on transport policy and regulatory reform.

The PAAS Component will also support a Policy Development and Implementation Support Fund to assist SATCC in furthering the adoption and implementation of policy reforms among national member states. Generally, the Fund will provide resources to strengthen the linkages between SATCC regional policy analysts and national level transport policy makers and transport operators. Specifically, the Fund will support activities such as workshops and seminars to increase awareness of regional/national transport policy constraints, articulate associated benefits resulting from an improved regulatory environment, and to help policy makers develop appropriate and comprehensive policy reform strategies.

Finally, the PAAS Component will fund: assistance and training in transport modelling, assistance to parastatal transport enterprises in restructuring and privatization techniques, training in short-term management and transport operations, establishment of transport and trade flow information systems, and technical assistance in specialized analytical work needed to resolve regulatory bottlenecks in the transport system.

The RSIS Component will fund a regional railways' needs assessment and detailed system design; this is a necessary, up-front activity needed to answer critical questions on the technical viability of an RSIS. The assessment will research rail telecommunications capacity in the region, the numbers of rail yards needing service in each railway, the nature of existing systems, and the technical sophistication of each of the region's rail networks. The assessment will produce concrete recommendations on which of a number of existing RSIS technologies are most appropriate in southern Africa.

Since the RSIS would ideally be an integrated system, linking each railway through a common information network to manage rolling stock, the project will have to convince all the managers of the separate national railway systems that any proposed system would provide a positive benefit to cost relationship. Such education and advocacy building aspects of the intervention must be accomplished during the initial needs assessment and detailed design phase of introducing the RSIS. Upon completion of this initial phase, USAID and regional railway managers will decide on whether it is warranted to establish a regional system, and if yes, what type of technology will be most appropriate. If a "GO" decision is agreed upon, the project will be amended to establish and implement the RSIS as an integrated information network to connect the SADC railway system.

The PAAS Component will be implemented by USAID/Mozambique; it is expected that the Mission's proximity to SATCC will strengthen A.I.D.'s oversight and management, thus better ensuring successful achievement of project component objectives. The RSIS Component will be implemented by USAID/Zimbabwe; this is consistent with USAID/Zimbabwe's Southern Africa Regional Program (SARP) mandate and ability to provide management oversight region-wide. The Regional Transport Advisor, based in Harare, will be responsible for managing overall project evaluations. Mission Controllers in Mozambique and Zimbabwe will be responsible for managing audits of the PAAS and RSIS Components respectively. Since the two project components will be implemented as separate activities, it is further recommended that project funding be obligated in two separate corresponding bilateral agreements with the Government of Mozambique, utilizing a standard Handbook 3 format for PAAS and a limited Scope Grant for RSIS.

1.3. Negotiating Status

This project has been discussed with SATCC, the Government of Mozambique, regional railways and USAID/Mozambique. All parties have agreed to the activities contained herein in form and substance.

2. PROJECT RATIONALE

2.1. Problem Statement

USAID has been an integral element in the long-term development program of SADC and the donor community to enhance regional transport capacity and efficiency, with the initial phase directed toward replacing necessary infrastructure to allow for economic development in the region and reduced regional dependence on the South Africa transport system.

U.S. Government programmed support to the SADC Program of Action from 1981 to the current year is $415 million, of which $281.5 or nearly 68 percent has been allocated to the transport sector. This reflects almost precisely the same proportion of all donor programmed support to transport in the SADC region ($7 billion of $10 billion).

The dominance of the transport sector in utilizing donor capital is well documented. The reasons are various and generally well understood. The most important include a well prepared and professionally supported action program; concerns by the international community to provide alternative trade routes for landlocked countries other than through South Africa; and the relative ease of disbursing funds for transportation hardware.

In view of the massive investments made by USAID and other donors and the dynamic nature of the transport sector, USAID/Zimbabwe commissioned the SADCC Transport Investment Priority Assessment (STIPA) to provide an overall perspective on what had been done, where the SARP program might best direct future efforts, and how individual investments might be made to maximize the achievement of transport development objectives.

The objective of STIPA, completed in August 1991, was to identify and prioritize road, rail, and port investments needed in the principal trade corridors for the SARP portfolio for the years 1992 to 2000, in view of the proposed investments' potential economic benefits and transport cost savings for trade. The STIPA team examined each of the regional corridors and used a systems approach to examine transport elements (road, rail, ports, etc) affecting the corridors. Using published reports and interviews with regional transport users, providers, donors, and governments, the STIPA team identified, evaluated and prioritized a list of recommended transport projects by transport corridor and for the region as a whole.

STIPA provided a number of findings and recommendations that helped to shape the emphasis, direction, and structure of STEP. On the positive side, STIPA found that, except for Angola and Mozambique, the most important infrastructure improvements had been planned, completed, or were underway. The key finding, however, was that although a sizeable investment has been made to improve physical facilities of the various modes of transportation along SADC corridors, dramatic increases in overall operational performance are not expected to be realized until management and operations efficiency are improved.

The major implication is that long term maintenance and improved operations procedures must be a primary concern of SADC countries, and their achievement will require concerted attention to the policy and regulatory environment in which the rail, ports, and roads that comprise the principal trade transport corridors operate.

The identified development problem, then, is that unusually high transport costs have reduced the competitiveness of SADC producers, thereby reducing incomes and employment throughout the region. This is particularly critical since agricultural and mining commodities comprise a large share of export earnings and ancillary business activity in support industries throughout the region. Transport costs have also increased (across the board) the costs of both intermediate and consumer products sold at the national level as well as costs of exports to other SADC countries and buyers outside the region.

Transport costs have also served as an indirect protectionist mechanism for local production as the CIF cost of imported goods delivered to inland destinations is abnormally high when compared to the CIF value of those same goods landed at southern African ports. Since imports provide competition for regional producers, the high import parity price available to regional buyers does not force local producers to operate at maximum efficiency and contain production costs.

As the STIPA report documented, the systemic problem any new transport intervention must address is that the SADC regional transport system, comprised largely of publicly-owned enterprises, is not delivering reliable, timely, consumer-oriented service. The operational deficiencies are evident in the region's transport statistics, which show that railways in the SADC region, in particular, have lost a significant portion of traffic to road transport and southern corridor routes through South Africa. This dramatic decrease in traffic has occurred despite massive investments in the SADC rail and port infrastructure during the 1980s and a natural competitive advantage over road haulage (lower tariff per ton km) and southern corridor routes (shorter distances).

The poor performance of railways has been attributed to constraints such as excessive government control of operations, outmoded policies, dysfunctional regulations, lack of a commercial orientation, overstaffing, inadequate personnel management and incentive systems, and ineffective management and replacement of physical facilities and rolling stock. Tariffs are set below the cost of providing the service; border crossing procedures are cumbersome; and numerous permits, license fees, and foreign exchange restrictions have strangled regional trade. The net effect is a highly subsidized and inefficient transport system, burdened with high costs and operating losses that continue to drain national budgets and decrease the competitiveness of the regional business community.

Although there is still a great deal to be done to achieve the long-term transport objectives of improving cost effectiveness, reliability and efficiency, the 1992/93 drought demonstrated that where there exists the political will cooperation can be achieved on operational and regulatory aspects of the transport system, exception results can be obtained from the transport system's physical capacity enhanced by A.I.D. and other donors.

2.2. Design Strategy Considerations

Both of the proposed project's components, PAAS and RSIS, aim to further the efforts of SADC, member states, and the donor community to shift regional transport development efforts away from infrastructure development to management and efficiency enhancements, policy/regulatory reforms, and the restructuring of publicly owned transport organizations.

The strategic choice of the PAAS and RSIS project components as the best means to increase transport efficiency and reduce transport costs is discussed below.

2.2.1. Policy Analysis Assistance to SATCC (PAAS)

Needs - The task of improving SADC regional transportation efficiency will require: (i) encouragement of southern African governments to move toward a situation where market decisions are allowed a greater influence in determining the type and level of transport services available; and (ii) revision of transport policies of governments and regional institutions such as SATCC.

In order for market conditions to exist and for government entities to play an appropriate policy and regulatory role in a market-oriented transportation system, a number of conditions are necessary, including the following:

- Availability of reliable information for governments and public and private enterprises to make informed decisions.

- Private ownership of transport firms or, if government entities, operations on a commercial basis.

- Limited Governmental interference in economic regulation of transport services.

- Availability of a well-trained transport work force.

The PAAS Component will assist in developing some of the above cited conditions by providing policy assistance to SATCC. The assistance will help build sustainable capacity at SATCC/TU to conduct policy analysis, thereby enhancing the chances for policy adoption and implementation at the national level.

Implementing Entity- The SATCC/TU was selected as the most appropriate target institution for implementing the PAAS component because: (i) it is the primary organization in the region with a focus on regional transport issues; (ii) policy analysis, advocacy and promotion have been officially adopted as part of its mandate; (iii) a thin layer of senior management -- well-trained and motivated to pursue the policy mandate -- already exists at SATCC/TU; (iv) member states and national transport enterprises have expressed support for SATCC playing a significant role in policy analysis; and (v) SATCC/TU recognizes that it is at a turning point and has already begun the organizational process of transformation to create policy analysis capacity in the institution.

The only other institution in the region which could be the alternative focus of the PAAS Project Component is the Preferential Trade Area for Eastern and Southern Africa (PTA). However, PTA is less focused on policy level issues and its scope is more narrowly defined, focused primarily on trade related issues. In recent years, however, the relative roles of SATCC and PTA have overlapped to some degree. There is some momentum to consolidate and rationalize the two organizations either through: (i) coordinated planning of what each institution will do; or (ii) actual merging of the two institutions. In fact, the Director of the

SATCC/TU was recently quoted as saying: "that although it was inevitable in the long term that SADC and the PTA would merge, it would not be appropriate at the present time because the focus of the two organizations differed."

The PTA has in fact proposed a merger but this was rejected by SADC in 1992. However, it is highly likely that South Africa's admission to broader regional cooperation arrangements will lead to a rationalization of the institutional framework provided by the two organizations. There might be a number of obstacles in the way, e.g., both SADC and the PTA have built up their own bureaucratic structures with vested interests, and issues such as geographic coverage and the location of headquarters would have to be resolved. Countries in SADC appear to favor the wider PTA region, but the deciding factor might be that Southern Africa is a more coherent unit. There is little in common between the region and, for example, the four Horn of Africa countries in the PTA; these four countries have not had the economic capacity to play any significant role in intra-PTA trade. By 1992, none of them had used the facilities of the PTA Clearing House, for instance. Moreover, transport links are clearly stronger within the SADC/South Africa area than within the PTA north of Tanzania. It is for these reasons that SATCC appears to be the appropriate agency for policy analysis capacity enhancement.

Selection of Activities - Two key factors have shaped the types of interventions planned under the PAAS Project Component. First, it is vital to appreciate that SATCC has an ongoing program and a donor cannot impose a new set of activities. Instead, a new project must look closely at the aims and objectives of the participating host country entity and must dovetail any new initiatives with the existing SATCC program.

Second, SATCC already has well-qualified senior management, which has a well honed policy orientation. It is intended that the specialists supported by the PAAS Component will possess the wide range of skills needed to significantly strengthen, rather than undermine, the existing establishment and it interest in staffing with regional specialists.

Sustainable Capacity - It is anticipated that within the life of the project, project interventions will generate sufficient improvements to the operation and management of surface transport systems that the return on project inputs is significant and visible to the member states. However, sustainability will be enhanced by focusing on policy reform areas which are of the highest priority to member states and transport enterprises and which can make significant impact on improved economic performance. In addition, the chances for sustainability will be enhanced by the manner in which projects inputs are applied.

Five-Year Time-Frame - The life of the project was established at five years because: (i) building institutional capacity is a lengthy process; and (ii) a major transformation of the current SATCC/TU is needed if it is to have policy analysis capacity. However, some of the project inputs which are applied intensively toward the beginning of the project, such as funding expatriate long-term advisors, will be gradually phased out prior to the end of the five years so as to enhance the institutionalization and sustainability of policy analysis capacity.

2.2.2. RSIS

Needs - The key to efficient railway operation is proper scheduling of trains and maintaining high utilization of rolling stock. An important element in this process is having up-to-date, reliable information on the location and condition of the railway's rolling stock. In the past, railways relied on manual systems based on paper and teletype or phone communication. As train operations have become more complex and competition for traffic keene, however, modern railways have shifted to computer based systems with dedicated communication facilities. These Rolling Stock Information Systems (RSIS) are also used to schedule equipment maintenance and generate management statistics.

The need for an improved Rolling Stock Information Systems in the SADC area has been recognized since the early 1980s. Railway performance has been hampered by long wagon turn-around times and the railways were unable to determine the location of much of their equipment. Shippers, in particular, are unable to locate their cargo after it has been consigned to the railway, and, as a result, a great deal of is shifting to road.

Several attempts have been made to correct these problems. USAID, for example, helped finance the early development of the Advanced Cargo Information System (ACIS) by UNCTAD. This system, however, has proved to be unsatisfactory as a transportation management information system for a number of reasons. The system was initially designed from the shippers perspective, primarily to track cargo and only later was it modified to assist train operations. The lack of good regional communications for either intra- or inter-railway movements limited the reliability and use of ACIS across national borders. In addition, ACIS is a passive data collection system that is not directly integrated into transmitting transportation decisions to the wagon, locomotive and train. Although USAID no longer is financing ACIS development, the system is still being used in Malawi and Tanzania, albeit ineffectively.

Priority - In 1991, the STIPA report reiterated the importance of an effective rolling stock information system for improving railway operations. The RSIS project was ranked 9th out of 48 projects that were evaluated. Following this report USAID sponsored "A Technical Feasibility Study of a Rolling Stock Information and Management System" for SADC Railways in late 1991.

Counterpart Support - General Managers of the SADC Railways have a keen interest in developing and implementing a RSIS system in order to improve customer service and reduce operating costs. Both of the two regional railway associations, the SADC Railway Administrations and the Inter Railway Administrations, have endorsed the RSIS concept. In addition, several SADC railways are currently involved in the development or improvement of their own RSIS systems.

The key advantages of the RSIS system that are attracting so much interest are the ability of the system to promote "seamless" service to railways customers, to make substantial improvements in the predictability of loaded transit times, and to provide reliable, real time information required by management for decision making.

Projected Benefits - World experience shows that there are a number of operational benefits from using a RSIS system, but the direct benefit of the RSIS that justifies USAID's investment in the SADC region is the likely improvement in wagon utilization and the reduction in wagon hire payments to Spoornet. In total, the SADC Railways are currently making net wagon hire payments to Spoornet of between $2 and $3 million per month or about $32 million per year. Even a modest reduction in these charges would be enough to justify the RSIS investment.

For instance, National Railways of Zimbabwe (NRZ) has set an internal standard of two days for a wagon to remain in a marshalling yard. However, as illustrated in the following table, which summarizes an analysis of a random sample of 191 wagons, the average length of stay for a wagon in a NRZ yard appears to be substantially in excess of this standard.

AVERAGE NUMBER OF DAYS PER YARD IN NRZ (a)

Load/Empty Status	Destination	Average Days
Loaded	Local	7.1
Loaded	South Africa	7.8
Loaded	Zambia	6.3
Loaded	Total	7.0
Empty	Local	8.8
Empty	Off Line (b)	5.6
Empty	Total	7.3
Total	**Total**	**7.0**

Notes:

(a): Based on a sample of 191 wagons taken on December 31, 1992.
(b): 31 out of 32 empty wagons, which were destined off line in the sample data base, were destined to South Africa; the remaining empty wagon was destined to Zambia.

NRZ could save approximately $14,000 on these few wagons in this one yard alone, if they could manage to reach their two day goal. The savings over the entire NRZ system would be enormous. Significant savings have been demonstrated in other applications of this project component. The railways of North America have discovered that the implementation of an interactive, comprehensive RSIS is an important tool for achieving an improvement in the utilization of both wagons and locomotives.

2.3. Relation to A.I.D., SADC, and Country Priorities

2.3.1. A.I.D.

A major goal of A.I.D.'s assistance program under the Development Fund for Africa is "sustainable, broad-based and market-oriented economic growth in Africa". To achieve sustainable growth in the SADC region, it is critical to enhance the enabling environment for increased trade and investment.

An important aspect of the enabling environment relates to the infrastructure required to promote SADC regional imports and exports as well as the efficient intraregional movement of goods. Increasing transport efficiency should lower production and consumer costs, thus improving the competitiveness of the productive sector in the region. This, in turn, should make the region more attractive for and facilitate investment, thus increasing employment opportunities and incomes over time.

The proposed project is also consistent with the long-term development strategy of the Southern Africa Regional Program (SARP). In 1984, A.I.D. first articulated a regional strategy for providing assistance to the SADC region that focused on three sectors: transport, agricultural research, and training and manpower development. The Southern Africa Regional Development Strategy Statement (RDSS) for the period FY 1991-1995 retains this emphasis on transportation and includes plans to allocate more than half of all A.I.D. resources available during the planning period to this sector.

2.3.2. SADC

A basic principle of the SARP transport development strategy has been coordination with programs of SADC and other donors. Transport projects, aimed at rebuilding capacity lost during independence struggles and afterwards, have been the top priority of the Southern Africa Transport and Communications Commission (SATCC) since its inception in 1980.

Transportation projects are intrinsically linked to the achievement of SADC's four broad objectives:

(1) Reduction of external dependence of SADC member-states, especially but not solely on the Republic of South Africa;

(2) Creation of operational and equitable regional integration;

(3) Mobilization of domestic and regional resources to carry out national, international, and regional policies to reduce dependence and build genuine regional coordination; and

(4) Joint action to secure international understanding of and practical support for the SADC strategy.

Transportation as a sector for donor assistance was clearly defined in the original SADCC Programme of Action in 1981, and priority emphasis was placed on actions to improve the

region's transport system. While the cornerstone objective was to reduce dependence on South Africa, the regional strategy also aimed at reducing total transport costs, with consequent savings in scarce foreign exchange and significant economic benefits to the region as a whole.

Projects in the transport and communications sector presently represent approximately $6.6 billion of the $8.5 billion total SADC Programme of Action, as indicated by the budget of SATCC, which is responsible for the SADC transport sector. The $6.6. billion SATCC Programme of Action is comprised of capital investment projects, operational coordination and training elements.

With the basic capital investment program in the transport sector either completed or under implementation, SATCC's focus is shifting to productivity improvements and the maximum utilization of existing infrastructure investments. In addition, SATCC is seeking operational improvements, including: the harmonization and rationalization of tariffs, the establishment of improved maintenance systems, and the standardization of documentation and administrative procedures across borders, all of which should contribute to an improvement in managerial efficiency and the expected movement of cargos.

In view of recent efforts to resolve the political problems in South Africa that originally prompted the "reduced dependency" objective of the SADC governments, both SADC and the donor community are redirecting their focus toward regional economic integration (including trade and other cooperative relationships). To facilitate this process, the focus of the regional transport system must also shift toward activities of the type included in this project, which represent a systematic approach by policy makers and regional railways to enhance cooperation and improve the performance of the southern Africa rail network as a whole. Furthermore, both donors and SATCC recognize that a coordinated multimodal approach, under which rail is a major component, must be developed to address policy, regulatory, management, and operational constraints to an efficient regional transportation network, a requisite for economic integration and trade development in the region.

The presence of South Africa as a trading and business partner to the region has always existed. In spite of SADC policy objectives and considerable investment, the level of economic activity between South Africa and the SADC countries remained unaffected, and high. No Southern African country except Tanzania had any form of trade limitation or sanctions with South Africa or vice versa. Measured in trade terms, the policies of SADC had really no effect; indeed trade by SADC countries with South Africa actually increased.

The most recent trade statistics indicate that SADC total trade, expressed in financial terms, was valued at $27.74 billion in 1990, of which 75.5% percent was international and 24.3% percent was with South Africa (see Table 2.4 below). Although trade among SADC member states was valued at only $1.5 billion in 1990, a more efficient infrastructure will enhance the prospects for increased regional trade and significantly further economic integration. Examining trade with South Africa, SADC exports were valued at $1.53 billion; however, imports from South Africa were valued at $5.21 billion. The above levels of trade strongly demonstrate the need for improved efficiency of the southern Africa transport system.

After the demise of apartheid in South Africa, there will be a reduction in current barriers to trade between SADC member states and South Africa and a probable increase in southern Africa intra-regional trade. At the operational levels in virtually every sector, there has always been continuous contact. The railway system itself is standardized around the "Cape Gauge" and its operating and rolling stock systems are also harmonized.

At a political level, though understandable concerns remain, attitudes are changing. Until recently there has been a tendency to nearly omit South Africa from the regional map. Currently, the situation there is changing rapidly. During this project preparation, a date for a general election in 1994 has been fixed and reversals in position have been made which will be of significance. Thus, the goal of this project, with reference to SADC, is taken to include South Africa.

In summary, the proposed project elements are on the SADC Programme of Action. They are also consistent with the changes in the SATCC development strategy which has shifted towards the enhancement of efficiency in the transport sector required to improve the overall reliability and cost effectiveness of the regional transport network.

2.4. Complementarity with Other Donor Support

The donor community assisted the SADC transport system by providing significant levels of assistance during the 1980s to finance the replacement or rehabilitation of equipment and other physical infrastructure at the ports and along rail/road corridors. In general, the donors funded activities that were given high regional priority by SATCC. This process accomplished several key objectives. The region-wide SATCC prioritization process helped to coordinate activities of a large number of donors, reduce duplication of effort, and promote the idea of regional cooperation by representing the interests of each member state of SADC.

Table 2.4 SADC & SOUTH AFRICA TRADE STATISTICS - VALUE IN US$ MILLIONS

COUNTRY (SADC)	YEAR	IMPORTS (US$M)	SOURCE			EXPORTS (US$M)	DESTINATION		
		TOTAL	SADC	SA	Rest of World	TOTAL	SADC	SA	Rest of World
ANGOLA	1989	3 122	28	0	3 094	3 163	0,5	0	3 162,4
BOTSWANA	1990	2 388	189	2 199	332	2 250	94	198	1 958
LESOTHO	1990	725	7	538	179	935	27	311	596
MALAWI	1990	632	55	146	431	388	15	31	342
MOZAMBIQUE	1990	1 148	76	167	905	300	11	12	277
NAMIBIA	1990	1 201	*	1072	129	1 187	*	297	890
SWAZILAND	1990	910	2	819	89	918	39	340	539
TANZANIA	1990	1 667	28	0	1639	548	*	*	548
ZAMBIA	1990	1 699	122	191	1368	1 394	135	174	1 085
ZIMBABWE	1990	2 258	180	410	1665	1 911	281	171	1 712
TOTAL SADC		15 750	690	5 210	9 849	11 994	814,5	1 534	11 109
S. AFRICA	1990	20 870	** 815	-	20 055	26 864	** 4 670	-	22 194

Sources: Calculated from World Debt Tables, Study to Increase Intra-SADCC Trade, Imani Development Namibia and S.A Internal Sources.

* Negligible

** PTA and SADC

Also, the program financed the replacement or rehabilitation of physical infrastructure necessary in the immediate term to operate the regional transport system at a minimal standard necessary to maintain economic activity in the region.

In hindsight, however, the prioritization by SADC appears to have been governed more by the political imperative to ensure an equal distribution of donor resources to SADC countries than technical criteria for achieving greater impact on trade within and outside the region. Moreover, the massive capital investment program of donors created a dependency of parastatal transport enterprises on external grant financing, thereby reducing their needs for rational asset replacement policies and financing through normal financial market sources. Also, donor financing concentrated on the simplistic strategy of providing equipment, while turning away from the more difficult task of making the fundamental changes to the regional regulatory environment and to state owned transport enterprises, both needed to improve the cost effectiveness of the system.

The proposed project is consistent with priorities of other donors as reflected in discussions at the A.I.D./World Bank sponsored Railway Restructuring Seminar held in June 1992. In short, bilateral donors appear to be ready to say no to funding proven losers in the rail sector, unless they start operating less like government entities and implement reforms needed to achieve profitability, reliability and efficiency. Further, the multilateral institutions are tying their large levels of assistance almost exclusively to the adoption of measures by developing countries to reduce subsidies to loss making parastatals which contribute heavily to budget deficits. This phenomenon may also be pushed along further by a movement toward multi-party political systems where the existence of parastatals will have less relevance than it once had to reinforce one party states through political patronage.

The old way of doing business, to which state-owned transport enterprises were accustomed, has been defined by the donor community and international agencies as a luxury that SADC member states can no longer afford. There has been a general realization that marginal contributions to the transport sector by state-controlled, state-owned transport enterprises, in fact, have hindered economic development and burdened public finances. The policy dialogue now emphasizes privately owned, profit-centered commercial transport enterprises, economic tariff structures, profitability and competitive markets instead of state-owned enterprises, regulatory and customs control, and protected transport markets.

The SATCC Technical Unit has received considerable donor support in the past. Donor support, summarized below, is anticipated to continue in the near to medium term.

CANADA - After the completion of Phase II of the Technical Services Fund (TSF) Project at the end of June 1992, discussions have been going on for the determination of a successor program of support to the SATCC Technical Unit (SATCC-TU). The principal elements of the successor program have now been agreed upon and its final design is being completed, with implementation expected to start during the first half of 1994.

The program covers principally the areas related to human resources development, mainly in Railways, and to a lesser extent, in the road and Civil Aviation subsectors. Matters to be addressed include: (1) development of HRD/Training programs and modules, (2) training of

personnel in selected institutions, (3) strengthening of selected training institution through staff strengthening (technical assistance and staff development, course design, and equipment), (4) provision of resources for some analytical work especially related to human resources productivity improvement, and (5) development of SATCC-TU staff for improved productivity.

NORDICS (as a group) - Since the beginning of SATCC-TU the Nordics have provided support to the SATCC-TU by: (1) providing staff/permanent experts (originally they provided most technical staff but now there is one expatriate member of staff and regional staff comprised of one long term and two part-time persons), and (2) providing support for running of the TU (originally 100% but now reduced to provision of equipment, some consumables and housing development). The current agreement expires on 31 March 1994. A successor program is being prepared and appraisal of the SATCC-TU request is expected to be finalized this week.

The successor program is expected to: (1) support the recruiting of regional experts to fill some staff positions which have yet to be taken-over by SATCC through member states contributions (expected are one long-term person for one year and two part-time persons for two years), (2) provide resources required to conduct analytical studies of issues, especially for supporting the work of the subsector/model working groups in their efforts to attain operational coordination and promote efficiency, (3) provide for seminars and workshops to help promote understanding and commitment to implement decisions of agreed operational coordination and efficiency improvements (including policy reform), limited support for some equipment and other office supplies, and (5) provide funds for the construction of another four staff housing units to supplement the four already under construction as per the current agreement. It is envisaged that regional experts will be used as much as possible in the analytical studies related to the Working Groups and in carrying out the seminars and workshops. The successor agreement is expected to commence in April 1994 and to continue for four years thereafter.

Australia - During the current phase of the SATCC/Australia Consultant Trust Fund, Australian consultants have been engaged to conduct analytical studies in telecommunications to address key issues of importance to the region. Australian support has also included funding of regional "counterparts" to assist consultants, provision of workshops to discuss study recommendations and provision of limited facilities to telecommunications administrations to enable them to implement some of the agreed findings. The latter support was limited to provision of computer and software for frequency management by all telecommunications administrations. Australia has indicated that very limited funds will be available in the future and, hence, proposals being considered may essentially be limited to completion of ongoing issues and a few new but related issues.

GERMANY (GTZ) - The current GTZ support, expected to expire December 1995, covers the area of training of middle level and senior managers in the railways subsector. A successor program is being negotiated and is expected to start in January 1994 with completion of activities in 1996. The program will continue to address Human Resources Development in the railways subsector, specifically addressing the following areas: (1) management development and training, (2) instructor training, (3) specialist and professional

training, (4) technical training, (5) development of monitoring and evaluation systems for impact assessment of training initiatives, and (5) support to the SATCC-TU to manage the program.

NORWAY (NORAD) - Bilateral - Norad has been providing assistance to the Working Groups of Road Traffic and Transport and, to a limited extent, for Ports Administrations. The assistance, provided through a Norwegian consultant, has concentrated on support for technical analysis and presentation of issues in the workplan of the groups. The work has also included arranging and conducting of special seminars/workshops for specific issues within the program as well as support for secretariat services provided by the SATCC-TU. This support is now under critical with a view to identifying future improvements. There are indications that any agreed upon support will be analytical work related to selected elements of the Working Groups on a basis similar to that in the aforementioned Nordic group program.

DENMARK (DANIDA) - Bilateral - Danida has continued to provide support, similar to Norad above, for the road infrastructure Working Group. Some limited support was also provided to the Railways Group in early days. Proposals for continuation of support for the Road Infrastructure Working Group are being considered. However, this is also envisaged to be limited and on the basis of the above mentioned Nordic group program. In addition, specific issues of the Railway Accident Investigation System and Training are being considered for support by Danida.

European Community - The EC is planning to fund a major study of SATCC. Requests for proposals are imminent. However, the study is unlikely to start for another six months and could last up to two years. This activity does overlap, in part, with a proposed STEP activity, namely an up-front analysis of management processes. However, the STEP activity is considerably smaller in scope and in resource requirements compared to that of the EEC. More importantly, the analysis needs to be very early in the STEP project because it is critical in guiding the manner in which STEP project inputs are applied, and thus the prospects for the projects overall success. The EC is also involved in the training of senior managers in the road transport sector. The project is to be implemented through the East and Southern Africa Management Institute.

Austria - Austria is considering support for an Assessment of Railway Track Maintenance Requirements and Training which will lead to the establishment of an effective track maintenance system throughout the SADC region. This is currently under negotiation.

3. CONSTRAINTS ANALYSIS SUMMARY

3.1. Policy

Much of the transportation policy, legislative and regulatory framework in the countries of the region date from colonial times. Although new initiatives are beginning, many Railway Acts and Provisions were enacted during the 1920s to 1950s. Railways operate under "common carrier" obligations and value-based tariff structures that were typical throughout

the world during the 1950s. Regulations covering vehicle, construction and maintenance standards, operations, licensing, taxation and ownership are also outdated.

Variations exist among countries and particularly among the former Portuguese and British colonies. In the road sector, for instance, differences in regulations exist in driver age limits and qualifications, licensing and taxation, speed limits and operational regulations.

Because of the high proportion of international transit traffic in the region, these differences increase transportation costs and hamper efficient service. Clearly, increased regional cooperation is needed. SATCC presently promotes harmonization in all these areas. Over the last ten years, however, except for obtaining regional agreement on the design of road signs (yet to be implemented), SATCC has had somewhat limited success.

The Southern Africa Transport and Communications Commission (SATCC) was established in July 1981 as the first Commission of the Southern Africa Development Coordination Conference (SADCC). By mid 1992, the SADC transport and communications program of approved projects had grown to over $6.6 billion, representing about 78 percent of the entire SADC program. Out of this requirement, the financing for $3.1 billion had been secured and about $450 million was under negotiation. This represented 83 percent and 94 percent, respectively, of all funds secured and under negotiation for the entire SADCC program.

The continued emphasis and success of SATCC with respect to capital investment projects will largely be related to changes in external circumstances rather than the manner in which SATCC conducts and manages the relevant activities internally. Major factors limiting the continued success or appropriateness of SATCC in mobilizing resources for such projects include: (i) increased resistance of donors to provide substantial financial resources, due to the declining health of their home economies and the increased emphasis on providing donor resources to other regions such as Eastern Europe and the former Soviet Union; and (ii) the changing mandate and mission of SATCC, which includes a much greater emphasis on policy advocacy and promotion and on "software" projects aimed at improving the efficiency and effectiveness with which existing transportation capacity is used.

While considerable effort has been spent on software activities such as operational coordination among transport sector Working Groups, only small gains have been made in the actual implementation of proposed operational improvements. This less than ideal implementation performance emanates from a number of sources, including inconsistent Group membership and low levels of ownership in Group recommendations.

SATCC has now made a radical departure from its focus in the 1980s on infrastructure projects. This shift in focus is largely in response to significant changes in the external environment, such as the reduced hostilities in Mozambique and Angola and the loss of support for the theory that avoiding dependence on the Republic of South Africa was an imperative. Another major impetus for the shift is the worsening public sector financial performance in the national economies of the region, and a growing awareness that public enterprises must be run on a commercial basis and/or be privatized.

The new role of SATCC in this environment is well recognized and has been ratified by SADC/SATCC. SATCC has adopted "policy" as its main focus and significant support from member states for SATCC to play a role in policy promotion has been garnered. SATCC is in the process of hiring personnel more suited to policy analysis and "software" projects. A thin layer of well-qualified senior management has been put in place to guide the process of transformation and re-direct the organization. SATCC has begun to seek new sources of financial support both within the donor community and from member states and national transport enterprises.

A number of interrelated issues have served to reduce the overall performance and effectiveness of SATCC in the past and are likely to persist into the future. These include inadequate resources and staffing, limited ability to collect, analyze and disseminate relevant data, weak linkages with governments and transport enterprises at the national level, and limited capacity to conduct policy analysis, advocacy and promotion.

3.2. RSIS

The key to efficient railway operation is the proper scheduling of trains and maintaining high utilization of rolling stock. An important element in this process is up-to-date, reliable information on the location and condition of the railway's rolling stock. In the past, railways throughout the world relied on manual systems based on paper and teletype or phone communication. As train operations became more complex and traffic levels increased, however, modern railways began to shift to computer based systems with dedicated communication facilities. These Rolling Stock Information Systems (RSIS) are also used to schedule equipment maintenance and generate management statistics.

The need for an improved Rolling Stock Information Systems in the SADC area has been recognized since the early 1980s. This has been demonstrated in the past by the support and enthusiasm given to UNCTAD in the development of a wagon and cargo tracking system. Unfortunately, the UNCTAD effort, according to SATCC, has not managed to deliver the expected results. Railway performance was hampered by long wagon turn-around times and the inability to determine the location of much of their equipment. Shippers, in particular, were unable to locate their cargo after it had been consigned to the railway and a great deal of traffic was shifting to road.

In 1991, USAID's STIPA report reiterated the importance of an effective rolling stock information system for improving railway operations. General Managers of the SADC Railways also continue to have a keen interest in developing and implementing a RSIS system in order to improve customer service and reduce operating costs. Both regional railway associations, the SADC Railway Administrations and the Inter Railway Administrations, have endorsed the RSIS concept. In addition, several individual SADC railways are currently involved in the development or improvement of their own RSIS systems.

World experience shows that a number of operational benefits accrue from using a RSIS system, but the direct benefit of the RSIS that is used in this report to justify USAID's investment in the SADC region is the likely improvement in wagon utilization and the

reduction in wagon hire payments to Spoornet. In total, the SADC Railways are currently making net wagon hire payments to Spoornet of between $2 and $3 million per month or about $32 million per year. Even a modest reduction in these charges would be enough to justify the RSIS investment.

In addition to capturing all the movement and change of status information on wagons, intermodal containers, locomotives and trains, the RSIS system should be capable of supporting those key functions which, based on the experience of other freight oriented railways, produce most of the tangible operating benefits. These key functions include: monitoring train performance based on stored train schedules, empty wagon distribution based on stored wagon distributor instructions, on line control of yard classification activities, and dynamic adjustments in train blocking plans so as to reduce the number of times individual wagons are handled by a marshalling yard.

Telecommunications capacity is essential to the effective operation of an RSIS. Many observers, especially those who are dependent on the public phone system in the region, are quite skeptical that the quality and quantity of communication needed for a comprehensive RSIS system is really available in this region. The RSIS will use dedicated lines that require little or no switching. These lines exist and are of sufficient quality to handle data. Therefore the RSIS should not encounter the poor level and quality of service that phone customers encounter.

One of the first tasks of the RSIS project needs assessment/detailed design team will be to make a detailed technical survey of both public and railway telecommunication capabilities. This will include checking for failure rates and the suitability and adequacy of the system to handle telecommunication requirements. If this survey indicates that telecommunications capacity and reliability is sufficient, there will be no technical constraint to the establishment of an RSIS in the SADC region.

4. PROJECT DESCRIPTION

4.1. Objectives

Goal: The project goal is to enhance the enabling environment for increased trade and investment in the SADC region. The goal has three major components. A discussion follows regarding the relationship of the goal to key development objectives in the region, namely enhancing the enabling environment for development, increasing trade and investment, and supporting the new Southern Africa Development Community.

First, the enabling environment. This should be read in the broadest context as it recognizes that improved transport alone cannot achieve socio-economic objectives. One aspect of the way things were done in SADC in the past was the questionable effectiveness of coordination between its "technical units" i.e., transport rarely communicated with trade, nor trade with agriculture or mining, nor finance with any. Quite the contrary, each technical unit "sold" its own set of projects to funding agencies almost in competition with each other. Transport investment dominated at the expense of trade, industry, and the other sectoral programs.

The policy analysis capacity that this project supports at SATCC will have as one of its roles to ensure that the enabling environment is improved through coordination among SATCC, other technical units, and member governments.

The second component of the project goal refers to "increasing trade and investment". The Southern African Development Community has as its objective to strengthen and integrate the economies of its members. Its aim is to become a trading block without barriers. Compared to the main trading blocks in the world, the existing SADC intra-regional trade is an extremely low proportion of total trade i.e., less than four percent of total trade is intra-regional.

A comparative analysis of inward investment to South Africa, Zimbabwe, Botswana and Mauritius in Annex III.A shows that those more liberally based economies which allow repatriation of profits attract more inward investment. Zimbabwe, for example has failed to attract investment despite excellent infrastructure, housing, education, etc. Even during the process of disinvestment in South Africa, little if any investment was attracted to Zimbabwe. Recent legislation such as the Land Acquisition Act 1992 in Zimbabwe and the manner in which it is being implemented are not conducive to attracting inward investment. Other neighboring SADC countries have more liberal investment policies and have been more successful in attracting investment.

The trade and economic imbalance with South Africa is a very significant factor affecting the future of SADC. That part of the project goal, "increasing trade and investment," fits well to the task of strengthening the regional market by encouraging actions that will facilitate the movement of goods, reducing inefficiency in the transport sector, removing barriers to a competitive transport sector, and harmonizing regulations.

The third and final element of the project goal is directed to SADC, the newly formed regional economic community. Simply put, the rapidly changing politics of the region suggests that before too long -- certainly within the five year life of this project - - South Africa will join other countries of the region in a common institutional framework.

Purpose: The project purpose, necessary to achieve that goal, is to increase the efficiency, reliability, and competitiveness of the SADC surface transportation system. In order to achieve the project purpose, two main components are proposed:

- The detailed design of a rolling stock information system with commensurate training and backup support.

- The provision of technical expertise to SATCC that supports the process of reforming policies focussed on improving regional transport efficiency. This will be implemented by the development of SATCC capacity to research, develop, and promote policies.

Outputs: The key outputs to be derived from the implementation of the project are in the areas of policy analyses and installation of a region-wide rolling stock information system, each of which is described in detail in Sections 5 and 6 and summarized below.

4.2. Components

4.2.1. Policy Analysis Assistance for SATCC (PAAS)

Under technical support for policy analysis several key components are expected to emerge. These include:

a. The formulation of a surface transport sector policy agenda for the SADC region;

b. Detailed analysis, design, and promotion of specific surface transport policies affecting, inter alia, pricing and investment policies, road taxation policies; vehicle axle weight policies; transport regulations, labor redundancy and retrenchment policies, railway restructuring and privatization policies, etc.;

c. Establishment of a regional transport data base;

d. Enhanced institutional capacity of SATCC/TU to undertake regional policy research, policy formulation and information dissemination through staff skill development, training and the application of computer-based transport policy models; and

e. The establishment of a regional institutional framework and mechanism for enhanced regional policy coordination and transport systems integration.

4.2.2. Rolling Stock Information System (RSIS)

It is expected that the RSIS will produce the following key outputs, which are to occur in three phases of the implementation of the project component:

a. Needs assessment/detailed systems design.

Although not currently funded, it is envisaged that the project will be amended to include the following two outputs if A.I.D. decides to establish a regional and RSIS after evaluating the results of the needs assessment/detailed design.

b. Phase I - RSIS establishment in at least three countries, and

c. Phase II - RSIS establishment in remaining countries.

It is important to note that only the needs assessment/detailed system design is funded under this initial authorization of funds. Upon the completion of this phase, a "GO or NO GO" decision will be made on the basis of technical viability and acceptance of an RSIS by the regional railways. If the decision is to proceed with establishment of the RSIS, the project paper and authorization will be amended to add funding for Phases I and II.

Needs Assessment/Detailed System Design: The initial phase, a needs assessment/detailed system design, will produce three main component outputs (i) a needs assessment, detailed

design and implementation plan for a region-wide rolling stock information and management system; (ii) a Terms of Reference for project management/RSIS installation supervision services to assist A.I.D. with implementation monitoring; (iii) detailed specifications to procure equipment, software including: computer systems, telecommunications equipment, RSIS and MIS software, etc. for the complete installation and testing of the rolling stock information system; (iv) detailed cost estimates for the installation of the RSIS system; (v) a detailed assessment and costing of the training requirements for systems operations, and (vi) an institutional framework for on-going systems operations and sustainability.

Phase I (not project funded) If the needs assessment/detailed design phase indicates the viability of establishing an RSIS, it is envisaged that Phase I will establish the RSIS in at least three countries, e.g. Zimbabwe, Botswana, and Zambia. Project outputs under Phase I will be: (i) RSIS installation supervision achieved through an extension of the Needs Assessment/Design contract, (ii) RSIS system installation in at least three countries - achieved through the letting of an institutional contract, (iii) training of railway staff to operate the system, (iv) technical support to maintain the system, (v) provision of software update and introduction of new hardware and software as appropriate, and (vi) management of the overall system, including coordination with the SADC railways responsible for implementation of the RSIS system.

Phase II (not project funded): Phase II outputs will consist of: (i) extending the system to the remaining SADC railways in years four and five, including Phase I outputs; (ii) developing a detailed plan to train SADC railway personnel to manage, operate and maintain the system by the end of year five; and (iii) developing a plan for ongoing system development and hardware and software support.

4.3. Methods of Implementation and Financing

Regarding overall project management responsibilities, the Director, USAID/Zimbabwe will authorize the project and continue to execute all actions related to the Project Authorization, as defined by Delegation of Authority 551, as amended. Since each project component will be implemented as a separate activity, project funds will be obligated in two separate grant agreements. The Director, USAID/Mozambique will sign the PAAS grant and the Limited Scope Grant Agreement for RSIS, thereby obligating funds on behalf of the U.S. Government.

The Government of Mozambique, as SADC Sector Coordinator for Transport and Communications, will sign both grants on behalf of SATCC. Upon obligation of project funding, the Director, USAID/Mozambique will exercise implementation authority, as defined in DOA 551, for the PAAS component, with the Director, USAID/Zimbabwe responsible for the implementation of RSIS. Detailed administrative and implementation arrangements are contained in Section 5 for the PAAS Component and Section 6 for RSIS. These detailed arrangements include roles and responsibilities, procurement plans, implementation programs and schedules and detailed budgets.

This project will be implemented using the standard operating procedures which have been established between SATCC, the Government of Mozambique and USAID to provide donor

assistance to SATCC. Both the PAAS and RSIS grants will authorize USAID to negotiate and sign A.I.D. Direct contracts to provide a transport policy analysis team to SATCC and to carry out the needs assessment/detailed design of a Rolling_Stock Information System in the SADC railway system.

The grants will contain in Annex 1 a detailed project description which will provide a project narrative, and an overall project budget. Annex 1 will describe the responsibilities of all parties under the grant and will be supplemented by a project implementation letter which will amplify specifically how the project will be administered and implemented. A key point is that the GOM, as SADC Sector Coordinator for Transport and telecommunications, will act only as the official recipient of project funding. SATCC, in carrying out its SADC mandate, will be the host country home base for project activities.

Methods of Implementation and Financing are summarized below.

TABLE 2.4.2
METHODS OF FINANCING AND IMPLEMENTATION
SADC TRANSPORT EFFICIENCY PROJECT

ELEMENT	METHOD OF IMPLEMENTATION	METHOD OF FINANCING	FUNDING TOTAL
I. Policy Analysis Assistance to SATCC (PAAS)			
A. Technical Assistance and Ancillary Support	Direct Contract	Direct reimbursement	$8,755,000
B. Project Management (USAID/Mozambique)	Personal Services Contract	Direct Payment	1,250,000
C. Mid-term and Final Evaluation	Direct Contracts	Direct Payments	100,000
D. NFA Audits (annual)	Direct Contracts	Direct Payments	80,000
E. Contingency (10%)			1,015,000
II. RSIS			
A. Needs Assessment/Detailed Design	Direct contract or Grant	Direct reimbursement	856,000
B. Phase I establishment of system (3 countries) *	Direct contract	Direct reimbursement	Not Applicable *
C. Phase II establishment of system (remaining countries) *	Direct contract	Direct reimbursement	Not Applicable *
D. Project Management (USAID/Zimbabwe)	Personal Services Contract	Direct Payment	150,000
E. Contingency (10%)			94,000
Total Authorized FY 93			$12,300,000

Notes:

* NOT INCLUDED IN FY 93 AUTHORIZED AMT - Phase I and II for the establishment of an RSIS are shown for illustrative purposes only, as they are possible interventions, for which funding will only be authorized (in FY 1994) if the RSIS needs assessment/detailed design exercises concludes the actual establishment of an RSIS is viable.

The PAAS and RSIS components are envisaged to be implemented under separate international institutional contracts. The Policy Analysis team will report directly to the SATCC/TU director. Primary host country contacts for policy advocacy/implementation support activities are envisaged to be transport ministries, general managers of transport entities, directors of public works/roads departments and private sector organizations such as trade associations and road transport operators.

The Policy Analysis Unit institutional contractor will be located in SATCC in Maputo, and will establish a socio-economic and transport sector database to enhance SATCC's analytical capabilities and to provide timely information to policy-makers. The Policy Analysis Unit, USAID, SATCC, railways management, shippers, investors, transport, finance, planning, and trade/industry ministries and development planners will be the primary users of the M&E information.

Primary host country contacts for RSIS development and implementation are envisaged to be regional railway administrations (general managers or their designees) and transport ministries. The location of the RSIS institutional contractor will be determined during the detailed needs assessment phase of project implementation. The institutional contractor, in consultation with the RTA, will establish any databases needed to monitor the impact of this component. Railways management, USAID, and SATCC will be the primary users of the M&E information.

Funds will be committed under A.I.D. direct contracts (or possibly a grant under the RSIS needs assessment/detailed design). Contracts/grants will be administered by USAID/Mozambique for the SATCC policy component and USAID/Zimbabwe for RSIS. Payments to grantees, contractors, or consultants under this project will be made by direct payment or reimbursement which are AID-approved methods of financing. To the extent required, periodic advances will be provided to grantees or contractors in order to facilitate implementation of project activities. Advances will be limited to the amount required for immediate disbursing needs in accordance with U.S. Treasury cash management guidelines.

As this is a SARP project, a host country contribution is not required. However, a sizable host country contribution will be made by regional railways under the RSIS component (if the RSIS moves to the implementation phases) as sustainability and cost recovery are critical elements of the organizational restructuring and commercialization thrust of this project.

Non Federal Audits (NFAs) and evaluations are included under the PAAS component as the RSIS component consists of only a needs assessment/detailed design. NFAs will be provided under A.I.D. Direct Contracts managed by USAID/Mozambique. Evaluations will be handled under either the AID/W or REDSO/ESA indefinite quantity contracts for evaluation at the mid-point and end of the project. If the RSIS component is expanded to include the establishment of the system throughout the region, the project paper and component budget will be amended to include funding for RSIS evaluations and NFA audits.

4.4. Monitoring and Evaluation Arrangements

The project monitoring and evaluation (M&E) system will identify the objectives and the specific results to be achieved through this project. Annex I.C, Logical Framework (LOGFRAME), summarizes the specific results to be achieved and the associated performance indicators used for assessing progress toward achieving the stated results. A more detailed framework for project monitoring is included in Annex III.L. This annex includes data sets required for measuring each indicator, data sources, and appropriate evaluation methodologies.

The M&E system will provide information on project implementation and utilization of project funding for both the PAAS and RSIS components. It will track key milestones and report progress made towards achieving the liberalization and commercialization of railways, surface transport cost reductions, and national government subsidies to the transport sector. It will track and report progress made in achieving increases in rail and road traffic, transport sector profitability and liquidity, and the rate of expansion of trade and investment in the region.

4.4.1. Project Performance Indicators

As detailed in the Annex III.L, three types of indicators have been identified -- process, intermediate impact, and impact indicators. Process indicators track the project outputs including the establishment and staffing of the Policy Analysis Unit; establishment of policy agenda; the production and publication of policy studies and recommendations; number of policy, regulatory, and institutional reforms resulting from the Policy Analysis Unit's effort; the development and installation of the Rolling Stock Information System; and its access and use by the regions railways.

Intermediate impact indicators measure the influence the project has had in effecting policy and operational changes. At the project goal level, they track investors response in terms of private investment to improved trade and investment policy environment. At the project purpose level, they track progress made in restructuring and improving operational, managerial and financial performance of the region's railways resulting both from policy, regulatory and institutional reforms and from the use of the rolling stock information system. Intermediate impact indicators go beyond project outputs.

Impact indicators measure the longer term effects on transport sector efficiency and commercial viability; and the region's economic performance resulting partly from improved efficiency and reliability of surface transport and partly from trade and investment policy, regulatory and institutional reforms. In addition, impact indicators measure the percentage reductions in surface transport costs to shippers and the resulting increases in the volume of rail and road traffic. At the people level, increased trade and investment should result in increased income and employment in the region. As shown in the Annex III.L, preliminary baseline and performance target data are provided to the extent possible. The institutional contractor must validate the baseline data and update the performance target data in consultation with USAID and SATCC management.

At the project goal level the attribution of project impact on trade and investment is rather tenuous. There are several other factors including natural disasters such as drought; regional political stability; and global economic conditions that have a much more significant influence on the expansion of trade and investment in the region. As experience attests, policy, regulatory, and institutional reforms many take up to 15 years to be ratified and implemented in full.

As can be inferred from the RSIS implementation schedule, the benefits of the rolling stock information system may not be realized fully until 1999. There are a total of 25 to 30 marshalling yards where computer, telecommunication equipment and software have to be installed and users trained. In Phase I, where it is anticipated that the RSIS system will be installed along the Zambia, Zimbabwe and Botswana railways, the site survey, the selection of equipment, the installation of equipment, the selection and modification of software, the testing and installation of the system and the training of users is expected to take about 3 years. Phase II, where the system will be installed in the rest of the region, the process is anticipated to take about two years. Thus, project impact on trade and investment as well as on the transport sector's operational and financial performance may not be felt over the life cycle of the project.

4.4.3. Project Monitoring Plan

The institutional contractor is responsible for establishing and implementing the project monitoring and evaluation plan. Data for the indicators specified in the LOGFRAME come from various sources. The institutional contractor will need to design various types of data collection instruments, as appropriate, to gather reasonably accurate and timely data for each indicator. Host country statistical bureaus can be assisted, where feasible and practical, to gather selected statistics using specified procedures. The socio-economic and transport sector information system, established under the policy analysis component, and RSIS are also key sources of data. Summary financial reports from railways will be another key sources of data. The data collection cycle will be established on the basis of the reporting cycle established (desirably quarterly and annual reporting cycles) jointly by the institutional contractor and USAID.

4.4.4. Project Evaluation Plan

It should be recognized at the outset that the intermediate impact and impact indicators cannot be meaningfully evaluated in the initial stages of the project. The project has to be fully underway before its impact can be felt. It should be recognized that it will be very difficult to attribute trade and investment improvement to the project alone.

The evaluation procedure requires establishing quantitative and/or qualitative baseline data for each indicator to get an understanding of the situation before project implementation. Second, the evaluation process requires setting targets/milestones to be achieved/met for each indicator. Progress is evaluated in term of the relative distance from the baseline and the

established performance targets/milestones. Targets to be achieved should be established carefully to ensure that they are realistic and achievable.

Formal Evaluations - The Project will have two project evaluations which will cover both components. A mid-term evaluation will be carried out on/about year 2.5 of project implementation and a final evaluation will be carried out near the end of year five. The Regional Transport Advisor, USAID Zimbabwe, will manage the evaluations.

Annual Informal Evaluations - In addition to the mid-term and final evaluations, progress towards achieving stated results and objectives of the SATCC Policy Analysis Assistance component will be informally evaluated on an annual basis. The informal evaluations will be carried out between USAID/Mozambique Mission management and the institutional contractor.

4.5 Summary Financial Plan

4.5.1 Sources and Uses of Funds

(US Dollars)

	USAID		Host Country		Grand
	FX	LC	FX	LC	Total
1. Policy Analysis Assistance to SATCC (PAAS)					
A. Technical Assistance and Ancillary Support	6,686,250 (a)	2,067,500 (b)	0	0	8,753,750
B. Project Management (USAID/Mozambique)	950,000	300,000	0	0	1,250,000
C. Mid-term & Final Evaluation	100,000	0	0	0	100,000
D. NFA Audits (annual)	80,000	0	0	0	80,000
E. Contingency (10%)	781,125	235,125	0	0	1,016,250
Sub-total (PAAS)	8,607,375	2,592,625	0	0	11,200,000
2. Rolling Stock Information System (RSIS)					
A. Needs Assessment/ Detailed Design	656,000 (c)	0	0	0	656,000
B. Project Management (USAID/Zimbabwe)	0	150,000	0	0	150,000
C. Contingency (10%)	79,000	15,000	0	0	94,000
Sub-total (RSIS)	935,000	165,000	0	0	1,100,000
Total STEP	9,542,375	2,757,625	0	0	12,300,000

Notes

(a) Based on salaries, fringes, intn'l travel, institutional OH/G&A, etc, for 4.5 years @ $210,000 per year for 5 analysts and assisting the Policy Development and Implementation Support Fund in the amount of $1,500,000 plus policy analysis support FX (see Section 5.5).

(b) Based on local support costs for 5 policy analysts @ $40,000 per year for 4.5 years, plus costs of local firm to provide admin support totalling $550,000,plus policy analysis support LC (see Section 5.5).

(c) Based on 5 consultants @ $23,6000 per month for 7 months plus $30,000 for supplies.

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4.5.2 USAID Project Expenditures

	By Project Component By FY (US Dollars)					
	FY 94	FY 95	FY 96	FY 97	FY 98	Total
1. Policy Analysis Assistance to SATCC						
A. Technical Assistance and Ancillary Support	1,403,750 (a)	1,837,500 (b)	1,837,500	1,837,500	1,837,500	8,753,750
B. Project Management (USAID/Mozambique)	250,000	250,000	250,000	250,000	250,000	1,250,000
C. Mid-term & Final Evaluation	0	0	45,000	0	55,000	100,000
D. NFA Audits (annual)	15,000	15,000	15,000	15,000	20,000	80,000
E. Contingency (10%)	166,450	209,825	214,325	209,825	215,825	1,016,250
Sub-total (PAAS)	1,835,200	2,312,325	2,361,825	2,312,325	2,378,325	11,200,000
2. Rolling Stock Information System (RSIS)						
A. Needs Assessment/ Detailed Design	856,000	0	0	0	0	856,000
B. Project Management (USAID/Zimbabwe)	75,000	75,000	0	0	0	150,000
C. Contingency	86,500	7,500	0	0	0	94,000
Sub-total (RSIS)	1,017,500	82,500	0	0	0	1,100,000
Total STEP	2,852,700	2,394,825	2,361,825	2,312,325	2,378,325	12,300,000

NOTES:

(a) Assumes 1/4 of two year expenditure, based on assumption of 6 month contracting process.
(b) Based on full year of expenditures.

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4.5.3 USAID Obligation Schedule

	By Project Component By FY (US Dollars)					
	FY 93	FY 94	FY 95	FY 96	FY 97	Total
1. Policy Analysis Assistance to SATCC						
A. Technical Assistance and Ancillary Support	3,385,000 (a)	0	5,368,750	0	0	8,753,750
B. Project Management (USAID/Mozambique)	500,000	0	750,000	0	0	1,250,000
C. Mid-term & Final Evaluation	45,000	0	55,000	0	0	100,000
D. NFA Audits (annual)	30,000	0	50,000	0	0	80,000
E. Contingency	440,000	0	576,250	0	0	1,016,250
Sub-total (PAAS)	4,400,000	0	6,800,000	0	0	11,200,000
2. Rolling Stock Information System (RSIS) (b)						
A. Needs Assessment/ Detailed Design	856,000	0	0	0	0	856,000
B. Project Management (USAID/Zimbabwe)	150,000	0	0	0	0	150,000
C. Contingency (10%)	94,000	0	0	0	0	94,000
Sub-total (RSIS)	1,100,000	0	0	0	0	1,100,000
Total STEP	5,500,000	0	6,800,000	0	0	12,300,000

NOTES:

(a) Funds 2 years of TA contract from mid FY 94 mid FY 96.
(b) If there is a "GO DECISION" to establish RSIS after completion of Needs Assessment/Detailed Design, $6 to $10 million in additional funding is anticipated to be obligated in Years FY 94-96.

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5. COMPONENT 1: POLICY ANALYSIS ASSISTANCE TO SATCC

5.1. Activities

A. **Policy Analysis Team**: SATCC (officially called the SATCC Technical Unit) will be provided with the capacity to analyze and implement, where appropriate, needed reforms of regulations and policies which are imparing efficiency in regional transport, and hindering trade and investment growth. It is envisaged that the project-funded policy analysis team will be comprised of (a) Transport Policy Advisor, (b) Transport Regulations/Legislation Specialist, (c) Transport Financial/Pricing Policy Specialist, (d) Regional Information Specialist, and (e), a fifth position to be determined (possibly a Privatization/Investment Banker). These specialists will provide long-term, resident, policy analysis and implementation support capacity to the SATCC Technical Unit (TU), located in Maputo. To provide flexibility, it is envisaged that these positions will initially be filled for a two year period, giving SATCC and USAID the option to modify the mix of the team in response to changing policy analysis needs. The policy analysis team will work directly under the host country supervision of the SATCC/TU and receive technical directions from USAID/Mozambique.

B. **Policy Development and Implementation Support Fund (PDISF)**: To assist policy analysis and implementation, the project will provide a Policy Development and Implementation Support Fund. The fund will be a tool to assist in strengthening the linkages between policy analysts at the SATCC/TU and the regional policy makers and transport sector players in SADC member states.

In addition to assisting with the implementation of transport policy reform, the fund will be used to explore areas of interest that are complementary and integral to comprehensive transport policy reforms, but were not included under this project for administrative and budgetary reasons. For instance, railway restructuring is an ultimate goal of SADC, A.I.D., other donors, and most critically, many of the regional railways themselves.

However, a number of potential restructuring activities are still in the development stages, with administrative and coordination to be completed by the railways and a number of donors which plan to work jointly on this most critical activity to improve the performance of the regional rail system. In the meantime, this project will establish the necessary and complementary activity of establishing the capacity to improve the regional policy enabling environment, but must also provide a quick response mechanism to assist with analytical work which may be necessary to push the rail restructuring process and maintain momentum until formal projects can be finalized.

Other examples of potential activities to be supported by the Fund might include specialized technical expertise (not on the policy analysis team) for analytical studies, the collection of trade and transport data, the funding of key transport ministry officials and analysts to attend selected policy analysis fora, the provision of seminars and workshops in areas including,

inter alia, transport modelling, train operations improvements, information dissemination, up-front assessments to assist candidates for rail restructuring or privatization, and investigation of a regional railway association (additional discussion of the potential benefits of an association are discussed in Annex III.D).

Administration of the fund will the responsibility of the technical assistance contractor that provides the policy analysis technical assistance team. Utilizing guidance provided by SATCC, USAID/Mozambique will be responsible for approval of specific activities supported by the Fund. However, until the institutional contract is in place, USAID/Mozambique may, at its discretion, make implementation arrangements on behalf of SATCC for selected PDISF activities such as those noted above.

The PAAS will directly address the current problem of inappropriate pricing and regulatory policies by providing SATCC with the necessary analytical capacity to fulfill its leadership mandate in the regional transport sector and the tools to strengthen linkages to national policy makers. These linkages will be critical to inform national level policy makers of the potential benefits of enhanced regional coordination, integration, competitiveness and trade resulting from a more rational transport policy and regulatory environment.

The project will assist in generating policy analysis capacity in the SATCC/TU by addressing the main "levers" of institutional reform: (i) staffing and organizational structure; and (ii) management practices and processes. Changes in staffing and organizational structure are the main ways to generate policy analysis capacity. However, it is reforms in management practices and processes which will enhance the chances for national level policy implementation and for sustainability of project benefits. The policy analysis component is described below, from the point of view of staffing, organizational structure and management practices and processes.

(i) Staffing and Organizational Structure

The project will provide four resident long-term advisors to be placed in the SATCC/TU.

A. Regional Transport Policy Advisor/Chief of Party - This person will be charged with overall policy analysis related to regional transportation. He/she should be a seasoned transport policy specialist with over 15 years of relevant experience, have broad experience across the various surface transport modes, be able to link transport policy reform with broader economic performance goals and policy frameworks, and have a significant knowledge of the Southern Africa transport systems and region. He/she should also have well developed "process" skills so as to maximize on- the-job training and skills transfer and to facilitate the process for enhancing the adoption of policy reform at the national level. Although policy analysis will be his/her primary task, this individual will also be responsible for managing the project team (but not the SATCC Policy and Planning Department; see below), and for management reporting to the SATCC/TU and USAID.

B. **Transport Regulations/Legislation Specialist** This person will have expertise in the regulatory and legislative aspects of policy reform related to surface transport modes. Candidate policy reform areas that this person may assist with include: (i) promote deregulation in transport institutions; (ii) harmonize vehicle/driver licensing; (iii) harmonize operational regulation; and (iv) harmonize enforcement standards. He/she should have over 15 years experience in the regulatory and legislative elements of transport policy, be knowledgeable of all surface modes, have worked in a number of countries, have some knowledge of the Southern African region, and preferably have previous experience working directly for a major governmental transport regulatory body operating in a market-oriented environment.

C. **Transport Financial/Pricing Policy Specialist** - This person will focus on policy reform related to the financial and pricing aspects of creating a competitive environment for the surface transport sector and an enabling environment for private sector development. Specific policy areas to be addressed might include: (i) harmonize taxes and duties; (ii) enhance competition between modes; (iii) encourage common methods of transport costing; and (iv) promote standard investment appraisal procedures. He/she should have over ten years experience in financial and pricing policy analysis related to the transport sector, have experience in privatization and private sector development, and have broad international experience including in the Southern African region.

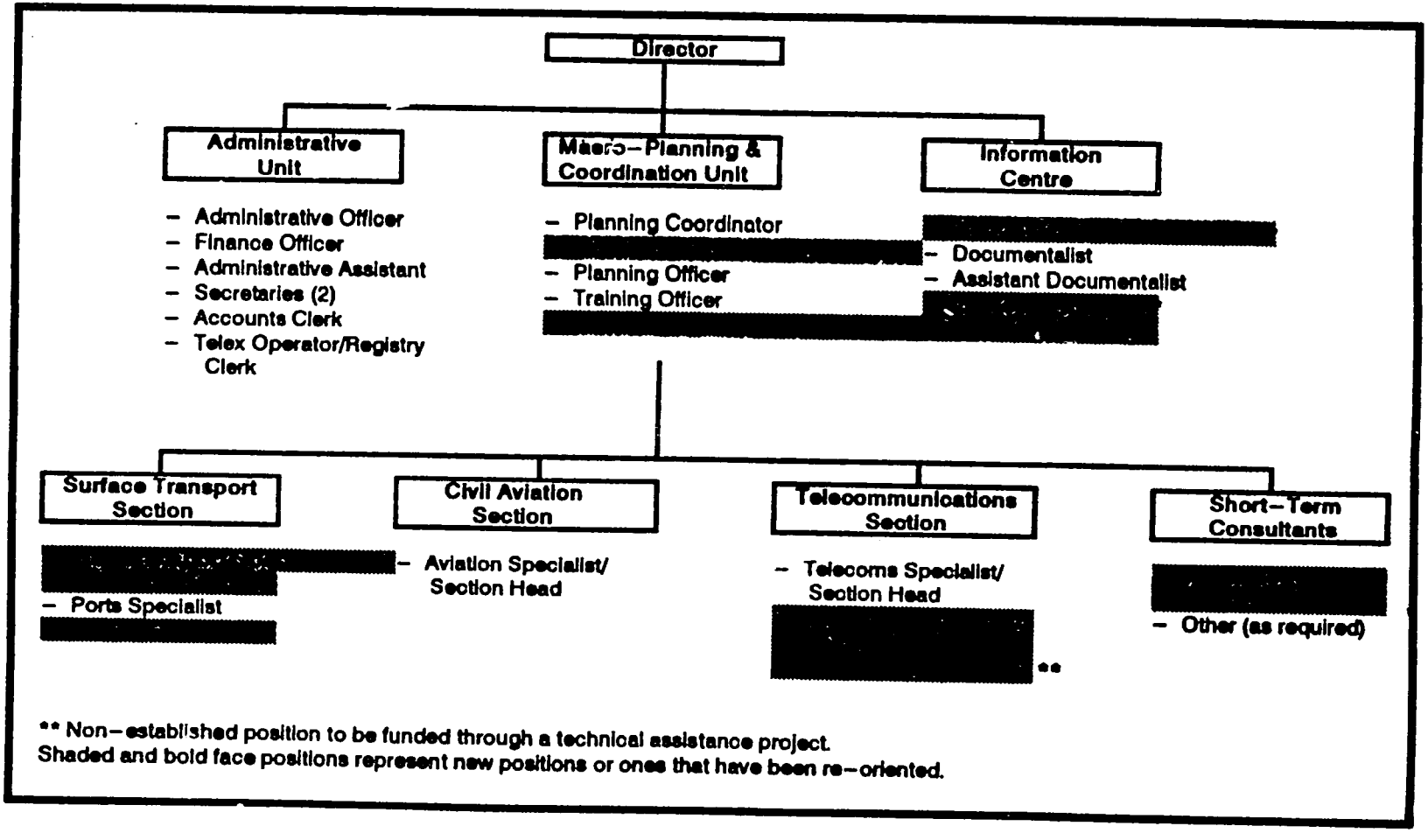
D. **Regional Information Specialist** - This person will focus on the collection, analysis and dissemination of regional information related to transport policy analysis. He/she will work at several levels: (i) production and dissemination of promotional material on SATCC, transport statistics and other key information, and results of policy analyses; (ii) collection and collation of information directly related to policy analysis; and, (iii) advice on and coordination of regionally based information systems such as the Rolling Stock Information System and transport costing models. This person should have over ten years experience in research and information systems related to the transport sector, have experience in editing, publications and communications, and be knowledgeable of developing country environments preferably including the Southern African region.

E. Due to the dynamic nature of the transport sector, the fifth analyst position will be determined by SATCC and USAID/Mozambique at the time the Request for Proposals is developed to hire the PAAS institutional contractor. For illustrative purposes, the position may be a **Privatization and Commercial Expert** - This person would need to be experienced in the processes of privatization in the transport sector and have particular experience in the railway industry. Experience would also be required in the processes of commercialization in railways including franchising of transport services and contracting out supplier functions within public transport institutions. The consultant would be expected to assist with restructuring railways, costing functions such as for maintenance and strengthening procurement and

contracting arrangements for competitive tendering. He/she would have to possess a minimum of 15 years of experience, significantly in developing countries and preferably Southern Africa.

The Regional Transport Policy Advisor is the "big picture" person who will play a pivotal role in generating a policy analysis capability in the SATCC/TU and in enhancing the prospects for national level adoption of policy reforms. This person will also be central to general level training and skills transfer for transport policy analysis. The position will most probably be filled by an expatriate and the assignment should be for the entire five-year life of the project. This position is the most analogous to the "Policy Analysis Advisor" in the organizational restructuring proposed by SATCC in January 1993 (see Exhibit 5.1.1 below).

EXHIBIT 5.1.1 PROPOSED ORGANIZATIONAL STRUCTURE OF SATCC/TECHNICAL UNIT (AGREED TO BY SATCC IN JANUARY 1993)



The positions are likely to be filled by expatriates initially. The expatriates should arrive within six months of the project's initiation and stay for three years. Thereafter, these positions may be filled by nationals of SADC member states. The project could fund the regional nationals for the remaining two years, if this is necessary to achieve project objectives. A six month gap at the beginning of the project will allow member states to be involved in the selection of priority policy areas, which in turn will help to indicate the exact types of expertise needed. Alternatively, USAID could assist SATCC/TU in working with member states prior to the issuance of a Request for Proposal (RFP) to determine priority policy areas. This will ease the process of contracting because the RFP can then be more specific in identifying project needs for long-term advisors.

The Regional Information Advisor position is important at many levels, and could probably be filled by a regional person of more junior rank than other positions. It is also possible that this position will not be required throughout the duration of the project since, once information dissemination systems are in place, a full time professional may not be required. However, the position is needed for a number of reasons. First, information is key to SATCC/TU performing its functions. It has not performed this function optimally in the past. Its deficiencies in this area will be accentuated if more, targeted resources are not provided for the information function as SATCC shifts to a new policy orientation. Second, SATCC has an "image" problem at several levels: (i) the perception that it is a "one way street" with regard to information flows; (ii) its outputs are not well disseminated; and (iii) as the organization moves to a policy focus, it must disseminate its messages. Finally, there are likely to be a number of information systems (rolling stock, costing, investment analysis, planning simulation) that are developed over the life of the project, either by the project itself or external groups. SATCC/TU needs the capacity to be an effective advocate and promoter of regional issues as they relate to these systems.

Key organizational questions related to long-term advisors are: (i) where in the organization should they be located; (ii) to whom should they report; and, (iii) what is their relationship with others in the organization.

Currently, SATCC/TU is not fully staffed, authority is poorly delegated, and there are excessive layers of management, especially when the TU's inter-linkages with the other SATCC/SADC entities are included. Exhibit 5.1.2 presents the current organizational structure of SATCC/TU as of January 1993. It should be noted that: (i) a number of the positions remain unfilled; (ii) the modal/sector based Sections are the main bodies which interface with the Working Groups and various subcommittees; (iii) most of the Section Heads do not operate as such, and in fact each member of the sections reports directly to the Planning Coordinator (who has over a dozen others reporting to him, when the planning and training staff are included); and (iv) the Director of the SATCC/TU has a multi-tiered management structure above him (see Exhibit 5.1.3).

SATCC management are well aware of these issues as well as of the need to reform the organization in order to meet its new mandate, i.e., policy. As a result, in January 1993, a new organizational structure was proposed and adopted by SATCC/SADC. This new plan is

at the early stages of being implemented. Exhibit 5.1.1 shows the new structure; the "shaded" positions highlight new positions and/or those which have been renamed and re-focused. This structure represents a significant improvement by decreasing the number of engineering and operations positions, adding a policy advisor, and strengthening the Information Center. However, if the Section Heads continue not to act as managers of their sections, then little has been done to delegate authority. Also, the addition of only one Policy Advisor, who may have limited interaction with the modal/sector specialist, will be insufficient in generating the requisite degree of policy analysis capacity in the SATCC/TU.

The design team's recommended organizational structure and positioning of the long-term experts is presented in Exhibit 5.1.4. This is based on a modification of the Proposed Organization Structure shown in Exhibit 5.1.1. The following should be noted:

- Rationalization of Sections and Increased Emphasis on Policy Analysis - Two Units should be created: (i) the Policy Analysis Unit; and, (ii) the Technical Unit. These Units report to the Head of the Policy and Planning Department. The Unit Heads should be delegated authority. This structure will help to reduce the number of "direct reports" to the Planning Coordinator, who now should be called the Head of the Policy and Planning Department. In addition, by placing these two Units under one Department, the scope for interaction between modes and between sectoral and functional experts should be enhanced.

- Matrix Organization - The Policy and Planning Unit is the organizational entity where much of the expertise for policy analysis resides. The Technical Unit basically absorbs the technical members of the modal/sectoral Sections, who to date have focused on operational and technical issues and provided a secretariat function for the Working Groups. These individuals' position descriptions largely remain the same. However, they should also act as the modal/sectoral specialists working on policy issues, in collaboration with the "functional" policy specialists in the Policy Analysis Unit.

Exhibit 5.1.2 CURRENT ORGANIZATIONAL STRUCTURE OF SATCC/TECHNICAL UNIT (JANUARY 1993)

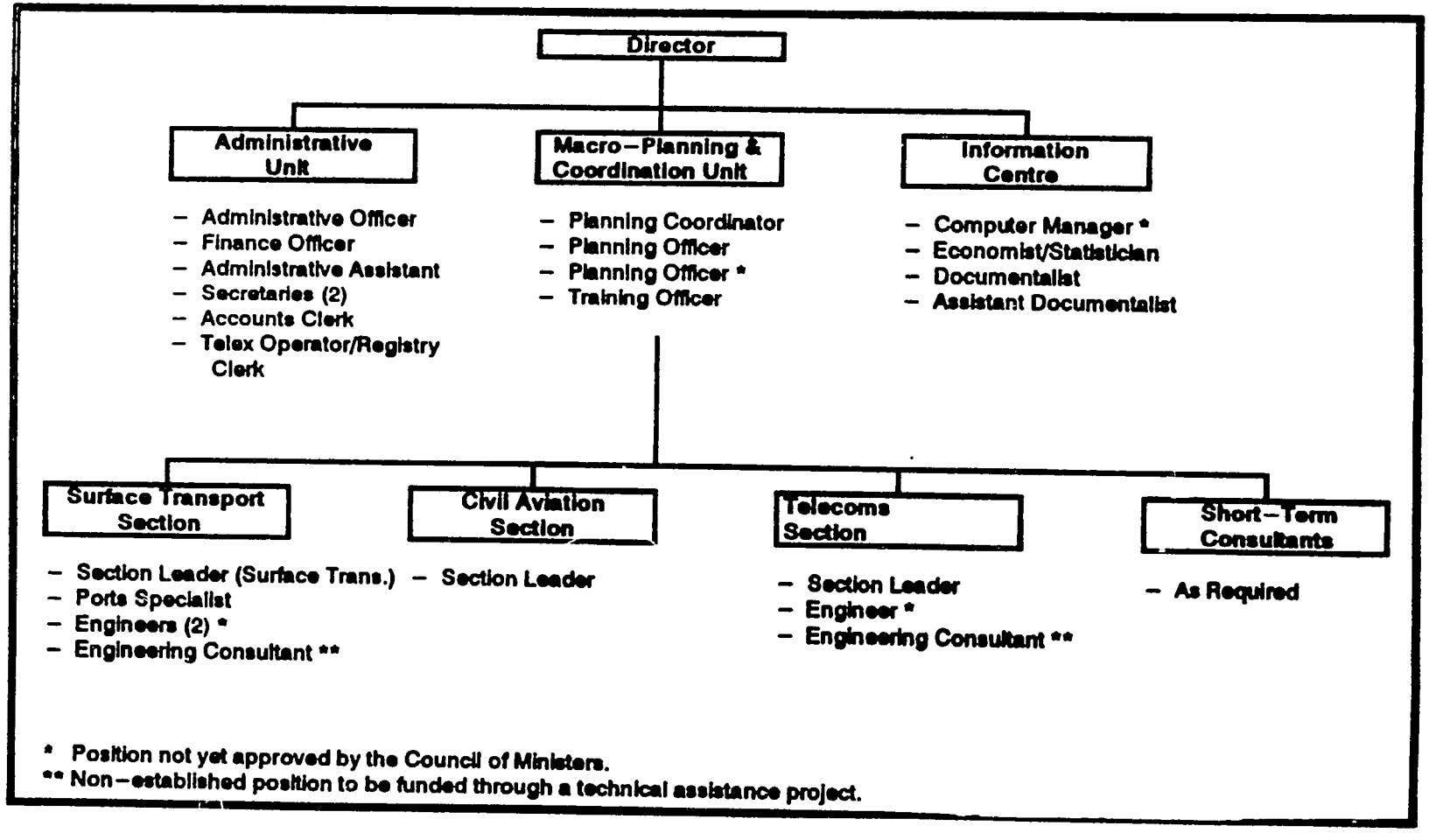


EXHIBIT 5.1.3

Overall Organizational Structure of SATCC Within the SADCC Framework

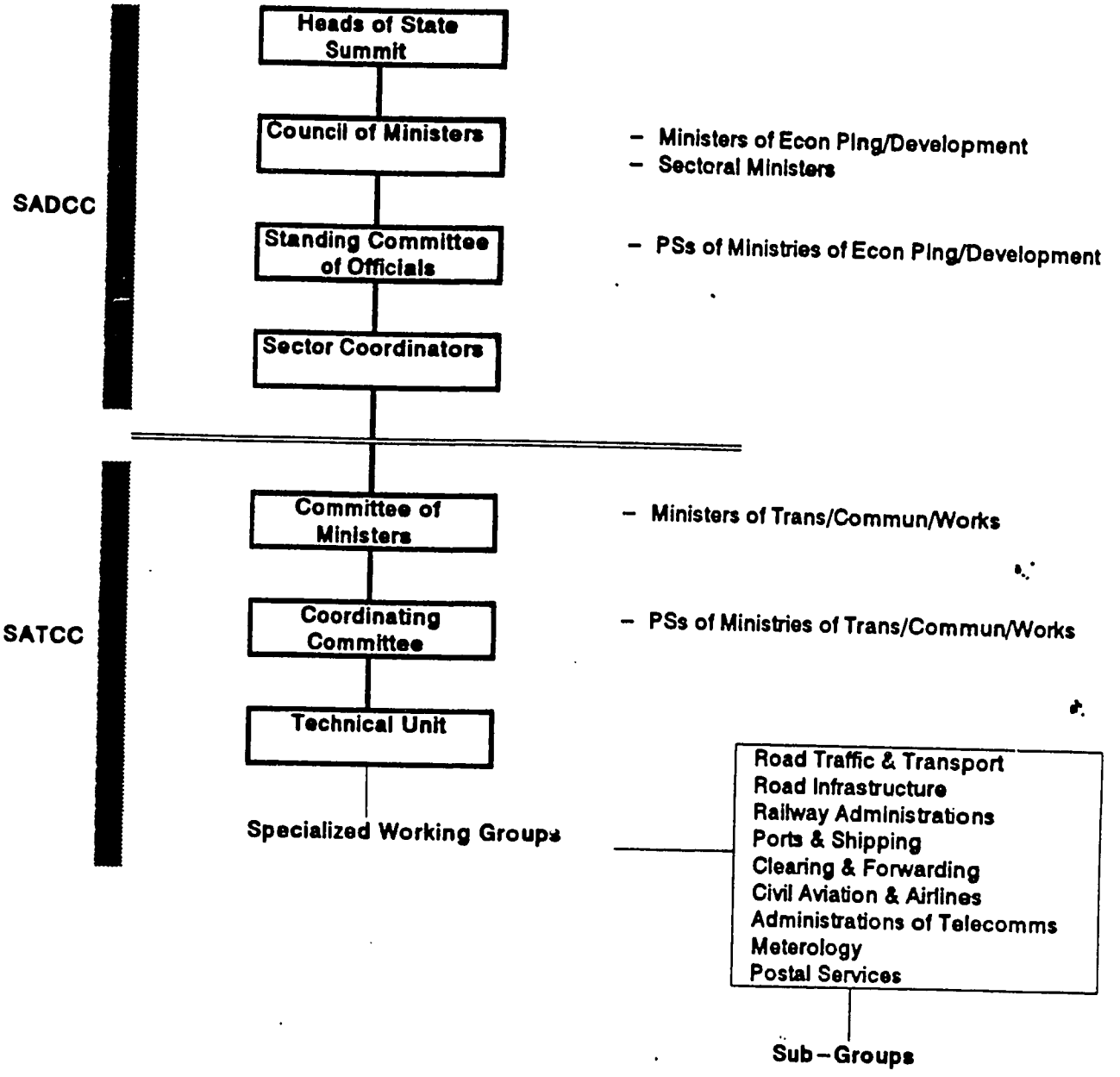
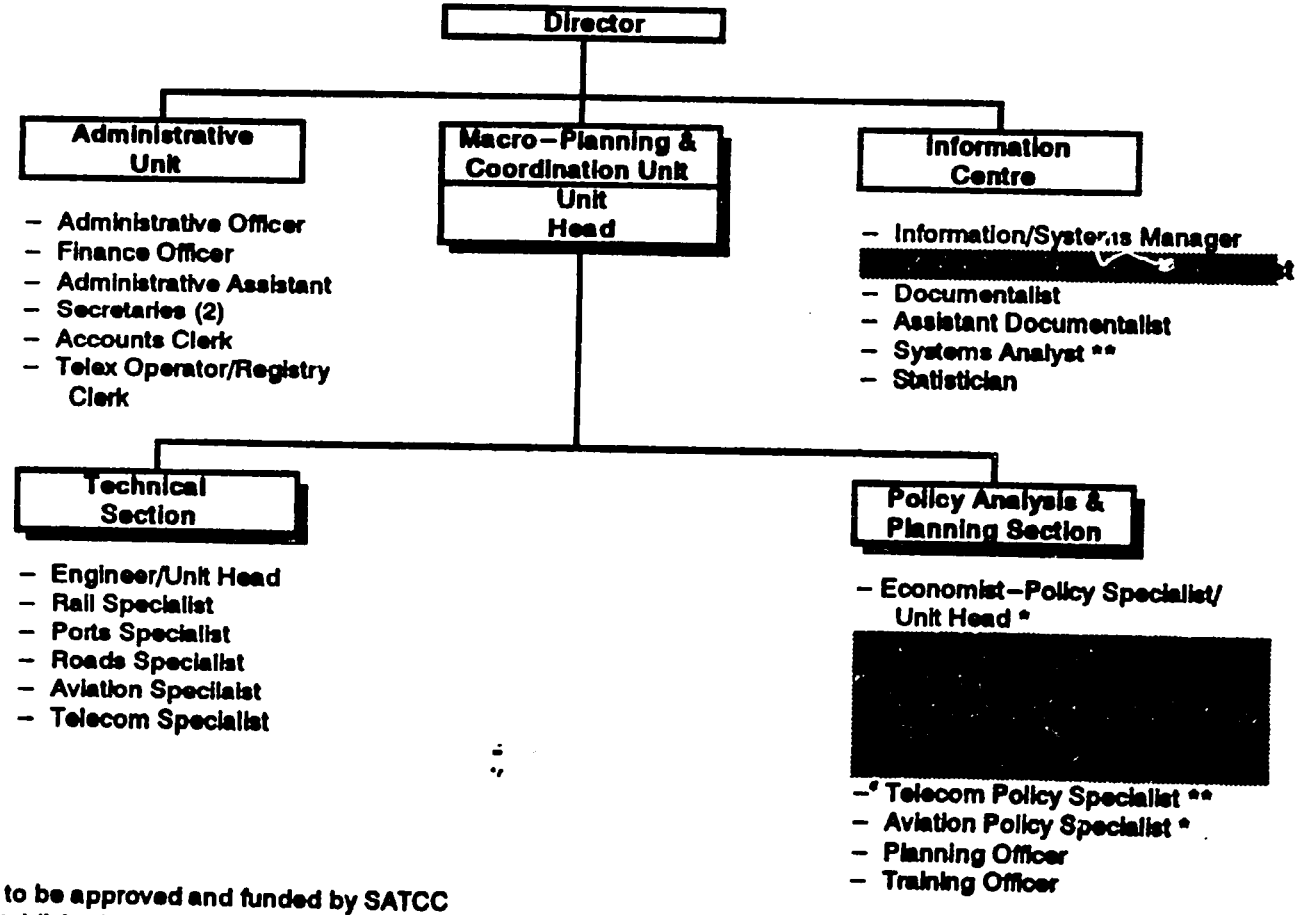


EXHIBIT 5.1.4 Recommended Organizational Structure of SATCC/Technical Unit
(STEP Project Design Team, June 1993)



* Position to be approved and funded by SATCC
** Non–established position to be funded through a technical assistance project
Shaded and bold face positions are those to be sponsored through the STEP project.

Again, boundaries between modes should be reduced as a result of this structure and enhance a multimodal, intermodal and door-to-port focus. The interaction between the two units will also be key because the policy experts will be transferring policy analysis skills to the modal experts through on-the-job training, and in turn, the modal experts will have a deeper understanding of mode specific issues in the region than the policy experts.

- Staffing - The long-term policy advisors provided by the STEP project are positioned in the Policy Analysis Unit, and are highlighted in Exhibit 5.1.4. This unit should be headed by a regional national, who is not funded by the STEP Project. This is critical as worldwide experience shows that when a project-funded expatriate heads a special unit, the unit becomes perceived as synonymous with the project and fails to be institutionalized. When the project ends, the unit ceases to function. All of the positions in the proposed Policy Analysis Unit either currently exist somewhere in SATCC, or funding sources are known, be they from SATCC, the STEP project, other USAID assistance or from other donors. While this unit should have functionally driven policy experts, two of the positions shown are mode/sector specific -- namely Telecommunications and Aviation. This is largely to facilitate identifying which sources are funding these positions. These experts eventually should also adopt a functional focus, albeit largely oriented towards a specific sector. These individuals might be experts in restructuring and/or commercialization, for example. In addition, all of the positions of the proposed Technical Unit currently exist at SATCC somewhere in the organization.

- Relation with Working Groups - The members of the Technical Units should remain the main contact points within SATCC/TU for the Working Groups. However, the Working Groups should become more autonomous, and at a minimum perform much of their own secretariat functions and become more involved in the identification and conduct of technical analysis. Although the Technical Unit will be the main contact point for the Working Groups, members of the Policy Analysis Unit should work closely with the Technical Unit so as to engender a policy orientation at the Working Group level as well.

- Management Practices and Processes - Reforms in SATCC's staffing and organization structure are necessary but not sufficient for the Project Component goal to be achieved, namely to build sustainable capacity at SATCC to conduct policy analysis and enhance the chances for policy adoption and implementation at the national level.

  Changes in management practice and processes -- that is, the way the organization conducts its business and interacts with internal and external groups -- are also essential. Reforms to management practices and institutional linkages should aim to: (i) maximize participatory processes; (ii) build ownership and the chances for sustainability; and (iii) enhance the prospects for national level policy implementation.

Select Priority Policy Areas. SATCC should focus on policy reform areas which are of the highest priority to its constituents (that is, member governments, parastatals and private transporters). This will assist in the process of enhancing chances for policy implementation

at the national level. In Annex III.C, Policy Reform Selection, a framework for evaluating and prioritizing policy reform areas is outlined. This framework should be developed with input from SATCC's key constituents so that SATCC can be responsive to its "customers".

Demonstrate Benefits of Policy Reform. In addition to focusing on priority policy areas, SATCC should endeavor to demonstrate to national level actors the benefits of adopting such reforms. SATCC therefore must; (i) devote resources to assessing policy reform benefits; (ii) conduct objective and credible analytic work of policy benefits; and (iii) improve the manner in which such information is communicated and disseminated to key constituent groups. Benefits should be demonstrated in as empirical and practical manner as possible.

Create Widespread Policy Analysis Capability. The existing institutional framework of SATCC provides an excellent starting point to inform policy and disseminate policy information at the regional and national level. This can be done through the Committee of Ministers to which SATCC reports. The Committee of Ministers is made up of the Minister of Transport and Communications of each SADC member state. It has the overall responsibility for the transport sector activities including approval of transport project, recommending transport policies and transport system development, integration and coordination. The Committee of Ministers make recommendations to Council of Ministers who report to the Heads of State of SADC governments. See Exhibit 5.1.3 entitled "The Overall Organization of SATCC in the SADC Framework" for a clearer picture of SADCC's institutional framework.

As a sectoral committee, the Committee of Ministers are provided with policy advice through its Sector Coordinating Committee. The Sector Coordinating Committee consists of Permanent Secretaries of the Ministries of Transport and Communications. The Sector Coordinating Committee meetings are chaired by the Head of SATCC and is supported by the Director of SATCC's Technical Unit and its staff. The Sector Coordinating Committee meets once per year to consider sector issues and to make recommendations to Committee of Ministers. This meeting is held prior to the annual Committee of Ministers' meeting. The work of the Sector Coordinating Committee is facilitated by the Director and staff Technical Unit of SATCC.

Under the current institutional framework of SADC, the Sector Coordinating Committee is the main link between SATCC and key decision-makers in the transport sector. This is an important vertical linkage because it improves SATCC's ability to promote, influence and get regional policy reforms adopted.

Another important linkage to SATCC is the Railway Administrations and their technical working groups. The SATCC Railway Administrations meets once a year to consider recommendations from the technical working groups on railway operations . Although it is a horizontal linkage, the Railway Administrations are key to successful policy formulation and adoption in the transport sector. Because SADC railways are parastatals, the railway General Managers report to the Permanent Secretaries of the Ministries of Transport on

issues affecting the railways. SATCC, through its coordination and convening of the of General Managers' meeting and technical working groups is provided with yet another important opportunity to introduce policy reforms and disseminate policy research findings.

Although the Ports Administrations, as a subsector group, offer SATCC a similar opportunity as the Railways Administrations do to disseminate policy research and promote specific policies, their weak institutional capacity is not likely to achieve comparable results. The Ports Administrations are simply not as well organized as the railways. Absent any interventions for institutional strengthening, the near-term prospects for the Ports Administrations to become an effective institutional mechanism to promote and influence sector policies are problematic.

In order for the Sector Coordinating Committee to enhance its ability to consider wide-spread and urgently needed transport policy reforms, more frequent regional meetings are required. Additionally, the Sector Coordinating Committee or their designees should be exposed to the technical basis and rationale for all proposed policy reforms through specific policy seminars, workshops, etc. The policy component of the project will provide resources to support various policy fora in order to disseminate policy information and analysis to the Sector Coordinating Committee. SATCC in its role as the transport sector coordinators will convene special policy seminars and workshops for the Sector Coordinating Committee.

The existing institutional framework of SADC, and its transport sector commission SATCC, is the strongest and most appropriate institutional linkage for introducing needed regional policy reforms. The policy dissemination mechanism is in place both horizontally and vertically. What is required is quantitatively verifiable policy-based research findings and recommendations to make the case for sector policy reforms. This should be coupled with the convening of more frequent meetings among policy-makers to share and exchange information on policy research and to consider policy options for presentation to the Committee of Ministers.

A similar model for enhancing institutional linkages can be envisaged for key private sector groups which are relevant to SATCC, such as the Beira Corridor Group (BCG) or National Transporters Associations.

Delegate Authority within SATCC The SATCC/TU as an organization needs to delegate more authority downwards. In other words, senior staff should not be spending the majority of their time performing secretariat functions, collecting basic data or conducting analysis of technical or operational issues. Senior professional staff at SATCC estimate that they currently spend 70 percent of their time on meetings (organizing, attending, drafting minutes, follow-up), 20 percent of their time on information collection, and 10 percent of their time on analysis, of which less than a third is policy-related (the majority being operational or technical in nature).

In a reorganized SATCC in which authority is delegated down the organization, mid-level staff and even more importantly members of the Working Groups themselves would take on increasing responsibility for meetings and secretariat functions. In addition, technical and operational analyses could be done increasingly at this level in the organization. Likewise, a well-functioning Information Center would relieve senior staff of much of the need to collect and collate information of either an operational or policy nature.

The net result would be the freeing up of senior professional staff time which they could devote to policy analysis related functions. An improved "end-state" division of time for senior staff might be 50 percent on policy analysis; 25 percent of available time for policy-related information dissemination and promotion; and 25 percent for attending meetings and preparing selected materials to be presented on policy issues. In this manner, an appropriate reorganization and reorientation of staff roles and responsibilities would generate policy analysis capacity in SATCC even in the absence of the addition of staff.

Improve Processes Related to Short-Term Technical Assistance The manner in which short-term technical assistance (ST/TA) is identified and conducted needs to be reformed. Currently, the need and Terms of Reference for ST/TA are often undertaken by SATCC staff, not the Working Group or subcommittee members. In addition, there is a heavy dependence on expatriate consultants, who often provide recommendations which are inappropriate for the region.

The Working Groups and subcommittees should become more involved in the total process of arranging for and conducting ST/TA, from identifying needs through developing TORs and reviewing report recommendations. This will build ownership for, and understanding of the analysis and recommendations of the ST/TA and make the members more effective in communicating and promoting the recommendations further up in the organization. Thus, as part of delegating to Working Groups, the Groups should always be responsible for identifying ST/TA needs and drafting the Terms of Reference.

In addition, a hierarchy should be applied when deciding the source of expertise for the ST/TA. First, members of the Working Groups and subcommittees themselves should be considered for conducting the ST/TA. If insufficient or inadequate expertise resides at the Working Group level, then members of SATCC's staff should be sought to join the ST/TA team. If still insufficient, then professional consultants from the region can be added to the team. As a final resort, expatriate consultants should be used to fill the void or add specialist expertise that is not resident in the region.

All of this will: (i) build ownership for the results of ST/TA; (ii) enhance the chances for an impact on policy implementation; and, (iii) lay the groundwork for some of the Working Groups spinning off and becoming free-standing Associations, after a period of increased autonomy within the SATCC framework.

-- **Optional Project Location** - There are several possible locations for policy staff in the SADC region. The most favorable locations, however, are in SATCC headquarters in Maputo, Mozambique, or with the USAID regional mission in Harare, Zimbabwe.

As discussed above, it is strongly recommended that the policy staff be located at the SATCC headquarters in Mozambique. This will facilitate the project's interaction with the SATCC staff and will enhance coordination of policy reform efforts. If the project staff is located at the SATCC office, under the organizational framework recommended above, there will also be less of a tendency to identify the staff as a "USAID unit". This will enhance long run project sustainability. Location of the policy staff in Harare, has several advantages that should be mentioned.

- Project funding is provided through the USAID/Harare regional office. A Harare project location would strengthen the ability of that office to supervise the project.

- At the current time, transportation and communications are much better in the Harare area. Since the project staff will be doing a lot of regional travel this could be an important consideration.

- The facilities, support services and hotel accommodations necessary for workshops and training are much better in Harare than in Maputo. In addition, the costs of these services are also less.

- The availability of staff housing, schools and medical facilities necessary to attract and keep high quality staff is much better in Harare. This could be especially important in attracting regional professionals.

- Phase One of the RSIS installation will include NRZ. It makes sense, therefore, to locate project staff near the major railway facilities. Since many of the policy staff activities will also deal with railway issues it may make sense to have that staff in Harare also.

- Although SATCC is adopting a more progressive attitude toward policy reform, the technical unit staff is quite thin. A change in directors might bring a change in policy. Under such a scenario it might be advantageous not to have the USAID project team fully integrated into the SATCC unit.

5.2. Implementation Plan

The PAAS component of the STEP project should commence at the beginning of the project and should last the entire five year life of the project. This is because (i) building policy analysis capacity is known to be an immediate need and SATCC is receptive to such assistance; and, (ii) building capacity and institutional reform take a long time to achieve --

typically more than five years, through substantial gains can be made within such a period. A schedule of a major implementation actions follows.

Proposed Dates	Activity	Responsible Organization
1. Initial/General		
09/93	Project Paper completed	USAID/Zimbabwe
09/93	Project authorized	USAID/Zimbabwe
09/93	Project Grant Agreement signed	USAID/Mozambique, GOM
10/95	PIO/T for mid-term evaluation completed	USAID/Mozambique, SATCC, SARP/RTA
03/96	Mid-term evaluation completed	USAID/Mozambique, SATCC, SARP/RTA Contractor
03/98	PIO/T for final evaluation completed	USAID/Mozambique, SARP/RTA, SATCC
05/98	PIO/T for final NFA audit completed	USAID/Mozambique
09/98	Final evaluation completed	USAID/Mozambique Contractor, SARP/RTA
11/98	NFA Final audit completed	USAID/Mozambique, Contractor
09/98	PACD (09/30/98)	

Proposed Dates	Activity	Responsible Organization
2. Policy Analysis Institutional Contractor		
10/93	PIO/T completed	USAID/Mozambique, SARP/RTA, SATCC
10/93	Advertisement placed in CBD	USAID/Mozambique
01/94	Proposals received and technical evaluation starts	USAID/Mozambique, SARP/RTA, SATCC
06/94	Contract awarded	RCO/USAID/Swaziland
08/94	Contractor mobilization begins	TA Contractor
09/98	Contractor de-mobilization ends	TA Contractor
3. USAID Project Management (Project Manager at USAID/Mozambique)		
09/93	Advertisements placed	USAID/Mozambique
11/93	Evaluation of applications completed	USAID/Mozambique
01/94	Contract for PSC project mgr completed	USAID/M/EXO or RCO/Swaziland
03/94	Project manager on board at USAID	USAID/Mozambique

A single institutional contractor will be selected through competitive bid to conduct this project component and supply all the requisite project inputs such as technical assistance (long- and short-term), training, and equipment. In addition, USAID will provide continuous project management oversight during the five years and provide for appropriate monitoring, auditing and evaluation interventions

An indicative list of inputs to be provided under the institutional contract, using non-cost resource indicators, is included below in Exhibit 5.2.1. A schedule for the mobilization of these resources is included as Exhibit 5.2.2.

Exhibit 5.2.1 Project Resources: Component One: Policy Assistance to SATCC

1. Up-Front Studies	
a. Priority Policy Identification	2 person-months
b. Study of Management Processes at SATCC	3 person-months
c. Socio-Economic Database for Monitoring and Evaluation System	4 person-months
2. Long-Term Advisors	60 person-months
a. Regional Transport Policy Advisor (CoP)	
b. Transport Regulations/Legislation Specialist	
Expatriate	48 person-months
Regional National	18 person-months
c. Transport Financial/Pricing Policy Specialist	
Expatriate	48 person-months
Regional National	18 person-months
d. Regional Information Specialist	
Expatriate	36 person-months
Regional National	24 person-months
3. Short-Term Technical Assistance	
a. Transport Costing Models	- 14-36 person-months/year
b. Transport Policy Simulation Models	- 2/3 expat consultant
c. Specialized Studies	- 1/3 regional consultants
d. Selected Databases	
4. Workshops	
a. Key Issues Identification	2 per annum
b. Consensus Building	4 per annum
c. Skills Transfer	4 per annum
5. Training	
a. Seminars	8 per annum
b. Courses	4 per annum
c. Study Tours	1 per annum (8 participants out of the region)
6. Travel Budgets for Working Groups	18 person trips per year (within region); 10 days per person trip
7. Travel Budget for "Point" Person in MTCs	18 person trips per year (within region); 10 days per person trip
8. Information/Communication/Dissemination Budget	5,000 pieces per annum for regional distribution
9. Equipment	
a. Computers (Pcs)	4
b. Xerox/presentation	2
c. Desktop publishing unit	1
d. Printer (high-quality)	1
e. Laser Printers	2
f. Overhead Projectors	2

Exhibit 5.2.2 Implementation Schedule -- Component One: Policy Assistance to SATCC

Project Inputs	Prior tc Project	Year 1				Year 2				Year 3				Year 4				Year 5			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Up-Front Activities																					
- Priority Policy Areas	******																				
- Management Processes at SATCC	******	**	**																		
- Socio-Economic Database	******	**	**																		
Long-Term Advisors	******																				
- Reg'l Transport Advisor /Chief of Party	******	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
- Trans. Rega. / Legisl. Specialist																					
- Expat			**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**		
- Regional															**	**	**	**	**	**	**
- Regional Information Specialist																					
- Expat		**	**	**	**	**	**	**	**	**	**	**	**								
- Regional														**	**	**	**	**	**	**	**

Exhibit 5.2.2 (cont'd)

Short-Term TA		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Workshops		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Training		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Working Group Budget		**	**	**	**	**	**	**	**	**	**	**	**								
Point Person Budget		**	**	**	**	**	**	**	**	**	**	**	**								
Info/Communication		**	**	**	**	**	**	**	**	**	**	**	**								
Equipment		*				*															
USAID Management																					
- Hire PSC - AID Management	*	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Evaluation & Audit																					
- Major Evaluations					*								*								*
- Audits					*				*				*				*				*

5.3. Administrative and Monitoring Plan

A. USAID Responsibilities

The Director USAID/Mozambique, in coordination with SATCC and the Regional Transport Advisor in Harare, will provide guidance and direction in the choice of policies assesses under the project by the technical assistance team Project implementation responsibilities will be delegated to the USAID/Mozambique staff, as appropriate, by the Director.

Although the PAAS Component will be housed in the SATCC-TU, USAID/Mozambique will be responsible for managing the contracting and contract administration process for the policy analysis assistance team, which is the key to the successful implementation of project component objectives. An A.I.D. direct institutional contract would be the most appropriate mechanism as this would place A.I.D. in a strong position to play an influential role in establishing the direction of policy reforms throughout the region. The contract administration process would allow A.I.D. to participate in the implementation and monitoring of changes in regulatory policy that will enhance private sector participation in the provision of transport services, and to some extent, also help to safeguard the hundreds of millions of dollars worth of hardware investments already made by A.I.D. to SADC railways.

USAID/Mozambique will contract a Project Manager under a Personal Services Contract funded under the project to be responsible for day to day project monitoring, all implementation documentation, administrative approval of vouchers, and other implementation actions as required. The Controller, USAID/Mozambique will be responsible for certifying vouchers and managing annual NFA audits. USAID/Mozambique provides no administrative support to institutional contractors, so the RFP scope of work and PIO/T budget must provide for the contractor to carry out in-country support functions.

USAID/Zimbabwe will assist USAID/Mozambique with the above responsibilities at the beginning of project implementation in the event that the situation in Mozambique prevents that Mission from carrying out full management of the policy analysis component.

The Regional Transport Advisor (RTA), based at USAID/Zimbabwe, will provide overall project oversight and programmatic guidance. The RTA will be responsible for the development and implementation of formal project evaluations and the assessment of the attainment of project objectives against the project goal, purpose and outputs; these activities will be carried out in collaboration with USAID/Mozambique and SATCC. Contracting and legal advisor support will be provided by USAID/Swaziland.

B. SATCC/Host Country Responsibilities

SATCC, as the SADC technical unit responsible for transport, will be the primary host country implementation entity for this component. Although they will not administer the

policy analysis assistance contract, the SATCC/TU will house the contract team, provide daily supervision and technical/professional guidance and institutional support to the contractors. SATCC will be responsible for participation in the development of the Terms of Reference (TOR) for the solicitation document for policy analysis services and the review of technical proposals.

Due to the nature of its charter, SATCC will not be responsible for any contracting or contract administration funded under the project. For the Policy Analysis Assistance Component, SATCC will supervise and provide technical directions to the team, and keep USAID/Mozambique appraised of their work performance. SATCC will be responsible for the development of a reporting schedule detailing contractors tasks and expected outputs, and the daily monitoring of this schedule.

SATCC will also be responsible for regional coordination and the establishment and maintenance of necessary linkages with policy makers in SADC member states. SADC will provide office space for the team, while project vehicles, regional travel funding, office equipment and supplies, housing and local logistical support for the policy team will be provided by the project.

The Government of Mozambique, as SADC Transport and Telecommunications Sector coordinator, will sign the bilateral grant agreement, but will not play an implementation role thereafter. The Ministry of Transport has been given a copy of the PID, has been briefed on the thrust and substance of the project component, and has agreed to act as signatory for the obligating agreement, with the knowledge that their role will be very limited with respect to oversight of project implementation. The GOM representative indicated that this is consistent with the regular role of the GOM on donor financed SATCC projects.

5.4. Procurement Plan

A. **Procurement Entity** - RCO/USAID/Swaziland will be the procurement agent for required SATCC policy analysis assistance utilizing full and open competition, in accordance with the Federal Acquisition Regulations. The PIO/T for the procurement will be developed by USAID/Mozambique, in consultation with SATCC and the Regional Transport Advisor, USAID/Zimbabwe. In accordance with DFA and Buy America guidance, the services of a U.S. nationality contractor will be utilized to the greatest practicable extent in achieving project objectives.

The rationale for A.I.D. direct contracting is two fold. First, there is no logical host country procurement entity. SATCC has neither the mandate nor the organizational capacity to contract in accordance with HB 11 rules and regulations. Second, A.I.D. direct contracting will provide optimum management and financial control over the process of contracting for technical assistance and contract administration throughout project implementation.

The institutional contractor will be responsible for provision of all logistical support and procurement of all office equipment and supplies, vehicles, etc. using the FAR. It is envisaged that the prime contractor will procure the services of a subcontractor to handle housing and other local support for the policy analysis team.

B. DFA Determination - This project will be financed by resources provided under the Development Fund for Africa (DFA). Per congressional guidelines set forth in the legislation authorizing the DFA, all reasonable efforts will be made to maximize U.S. source and origin goods to the greatest extent practicable for policy analysis assistance (as well as under RSIS described in Section 6). This procurement plan was reviewed and approved by the Regional Commodity Management Officer, REDSO/ESA, and the Regional Contracting Officer, USAID/Swaziland. It is envisaged that project funded technical services contractors will be U.S. nationality. To the extent that U.S. equipment will meet project objectives and can be adequately serviced in country, the Mission will require U.S. source/origin. The contractors and grantees will be required to include in its quarterly reports to USAID/Mozambique, the project financed commodities purchased during the period, the AID Geographic Code and the amount. This will allow USAID/Mozambique to report required procurement information to AID/W on a yearly basis in compliance with DFA and Buy America guidance.

C. Gray Amendment - The procurement plan of this project (including RSIS discussed in Section 6) has been developed with full consideration of maximally involving Gray Amendment organizations in the provision of goods and services. The project will be implemented using AID direct contracts (and possibly a grant), with every consideration given to contracting or subcontracting with Gray Amendment firms. A further discussion of Gray Amendment considerations and the Certification by the Director, USAID/Zimbabwe is included as Annex 1.D.

6.5 SATCC Policy Analysis Component Budget

USAID Project Expenditures
By Project Component By FY

(US Dollars)

	FY 94	FY 95	FY 96	FY 97	FY 98	Total
1. Policy Analysts – salary fringe, instit OH, etc.	525,000 (a)	1,050,000 (b)	1,050,000 (b)	1,050,000 (b)	1,050,000 (b)	4,725,000
2. Policy Analysts – Local Cost Support – housing security, local transport etc, for 5 persons	150,000 (c)	300,000 (c)	300,000 (c)	300,000 (c)	300,000 (c)	1,350,000
3. Policy Analysis Support						
– Two(2) vehicles plus spares	45,000	0	0	0	0	45,000
– PCs/desks/filing cab/etc (e)	55,000	0	0	0	0	55,000
– Secretarial (2)	7,500	15,000	15,000	15,000	15,000	67,500
– Office supplies/misc	5,000	10,000	10,000	10,000	10,000	45,000
– Vehicle maintenance	5,000	10,000	10,000	10,000	10,000	45,000
– Regional travel (f)	15,000	30,000	30,000	30,000	30,000	135,000
– Regional per diem (g)	26,250	52,500	52,500	52,500	52,500	236,250
3. Admin Support Firm (d) (subcontract)	70,000	120,000	120,000	120,000	120,000	550,000
4. Policy Development & Implementation Support Fund	500,000	250,000	250,000	250,000	250,000	1,500,000
5. Project Management (h) (USAID/Mozambique)	250,000	250,000	250,000	250,000	250,000	1,250,000
6. Mid-term & Final Evaluation	0	45,000	0	0	55,000	100,000
7. NFA Audits (Annual)	15,000	15,000	15,000	15,000	20,000	80,000
8. Contingency (10%)	167,250	212,500	210,500	210,500	215,500	1,016,250
Total	1,836,000	2,360,000	2,313,000	2,313,000	2,378,000	11,200,000

NOTES:

(a) Based on 5 analysts @ $210,000 per year for 1/2 year, with contract signed mid-FY 94.
(b) Based on 5 analysts @ $210,000 per year.
(c) Based on $60,000 per year per person.
(d) Per advice of USAID/Mozambique, institutional contractors can be supported by specialized local firms.
(e) Based on 5 PCs and other office equipment for 5 analysts. or 5 analysts.
(f) Based on $6,000 per year times 5 persons.
(g) Based on $150 ave per day times 70 da/yr times 5 persons.
(h) Based on average annual cost of U.S. PSC.

doc:lotus:stepbud7 (Harmon's PC)

5.6. Summaries of Analyses

5.6.1. Technical Analysis

SATCC has an important role to play in the process of promoting and implementing regional transportation policy reform. Careful selection and development of the reform agenda is necessary, however, to enhance the likelihood of success.

To address the complex issues of transport policy reform on a regional basis, it is first necessary to produce a policy agenda for review and acceptance by policy makers in the SADC member states. In developing a policy agenda, the following factors have been considered:

- USAID project goal and purpose;
- the ongoing policy reform agenda of SATCC;
- the main areas of regional policy being pursued in the transport sector;
- the identification of additional agenda items for consideration;
- appropriate issues and criteria to be used in prioritizing the agenda;
- the future shape of the SATCC policy reform agenda; and
- SATCC capacity and resource constraints.

The project goal and purpose suggest that a policy reform agenda lead specifically to improvements in transport efficiency and a reduction in the barriers to trade and investment in the region. The main areas of regional policy being pursued are:

Reform regulations and legislation

Remove barriers to trade and investment

Improve transport capacity

Improve transport management and operations

Enhance the competitive environment

SATCC's comprehensive program of policy reforms is presently grouped by modes. In developing policy selection rationale, consideration has been given as to whether policy initiatives should continue to be pursued on a mode to mode basis or whether recognition

should be given to a more integrated and intermodal approach under the broader policy areas previously suggested. SADC is already committed to greater integration in all sectors and the role of SATCC has changed to reflect a move towards intermodalism.

As a result of possible shifts in regional priorities, SATCC's future role could be quite different than at present. This project therefore considers what policy areas are appropriate for SATCC to promote during the 1994 to 1999 span of the project. The selection of specific policy initiatives to pursue relies on the range of criteria chosen for selection and on a qualitative approach more than a quantitative one.

The analysis that resulted in this policy reform agenda is presented in Annex III.C, Policy Reform Selection. Achieving regional policy reforms involving ten or more countries is extremely difficult. Only those areas of policy reform which stand the best chances of adoption and implementation have been selected. Over optimistic involvement by SATCC and its international supporters in policy areas which have little or no hope of implementation within a reasonable time frame are avoided.

The policy items that emerge from the selection process dovetail with the current SATCC agenda to ensure consistency and parity with ongoing programs, and to ensure that the project is participatory and the initiatives assimilated.

5.6.2. Institutional Analysis

A. The Dynamic Regional Institutional Framework

SATCC is not the only regional institution of economic cooperation in southern Africa. It is important to describe the current institutional framework for economic cooperation in Southern Africa and the possible implications for these institutions which may result from the emergence of post-apartheid South Africa as an acceptable partner throughout the region. Indeed, some of the effectiveness of this project will depend on newly formed political relationships in the region, and consequently, the regional institutions must be understood. The choice of the home base for this project depends, in large part, on how the current regional institutions evolve and the nature of their post-apartheid roles in the region.

(1) Southern Africa Development Community

The SADC came into being in 1992 when the Southern African Development Coordination Conference (SADCC) decided to transform itself into a legal, treaty-based institution. SADCC was established in 1980 to coordinate and promote regional cooperation and to reduce the perceived dependence of its members on the outside world, especially South Africa. It consists of ten countries -- Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Tanzania, Zambia and Zimbabwe -- and its headquarters are in Gaborone, Botswana. The raison d'etre for establishing SADCC had a strong political element: the prime movers were the frontline states who were concerned with the role of

apartheid South Africa in the region. In the 1990s, however, with the demise of apartheid and moves towards a new democratic constitution in South Africa, SADCC was compelled to evaluate its role, or risk becoming sidelined in post-apartheid Southern Africa given the existence of other regional initiatives concerned with trade integration. SADCC, therefore, reconstituted itself as SADC and assumed the mantle of promoting trade integration and eventually becoming a common market. In doing so, it runs the risk of overlapping with other regional bodies.

SADC's original activities will remain. When SADC (formerly SADCC) was formed, its initial emphasis was heavily on transport and communications because the ports and railway systems of its maritime states (Angola, Mozambique and Tanzania) were of critical importance to the landlocked countries, particularly in reducing the dependence of those countries on trade links with South Africa. Thus, the first sectoral commission established was the SATCC. This is based in Maputo and coordinates transport throughout the SADC region. It is described in greater detail in Annex II.A.3, SATCC Institutional Analysis.

(2) Preferential Trade Area for Eastern and Southern Africa (PTA)

In contrast to SADC, the PTA was nurtured by the international civil servants of the United Nations Economic Commission for Africa. It eventually came into operation in 1983 and, as its name implies, is concerned with promoting intra-regional trade. It is based in Lusaka with a Clearing House in Harare and a Trade and Development Bank in Bujumbura. The aim of the PTA is gradually to reduce tariffs until the region becomes a free-trade area, from whence it would move further towards a common market and later an economic union. This is in line with the Abuja Declaration of 1991 which aims at establishing regional common markets which will eventually merge to form an African Economic Community by 2034. In 1993, however, the PTA announced its intention of establishing a Common Market of Eastern and Southern Africa (COMESA) by 2000, thereby considerably accelerating what many observers regard as an already over-optimistic timetable.

The PTA covers both Eastern and Southern Africa, and its present membership consists of 19 countries. Of the SADC grouping, only Botswana is not a member of the PTA. The other ten members are Burundi, Comores, Djibouti, Ethiopia, Kenya, Mauritius, Rwanda, Somalia, Sudan and Uganda.

Both SADC and the PTA are on record as being willing to admit post-apartheid South Africa, and indeed both these organizations have been holding talks with Pretoria. However, it is clear that not only are there overlapping memberships of these institutions but there are also overlapping activities. It is a widespread view in the private sector in the region that Southern Africa cannot afford to support both these institutions and that there should be a rationalization of the structures. Possible ways of achieving this have been examined in two recent regional studies which seem to agree that Southern African is a more cohesive geographic unit than that represented by the PTA. A rationalization of the PTA's activities in Southern Africa with those of the SADC, and some form of agreement between the non-

SACU and SACU countries (possibly following the lines of the European Community/ European Free Trade Area agreement) might be one way of proceeding along the path of Southern African economic integration.

The present South African government is concerned about overlapping activities between institutions, but has not yet studied the costs and benefits of joining either SADC or the PTA. The business sector in South Africa perhaps favors the PTA because of what it sees as a large trading area; trade ties between South Africa and Kenya, for example, are expanding rapidly. The future South African government could well be dominated by a party which has enjoyed observer status at SADC and the PTA, but which has a strong emotional bond with SADC given its frontline origins. South Africa might insist on SADC and the PTA rationalizing their activities, but if it were to decide on joining one and not the other, the rejected grouping would rapidly loose its credibility in the region and become irrelevant.

Whatever the institutional configuration that evolves, a sectoral coordinating body will be needed for transport and communications. Although the PTA also contains a Transport and Communications Division, its work has been concerned quite substantially with the non-SADC area, and the SATCC could therefore form the basis for such a body since it is concerned with Southern Africa only and has recently established working relations with South Africa.

B. The Role of SATCC

The aim in transport policy should be to ensure that all tiers in the sector function efficiently. A supranational body such as SATCC, and individual ministries in member countries, will be two of three tiers in the transport sector. The third tier would consist of operators, i.e., the rail, port and airport authorities, airlines, road haulers, shipping companies, and clearing and forwarding agents. These operators could be private companies (either national or transnational) or parastatals (preferably commercialized). In the final analysis, it is the operators who are responsible for the movement of traffic; they can best do this if the enabling environment created by the other two tiers is favorable, in which case they would regulate themselves (through trade associations) without bureaucratic interference.

The past role of SATCC was primarily focused on providing: operational coordination for transport and telecommunications systems; identification of infrastructure projects, location of financing sources, and basic monitoring of project implementation, and reporting to SATCC/SADC entities; secretariat services to working groups, the SATCC Coordinating Committee and the Council of Ministers; human resources development; limited information-related functions; and policy formulation and coordination, mainly as it focused on the reduction of economic dependence on South Africa. To a large extent, SATCC has been relatively successful in accomplishing its tasks, even though improvements in the overall performance of the SADC transport system have not occurred.

This lack of success in improving the regional transport system, despite massive investments during the 1980s, may well be related to the inordinate emphasis placed on replacing infrastructure and reducing dependence on South Africa. In hindsight, both objectives have provided little or no lasting development impact. The replacement of infrastructure failed to improve transport sector performance because other major constraints such as operational inefficiencies in transport enterprises and the poor policy environment were never addressed. The reduction of dependence on South Africa distorted investment decisions toward the establishment of redundant transport infrastructure which is not economically viable due to low traffic volumes.

Now, the region has experienced a major change in attitudes with respect to further investments in transport infrastructure and regional economic cooperation. Due to financial pressures, SADC member states can no longer afford to finance additional, costly infrastructure improvements, in the absence of needed organizational changes to improve the efficiency and effectiveness of transport enterprises. Due to the changing political situation in South Africa, SADC member states must come to grips with a collective strategy which recognizes their economically powerful neighbor.

The role of SATCC has already evolved to meet such changes in the political economy. No longer will SATCC be an investment broker of the region's transport projects. The promotion of capital projects will be the responsibility of the individual SADC member state. SATCC has partly recognized its new role and is preparing to enter into a new phase of promoting transport efficiency rather than investment. SATCC's past performance in this area, however, has been very poor, with little or no progress in most of its operational coordination and development initiatives. SATCC expenditure on its technical unit and training program only accounted for 2.5 percent of donor investment. Although SATCC enjoys a large measure of support and goodwill by the public sector, there is serious concern -- certainly by the private sector -- in its ability to play a role beyond that of broker of capital projects.

It is essential to carefully consider what SATCC should and should not be involved in, and to avoid overburdening it with a range of initiatives for which it neither has responsibility nor resources. For example, SATCC already recognizes that capital projects may be best promoted by member states. SATCC could be involved in reviewing these projects if regional issues are involved, but essentially SATCC would be relieved of the tasks of developing capital projects. What SATCC could do, however, is to produce a project evaluation code of practice which should be applied if a particular project is considered by its promoters to be regional.

Similarly, many issues may be solved by a series of bilateral or trilateral agreements which in time may become fully regional. For example, the introduction of standard axle loadings could be incrementally introduced on a route-by-route or corridor-by-corridor basis; agreement on harmonization of transit fees may come about more rapidly if two or three countries made progress internally.

Also, past inclination to consider SATCC to be catch-all for every initiative in the regional transport and communications sector must be avoided. There was also a tendency for the decision making process in SATCC to be slow and complex with often inappropriate involvement of the Council of Ministers in order to initiate a wide range of actions. This process, while commendable in terms of obtaining a full regional consensus on every issue, substantially overburdened the technical unit's ability to service such a wide range of demands.

The overriding role of SATCC may be to facilitate the implementation of measures which will improve the efficiency of regional transport and communication: by recognizing where regional standards or regulations are really appropriate to improving transport efficiency, by providing a collective forum at which issues can be discussed, by providing information and analysis to facilitate the process, and finally by establishing a regional framework for a program of implementation which takes into account the different needs and concerns of individual countries. SATCC's improved capacity for policy analysis, formation, and promotion is vital to carry out those functions.

The issues discussed above are still prevalent in SATCC, although some advances have been made in the very recent past. However, these issues and characteristics of SATCC will nonetheless be inherited by future programs aimed at enhancing the efficiency and effectiveness of SATCC. Any new program supporting SATCC must be conscious of these organizational issues and seek to assist in their reform.

Conclusions

In summary, the SATCC/TU is the appropriate target institution for the PAAS Component intervention because: (i) it is the primary organization in the region with a focus on regional transport issues; (ii) policy analysis, advocacy and promotion have been officially adopted as part of its mandate; (iii) a thin layer of senior management -- well-trained and motivated to pursue the policy and transport efficiency mandate -- already exists at SATCC/TU; (iv) member states and national transport enterprises have expressed support for SATCC playing a significant role in policy analysis and improving transport efficiency; and (v) SATCC/TU recognizes that it is at turning point and has already begun the organizational process of transformation to create policy analysis capacity in the institution and to shift away from infrastructure development to operations efficiency interventions like RSIS.

The institutional analysis directly influenced project design. In developing an appropriate transport policy support intervention for the region, the design team kept in mind two key points. First, it is vital to appreciate that SATCC has an ongoing program and not to impose a new set of projects, but rather to dovetail appropriate new initiatives into the SATCC program. Second, specialists supported by the project must provide a range skills which will significantly strengthen, but not replace or undermine the existing establishment.

5.6.3. Implementation Feasibility Analysis

The feasibility of successfully implementing this project component depends on assumptions made concerning a number of key factors. These include: (i) constituent support for SATCC and its new policy-oriented role; (ii) the sustainability of project inputs and results; and (iii) the provision of complementary resources by other donors.

A. Constituent Support - A key issue for SATCC as it emerges as a policy advocate and promoter, is whether it can garner sufficient constituent support to have an impact at the national level, and, become self-sustaining as an organization.

SATCC has been only marginally successful in achieving either of these goals in the past. However, as the whole charter and mission of SATCC has changed, it is debatable as to how good an indicator its past performance is of future performance.

There is wide consensus among its constituent members that in the past SATCC has been successful at: (i) coordinating and mobilizing donor resources for infrastructure-type projects; and (ii) organizing meetings and seminars for exchanges of views and experiences. There is equally strong consensus among the constituency of SATCC that "the Commission has not been as successful as it would like in developing consensus on many operational issues and, perhaps more importantly, in seeing those decisions which have been agreed upon through to implementation".

Currently, constituent support for SATCC changing its role to policy orientation is high among government entities. The design team met with members of the respective Ministries of Transport and Communications of at least a half dozen of SATCC's member countries, and all expressed support for SATCC's new role. In addition, given that the Council of Ministers officially endorsed SATCC's new mission, this also is indicative of the level of political support. However, constituent government entities did wonder as to what mechanisms were at SATCC disposal, if any, to influence national level decision-making. In addition, most officials stressed that they would not give up much sovereignty with regard to national-level decisions. Most officials also said they would "keep an open mind" and were willing to be influenced by SATCC if it made objective and convincing arguments which clearly demonstrated the benefit of implementing the SATCC- supported policy.

Support for SATCC among managers of transport entities, such as railways, is a little more cautious than the case for politicians and bureaucrats. These entities are seeking greater autonomy, perceive that they are already subject to excessive external influence, and thus, resist any initiative which seems to be further interference. The support for SATCC among this group appears to be correlated with the nature of the issue being addressed. For example, SATCC's involvement is relatively welcome on such operational issues as interchange rules or road signs. SATCC's involvement is viewed skeptically but tolerated on such issues as pricing, and is seen as inappropriate if not actually threatening on such issues as enterprise restructuring and privatization.

Donor support for SATCC, both politically and as reflected in the flow of resources, is at a turning point. Nordic and Canadian support, after sustained periods over nearly a decade, are at a hiatus. This is thought to reflect a number of factors: (i) frustration with the slow pace at which SATCC has strived for self-sufficiency, i.e., it is still heavily donor-dependent; (ii) a perception of lack of effectiveness of SATCC in actually "making a difference on the ground"; (iii) increased scarcity of donor resources for Africa; and (iv) the dynamic changes in the region have given donors cause to pause and re-think their strategy.

Despite this apparent hiatus in support, both Nordic support and CIDA have continuing operations at SATCC which will extend well into the 1990s, albeit at a diminished level from the 1980s. In addition, donors which have not traditionally provided substantial, direct support to SATCC are investigating the possibility. For example, the EEC will be funding a major institutional analysis and is presumably prepared to sponsor some of its recommendations. Likewise, USAID is considering providing direct support to SATCC both in the surface transport policy area as well as to the telecommunications sector. Thus, while donor support seems evident, most of these initiatives are at early, exploratory stages and should not be perceived as indications of long-term commitment or fully endorsed support for SATCC.

It is clear that the success of the STEP Project will be heavily dependent on constituent support for SATCC as an organization. Overall there is support for SATCC having a role in policy advocacy and promotion, and most constituent groups have expressed a willingness to "keep an open mind". Thus, the success of STEP will be greatly influenced by what exact areas it focuses on and the way in which it carries out its activities. The critical success factors as identified early in this report, include: (i) selecting policy reform areas which are a high priority to constituent members; (ii) demonstrating and clearly communicating the benefits of adopting policy reforms; and (iii) conducting all of SATCC's activities in a highly participatory manner so as to build ownership, understanding and the prospects for national level implementation.

B. Sustainability

SATCC has been heavily dependent on donors in the past. Donors have provided resources at many levels including: long-term expatriate experts; regional experts to fill permanent positions; part-time experts; short-term consultancies; some operating expenses; and, staff housing development and office extension.

The hiatus in donor support, especially the Nordic countries, is indicative of donor frustration with the lack of self- sustainability created at SATCC. Explanatory factors are many and relate to the manner in which donors provided assistance to SATCC, the quality of regional staff provided to SATCC, and the degree of support for the organization from key constituent groups. During the 1980s it appears that: (i) long-term expatriate technical assistance supplanted rather than supplemented local expertise, and focused relatively little on skills transfer; (ii) SATCC generally lacked a cadre of skilled and well motivated staff from

the region; and (iii) constituent support was moderate due to the fact that SATCC was "delivering the goods" in only some of the areas for which it was responsible.

The sustainability of the STEP project will also be mainly dependent on these three issues, namely the manner in which project inputs are applied, the management skills and quality of senior SATCC staff, and constituent support for SATCC. While the expectation is that the STEP project will provide a good return on investment during its five-year life, sustainability should be a project goal, as argued earlier. Prospects for a greater degree of sustainability will be enhanced by the following.

Application of Project Inputs - Resident expatriate advisors should be "in situ" only as long as it takes to transfer skills to a relatively broad cadre of regionals. Thus, some of the advisors will depart after four years, after some overlap time with their regional national replacements. The emphasis in each advisor's Terms of Reference should be as much on capacity- building, in SATCC and with its key constituents, as it is on "doing the work". The focus is on methods and process. None of the expatriate advisors should be in line management positions, such as Section Head. The project should provide significant resources aimed at building capacity and ownership, such as for training in policy analysis, seminars and workshops, information dissemination, funding "point" people in key Ministries and transport entities, and providing budgets for Working Groups to conduct their own technical analyses.

Senior Management and Management Processes - SATCC currently has a thin but high quality senior management team which is highly supportive of SATCC's policy orientation. Their management skills and style will be key ingredients to the project's success. They should take a leadership role in policy analysis and promotion, and adopt management processes which delegate authority, increase accountability and emphasize a participatory process. Although these particular managers will be in SATCC for only a limited time, they can have a major impact on the project's sustainability because: (i) if they make their positions viewed as highly attractive, then high calibre candidates are more likely to replace them when they leave; and (ii) appropriate management processes hopefully will have become institutionalized during their tenure. As stated earlier in the report, a detailed analysis of management practices and processes is needed to identify ways in which the project can build ownership and perceived benefits, and thus, sustainability. Selective training in senior management skills enhancement should also be provided by the project.

Constituent Support - As stated above, constituent support is key to sustainability. Thus, the project must focus on priority reform areas and on objectively demonstrating benefits. The fact that members are already beginning to fund certain staff positions, where they perceive real value-added, such as the Railway Working Group, is a positive sign for sustainability. SATCC as an organization must also be dynamic and responsive to the external environment if it is to continue to focus on its "customer's" priority issues and add value.

Internally, the organization and its structure must respond and be flexible. For example, the organizational structure recommended earlier should be reviewed at least every two years to see if it is responsive given changes in the external environment, and is effectively supporting the goals and mission of SATCC.

5.6.4. Economic Analysis

The USAID project of policy support to the SATCC technical unit is designed to promote increased efficiency in the transport sector by encouraging better coordination and planning, faster project implementation, and improved SATCC transportation initiatives. The USAID project will support SATCC initiatives such as integration of regional transportation, railway restructuring, transportation information development, promotion of the private sector, and the improvement of transportation costing. For the purposes of financial benefit analysis only, we are utilizing a five year project cost of between $5 to $7 million (a generous estimate).

While it is clear that enormous economic benefits will occur if the initiatives supported by the project, such as railway restructuring, improved train operations, cross border interchange rules, etc. are successful, it is much less clear how to distribute the dollar benefits that occur among policy development, project preparation and project implementation. Final adoption and implementation of any of the policies promoted by SATCC will not be carried out simply by SATCC, but rather by individual governments, institutions, and transport companies. Considerable additional expenses for labor redundancy payments, privatization programs and other activities may also be incurred at that stage in project implementation.

For the purpose of this benefit evaluation, it is assumed that successful implementation of the USAID policy support project will reduce the necessary time for implementing the reform process. For instance, railway restructuring and subsidies reduction will occur at a point in time earlier than without this project. This will occur because the policy unit will prepare analyses in support of the policy reform, help to develop and build a consensus for change at the national and modal level, and provide education and tools to implement policy reforms.

To the extent that this occurs and the necessary time for policy reform is reduced, the benefits that accrue during this period can be considered project benefits. Since the cost of railway restructuring to the railways themselves remains the same, those costs do not enter into the benefit analysis for the USAID/SATCC project, although without the project there might be more disorganization and the costs of railway restructuring would be higher.

The SADC railways are currently incurring operating losses of approximately $265 million annually. The USAID/SATCC policy support program will provide substantial support to restructure these enterprises, such as spin offs of operations and employee redundancy programs. It will identify and evaluate legislative and regulatory constraints to commercially viable operations of the railways, it will hold workshops on privatization, and it will

disseminate examples of successful experiences from railways throughout the region and the world.

If the railways are able to reduce their operating losses by half as a result of restructuring activity -- a conservative estimate -- their governments will save $125 million annually. If the activities of the SATCC policy unit in support of the activity result in these savings occurring even one year earlier, then $125 million in benefits can be attributed to the USAID/SATCC project.

The SATCC policy unit will be involved in a number of policy reforms, such as regional integration of the SADC railways and facilitating cross border interchange agreements. These too will provide substantial economic benefits. The USAID Train Operations Improvement Study calculated that SADC railways could save $1.689 million in fuel alone from the reduction in locomotive idling if the recommended train operation improvements, mainly involving border crossing delays, were implemented. A portion of these benefits should be attributed to this project if it results in accelerating the agreement process among SADC members.

6. COMPONENT 2: ROLLING STOCK INFORMATION SYSTEM

6.1. Activities

The RSIS Component, to be implemented by a contractor under the auspices of the SATCC/TU, will be a needs assessment/detailed design exercise to determine the feasibility of establishing a region-wide, computer based, communication system for the exchange of basic information on tracking and management of rolling stock. If the detailed design indicates both technical feasibility and the constituent support of SADC railways, A.I.D. will make a decision on whether to proceed with the project funded establishment of an RSIS. It is envisaged that SATCC, will play a key role in this initial phase of RSIS as a Coordinator and regional technical advisor.

The RSIS concept was reviewed and approved by the general managers of the region's railway organizations during the Railway Administrations' Working Group session in April 1992 and subsequently approved for the SADC Programme of Action by the Council of Ministers. The RSIS intervention will directly address the current problem of insufficient reliability and competitiveness by providing SADC railways with an appropriate technology to: (i) exchange information among the various regional systems on the movement and location of wagons and locomotives, thus linking the railways into a single information network; and (ii) improve the efficiency of internal operations by establishing a computerized locomotive and wagon management system.

In addition to capturing all the movement and change of status information on wagons, intermodal containers, locomotives and trains, the RSIS system should be capable of

supporting those key functions which, based on the experience of other freight oriented railways, produce most of the tangible operating benefits. These key functions include:

- Monitoring train performance based on stored train schedules for each regularly operated train;

- The ability to develop, execute and monitor dock-to-dock schedules for each wagon so as to offer highly predictable transit times to the shipper, even if the transit involves more than one railway;

- Empty wagon distribution based on stored wagon distributor instructions which are applied as soon as the empty wagon is received in interchange or is reported released by the consignee so as to reduce substantially the requirement to place empty wagons on hold tracks and, thus, to make significant improvements to wagon turn around times;

- On line control of yard classification activities by yard management through the monitoring of the exact location and status of all wagons in the yard and the issuance of shunting instructions to shunting engine crews via the RSIS system so as to reduce the amount of time individual wagons are in yards;

- Dynamic adjustment by system transportation management of classification work to be done by each marshalling yard and train blocking plans so as to reduce the number of times individual wagons are "yarded", i.e., handled by a marshalling yard;

- Monitoring locomotive preventative maintenance schedules and lube oil test results so as to permit, for example, the assignment of a single through locomotive safely to long distance unit trains that crosses into the neighboring railway; and

- The ability for centrally located transportation management to assign all individual road haul locomotives to all through trains so as to better control horsepower per ton for each train, improve locomotive power balancing across the railway, and, as a result, significantly improve locomotive utilization.

Once established in the first group of SADC railways in year 3 of project implementation, the RSIS will very quickly improve turnaround times of rolling stock throughout the region, significantly cut costs, and of equal importance, establish the mechanism to provide critical information to the consumer on the status of shipments.

The RSIS should provide a very fast payback to each of the SADC railways in the short term as significant forex lease costs for rail wagons will be saved through faster turnaround times. In the medium term, an improved service response to the international scheduling requirements of regional customers should generate higher volumes of traffic and resulting revenues.

6.2. Implementation Plan

6.2.1. Implementation Phases

A. Needs Assessment/Detailed Design - The services of a contractor or grantee will be secured to work closely with each SADC railway to make a detailed assessment of the number of yards, number of required information input units, telecommunications capabilities and other operating parameters needed to install the RSIS in each system. This activity will take approximately 6 months and will accomplish a number of critical tasks. First, the contractor (grantee) will be able to develop detailed specifications and a scope of work to procure the services of a follow on contractor to establish and debug the system, train SADC railway personnel in the operation of the system, and manage the system on behalf of the railways until a handover can be accomplished at the end of the 5 year implementation period. Second, this will provide the opportunity to educate the SADC railways on how the system will work and to explain the potential benefits, thereby increasing ownership of the project by the end users.

The needs assessment/detailed project design will, most critically, establish the optimal institutional entity to establish and implement the RSIS and define the necessary institutional linkages to ensure that the system is utilized as an integrated regional tool by each of the railway systems to improve overall efficiency and cut costs throughout southern Africa.

This initial phase of implementation will also develop cost recovery mechanisms to ensure that beneficiary railways are able to sustain the system. Sustainability is very important and easily achievable as the RSIS promises to provide massive savings in foreign wagon leasing costs currently being paid, mostly to SPOORNET. Also, the management efficiency gains and cost savings achieved on the internal operations of each railway promise to pay for the cost of establishing the system within a short period of time.

Upon completion of the aforementioned work, USAID/Zimbabwe must make the decision, in collaboration with the regional railways, if all technical factors such as requisite telecommunications capacity are in place, and if sufficient ownership among the railways exists to continue with the implementation of the project. If the decision is yes, USAID/Zimbabwe would amend the project to provide for the establishment of a Regional RSIS and commence the process of contracting for a general implementation contractor to establish the system. From an administrative standpoint, USAID/Zimbabwe would amend the project authorization to provide for additional funding to finalize the implementation contract and obligate those funds through an amendment to the bilateral agreement signed between A.I.D. and the Government of Mozambique.

In this case, A.I.D. would exercise an option in the design contract to provide for limited services to assist with the evaluation of proposals to establish and implement the system until handover to the SADC railways at the end of the project, and provide consulting services to monitor progress of the implementation contractor on behalf of A.I.D. Due to the technical nature of establishing the RSIS, A.I.D. does not have full time staff with sufficient specialized expertise to adequately monitor implementation progress and ensure the maximum utilization of USG funding.

B. Phase I - Implementation: Upon selection of the general implementation contractor, the RSIS would be established and implemented with a group of core railways, possibly Zimbabwe, Swaziland, Botswana and Zambia. This contractor will most likely install a proven system (examples are discussed below) as the design of new technology would take many years to perfect and offer prohibitive cost constraints. This project component, envisaged to be implemented in years 1-3 of project implementation, will involve the procurement and installation of both hardware and software, debugging of the system, the training of SADC railway personnel and the management of the system on behalf of the railways until handover of the system to an entity supported by the railways to manage the system.

During this period the system would be operated in a physical facility established by the project. The location will be determined during the needs assessment/detailed design phase, but the facility could be housed at one of the regional railways or existing facility of the organization offering the technology. The latter case would amount to the offeror leasing a portion of its computer capacity to run the RSIS in southern Africa, with the connection made by international telecommunications facilities.

C. Phase II - Implementation: This phase would be similar to Phase I, with the RSIS being installed in the remainder of the SADC railways. The primary difference would be that the end of this phase would include a handover of the system to the regional railways. Over the course of the implementation period, the regional railways will be paying an increasing share of the costs of operating the RSIS, such that by the end of the project, the railways will be providing full support.

The key issue at the end of the project implementation period will be the identification of an entity to act on behalf of each railway to manage the system. Currently, there are ongoing discussions to form an association of railways in the southern Africa region. If such an association were formed, it would also be a useful mechanism to provide other services and address issues common to all railways in the region, in much the same way that the Association of American Railroads serves the Canadian, US and Mexican rail systems. Further details on such an association are contained in Annex III.C, Association of Southern African Railways.

6.2.2 Implementation Responsibilities

Implementation of the RSIS will commence with the needs assessment/detailed design. If the RSIS proves technically viable and is wanted by the regional railways, Implementation Phases I and II will be carried out over the remaining five year duration of the project. During the approximate three years of phase one, the RSIS will be implemented on the railways of Botswana, Zambia and Zimbabwe (and possibly Swaziland). Phase two will provide a regional computer control center and make the RSIS system available to the rest of the regional railways, TAZARA, Mozambique, Malawi and Angola.

The following actions will be taken during the process of RSIS implementation:

SATCC/Host Country - The RSIS component will be implemented under the auspices of SATCC, although their actual involvement in project implementation will be much less than in the policy analysis component. However, it is envisaged that SATCC will play a major role early in project implementation to provide advocacy for the program, enhance coordination at both the political and railway operational labels in the SADC member states. The primary host country players will be the railways themselves. They will be the primary contact for the needs assessment/ design contractor as well as the general implementation contractor that will establish the RSIS.

As with the Policy Analysis component, the Government of Mozambique, as SADC Transport and Telecommunications Sector coordinator, will sign the bilateral grant agreement, but will not play an implementation role thereafter. The Ministry of Transport has been given a copy of the PID, has been briefed on the thrust and substance of the project component, and has agreed to act as signatory for the obligating agreement, with the knowledge that their role will be very limited with respect to oversight of project implementation. The GOM representative indicated that this is consistent with the regular role of the GOM on donor financed SATCC projects.

USAID - USAID will first confirm the commitment of the SADC railways to install the RSIS and to provide the necessary personnel during the implementation phase. The SADC railways must realize that they will be responsible for financing and operating the RSIS after completion of this project. USAID must also answer a number of questions regarding the technical viability of a regional RSIS, given possible constraints such as inadequate telecommunications capability. This should be accomplished during a preliminary needs assessment of SADC regional railways and detailed systems design. The results of this work should be the basis for a "GO or NO GO" decision on whether the project should fund the installation of an RSIS, and the exact requirements of the system.

Needs Assessment/Design Contractor. The contractor will first make a detailed technical survey of both public and railway telecommunication capabilities, and existing train and yard operations. On the basis of these surveys he will identify the hardware and communication equipment that must be purchased and will prepare a Terms of Reference for procurement of the RSIS installation services.

If there is a "GO" decision, USAID must also select and approve a general contractor to install the RSIS and an installation supervision consultant.

Installation Contractor. The contractor that is awarded the work will establish the system over the 5 year implementation period of the project. The contractor will prepare any software modifications that are necessary for successful implementation of the RSIS. When these steps are complete actual system implementation will begin. The RSIS will be installed and made operational on a yard by yard basis starting from one end of the railway and proceeding to the other end until the RSIS system is fully operational throughout the railway.

The first section and yard will be quite difficult since all traffic data for any traffic going through the section or yard will have to be entered at that point. There will be a new system and procedures to learn, a large amount of data to enter, and few immediate benefits. As more sections and yards are added, however, the operation will become easier and the benefits will begin to appear. After the basic application modules are operating successfully on the entire railway the contractor can begin to introduce other applications.

The contractor will also provide both classroom and operating training at an existing RSIS working site to a railway core implementation staff. This staff, selected by the railway, will assist in training the rest of the railway staff and to assist in system installation. They will be assigned to the project for the entire implementation process.

Railways. In addition to agreeing to become part of the RSIS project and to support the required implementation and evaluation efforts, the railways must commit to make sufficient staff available for the planning and field implementation of RSIS. There will be several levels of staff effort.

A core implementation staff of approximately five individuals will be required from each railway to receive detailed hands-on training in RSIS procedures. This core staff would become full time members of the RSIS Pilot Project Team and would be responsible for: (i) participating in detailed field implementation planning on its railway, (ii) adapting the RSIS operating instructions to the needs of their railway, (iii) training the balance of the implementation team, and (iv) providing direct supervision of the implementation team during the cutover of the RSIS system.

An initial full time telecommunications staff of two or more engineers would also be needed. They would become members of the RSIS Pilot Project Team and would: (a) participate in the field implementation planning on their railway (b) supervise the implementation of the required telecommunications network, MODEMS, computer terminal equipment, air conditioning equipment and the like at the yards and other reporting locations on their railway; (c) supervise the installation of other telecommunications equipment, e.g., multiplexers on their railway, which are necessary to hook up the dedicated circuits; (d) assist in arrangements with the public telecommunications networks of their respective countries; and (e) develop an effective organization to maintain the telecommunications network equipment and computer terminals in the field.

A project staff of 20 to 25 individuals from each railway who have experience in field operations would be required from each railway approximately two months prior to the start of the geographically phased field cutover. They would receive intensive training from the initial core staff and would remain with the project until field cutover is completed on their railway.

Individuals from each railway might also be required on an ad hoc basis to install the necessary telecommunications and computer terminal equipment in the field.

The railway would also need to assign one or two members of senior management from each railway to serve on the RSIS Pilot Project Steering Committee. This Steering Committee

should meet at least monthly during planning and field cutover periods. The functions of the Steering Committee and its members would include: (a) approving the detailed implementation plans and schedules developed by the RSIS Pilot Project Team; (b) acting as top management liaisons with their railway to help ensure intra- railway coordination (e.g., eliminating any internal "road blocks"); and (c) monitoring progress of the RSIS Pilot Project against approved plans and schedules.

6.2.3. Implementation Schedule

The schedule of implementation actions has been divided into principal areas.

Proposed Dates	Activity	Responsible Organization
1. Initial/General		
09/93	Project Paper completed	USAID/Zimbabwe
09/93	Project authorized	USAID/Zimbabwe
09/93	Project Grant Agreement signed	USAID/Mozambique, GOM
10/95	PIO/T for mid-term evaluation completed	USAID/Mozambique, SARP/RTA, SATCC
03/96	Mid-term evaluation completed	USAID/Mozambique, SARP/RTA, SATCC, Contractor
03/98	PIO/T for final evaluation completed	USAID/Mozambique, SARP/RTA, SATCC
05/98	PIO/T for final NFA audit completed	USAID/Mozambique
09/98	Final evaluation completed	USAID/Mozambique, SARP/RTA,
09/98	NFA Final audit completed	USAID/Mozambique, Contractor
09/98	PACD (9/30/98)	

Proposed Dates	Activity	Responsible Organization
2. Needs Assessment/Design Contractor		
10/93	PIO/T completed	USAID/Mozambique
10/93	Advertisement placed in CBD	USAID/Mozambique
01/94	Proposals received and technical evaluation starts	USAID/Zimbabwe
05/94	Contract awarded	RCO/USAID/Swaziland
06/94	Contractor mobilization begins	TA Contractor
12/94	Contractor de-mobilization ends	TA Contractor
3. USAID Project Mgmt (Project Manager at USAID/Zimbabwe)		
09/93	Advertisements placed	USAID/Zimbabwe
11/93	Evaluation of applications completed	USAID/Zimbabwe
01/94	Contract for PSC project mgr completed	USAID/Z/EXO or RCO/Swaziland
03/94	Project manager on board at USAID	USAID/Z/PDIS

Note:

** If the project funds Phase I and II of the RSIS establishment, extension of this contract may be investigated to provide for consulting services to monitor the progress of the implementation contractor. Funding for the implementation monitoring would be provided in an FY 95 authorization, Project Paper and RSIS Grant Amendment.

6.3. Administrative and Monitoring Plans

USAID/Zimbabwe will be responsible for managing the contracting and contract administration process for the needs assessment, design, implementation, and monitoring contractor and the general implementation contractor (if the initial needs assessment/design phase proves the establishment of an RSIS to be technically viable and wanted by the

regional railways). As with the PAAS Component, A.I.D. direct institutional contracts are deemed to be the most appropriate mechanisms to procure services as these would place A.I.D. in a strong position to play an influential role in ensuring the establishment of the RSIS throughout the region. The contract administration process would also allow A.I.D. to participate in the implementation and monitoring of the pace and quality of the RSIS implementation progress, and to safeguard the utilization of project funding.

USAID/Zimbabwe will procure the services of a needs assessment/detailed systems design contractor, and as appropriate, the services of a general implementation contractor to establish the RSIS. As discussed in the procurement plan, Section 6.4., the task of the needs assessment/design contractor may be expanded to provide implementation monitoring services if the decision is made by the Mission to go ahead with the establishment of the RSIS.

The Regional Transport Advisor will be the project officer, and will supervise a PSC Project manager to be funded under the project. The project manager will be responsible for day to day project monitoring, all implementation documentation, administrative approval of vouchers, and other implementation actions as required. USAID/Zimbabwe will provide technical directions to both the needs assessment/design and implementation general contractors. The Mission will also provide administrative support to design and implementation general contractors in accordance with established Mission policy.

The needs assessment/detailed design function could be carried out by either an A.I.D. direct contract or a grant to an organization which deals in the rail sector. This needs assessment will have several functions. First, it will reduce the risk that funds will be obligated in excess of those needed up front to get the activity started. In sum, only funds to accomplish the detailed, preliminary assessment will be authorized and obligated, with a stop/go decision to be made after both A.I.D. and the regional railways have had the opportunity to review the results jointly. The assessment will provide crucial information such as a more clear identification of hardware and software requirements and answers to outstanding questions such as the capacity of the regional telecommunications system to support an RSIS, specifically, what impact telecommunications will have on the exact specification required to best serve the needs of SADC railways.

The assessment will also provide a two way learning experience which will be essential for the successful establishment and operation of the RSIS - i.e. (a) the railways will get a much better idea of the benefits which will result from a modern information system to manage rolling stock and will therefore be able to make a more informed judgement on buying into the system, and (b) A.I.D. will have a much better assessment of the degree of acceptance of the system by the regional rail users before authorizing funding necessary to establish the program. In other words, if the initial needs assessment concludes that both the needed technical conditions and the acceptance by the regional railways are not in place, the activity will be stopped at that point, without authorizing funds unnecessarily.

The Controller, USAID/Zimbabwe will certify vouchers approved by the project officer. RLA and RCO, USAID/Swaziland will provide technical backstopping for the activity. REO, USAID/Zimbabwe will provide engineering backstopping.

The Director, USAID/Mozambique will be responsible for all communications as well as informal liaison work with the Government of Mozambique. Any communications which may be necessary with the GOM regarding the RSIS component will be channeled by USAID/Zimbabwe through the Director, USAID/Mozambique.

6.4. Procurement Plan

RCO/USAID/Swaziland will be the procurement agent for required technical assistance, utilizing full and open competition in accordance with the Federal Acquisition Regulations. The PIO/T for the procurement of the needs assessment/design contract will be developed by USAID/Zimbabwe, in consultation with SATCC and several key regional railways such as National Railways of Zimbabwe, Botswana Rail and Zambia Railways. In accordance with DFA and Buy America guidance, the services of a U.S. nationality contractor will be sought.

Procurement Actions

Contracting. After a final decision has been reached to undertake the RSIS component, USAID must decide to either proceed with a competitive procurement or, if specific conditions warrant, directly utilize a uniquely qualified provider. In the case of the present proposal to implement a RSIS system for the SADC railways, the following factors must to be considered.

6.5 RSIS Component Budget

USAID Project Expenditures
By Project Component By FY

(US Dollars)

	FY 94	FY 95	FY 96	FY 97	FY 98	Total
1. Needs Assessment/Detailed System Design	826,000 (a)	0	0	0	0	826,000
2. Supplies	30,000	0	0	0	0	30,000
3. Project Management (b) (USAID/Zimbabwe)	75,000	75,000	0	0	0	150,000
4. Contingency (10%)	86,500	7,500	0	0	0	94,000
Total	1,017,500	82,500	0	0	0	1,100,000

NOTES:

(a) Based on 5 analysts @ $23,600 per month for 7 months.
(b) Based on average annual cost of local hire PSC and admin support cost.

doc:lotus:stepbud7 (Harmon's PC)

6.6. Project Analyses Summaries

6.6.1. Technical Analysis

A. Functions of a Comprehensive RSIS System

Although the exact description of the RSIS will not be known until the selection of a general implementation contractor and the identification of the system to be offered, there is a finite number of possible alternatives since the project will not develop new technology for technical and cost considerations. The following criteria and guidelines were developed by examining RSIS systems and their operation throughout the world. These guidelines are used here to discuss RSIS alternatives for the SADC region.

Interactive vs. passive data collection - Early RSIS systems produced few operating benefits because they were passive collectors of information. They produced operating statistics and wagon movement histories, supporting wagon hire accounting, and permitted location inquiries for individual wagons. Since they were not integrated into the railways operating system, it was not mandatory to correct or remove inaccurate information. In many cases, the railways began to revert to their old manual systems as the integrity of the new data base deteriorated. Interactive systems are directly involved in the day-to-day operation of the railway. The RSIS system issues work orders and makes up train schedules. This forces the railway staff to maintain the integrity of the data base and prevents a return to the old manual system.

Other factors in the maintenance of data base accuracy to support detailed transportation decision making, are the use of extensive logical edits before the data base is updated, a reduction in the requirement to input wagon initials and number to an absolute minimum, and the updating of the data base as a byproduct of communicating transportation decisions from the supervisor to the shunting engine and train crews.

B. Evaluation of RSIS Alternatives

If the needs/assessment/detailed system design indicates a "GO" to establish an RSIS, the RFP evaluation process to select a technology and implementation contractor will consider two elements in addition to the RSIS functions mentioned above:

(i) The minimization of implementation risks thorough effective training of the users of the RSIS system. For example, there should be the opportunity for implementation trainers and other key transportation and computer operator personnel not only to receive classroom training on the operation and use of the system, but more importantly, to receive "hands-on" training on another railway where the RSIS system is currently installed.

(ii) The complexity and cost of the RSIS system should be in proportion to (a) the ability of the employees in the field to make reports to and receive instructions and other

feedback from the system, (b) the ability of transportation management to exploit the capabilities of the system, and (c) the projected up front project costs and the on-going operating costs should compare favorably with the potential tangible benefits of the system.

Determining the most appropriate approach to RSIS development should consider tree major alternatives, described below. A detailed analysis of the estimated RSIS cost projections for the three potential alternatives, along with a list of the assumptions used in deriving these costs, is provided in Annex III.J, RSIS Project Costs (a summary review of RSIS options is also provided below in Exhibit 6.6.1).

(a) The Current Alternative - Under this alternative the various SADC railways would continue to develop their own individual RSIS systems. USAID would provide a regional computer to perform a message switch function in order for these railways to be able to exchange information electronically, and in some cases may fund up-grading of the existing technology.

(b) The U.S. RSIS Alternative - A modern, comprehensive RSIS System that is currently operating successfully on one or more railways in the U.S. would be provided to the SADC railways.

(c) The Sprint Alternative - The Sprint system, currently being used by Spoornet would be implemented on the SADC railway systems.

Option (a): The Current Alternative

Option (a), the Current Alternative, is primarily based on the findings of the 1991 RSIS Report to USAID. Several assumptions that were made influenced the findings and recommendations of that report. For example:

-- The consultants believed that, because of concerns about maintaining the integrity of the data base, Spoornet management would not agree to permit other Southern African railways to tie in to the SPRINT system. They were also told that Spoornet's management was reluctant to agree to provide SPRINT's RSIS software to the other SADC Railways for installation in their own independent computer systems. The consultants also felt, at that time, that SADC railways would be reluctant to accept anything from South Africa.

-- The 1991 study recognized that regional communication systems were poor. They believed that the installation of a real-time, interactive RSIS systems would be very difficult, if not impossible in the near term. The study concluded, therefore, that some type of batch update system was required to link the railways in the region both internally and externally if the system was to be implemented before reliable communications became available. The investigation of alternative on line, dedicated communication approaches, e.g., satellite and the public telephone network, was considered to be beyond the scope of their study.

-- The consultants also felt that some of the SADC Railways would be reluctant, at least in the near term, to discard their present systems and shift to newly developed systems, because of the heavy investments they had already made in their own RSIS systems.

Exhibit 6.1.1: RSIS OPTIONS

	Rail Car Management	Union Pacific	Rail Tracker/ACIS	Spoornet Sprint	Current Alternative
Technical					
• passive vs. interactive data collection	• good	• good	• passive	• good	• passive
• extensive logical edits					
• ease of input	• good	• good	• fair	• good	• fair
• monitoring train performance	• good	• good	• good	• good	• good
	• fair	• good	• none	• good	• none
• dock to dock scheduling					
• empty wagon distribution tools	• fair	• good	• none	• best	• none
	• fair	• good	• none	• good	• none
• yard information system					
• marshalling management	• good	• good	• none	• good	• limited
• monitoring loco maintenance	• fair	• good	• none	• good	• none
	• none	• best	• none	• good	• none
• central loco assignments					
• seamlessness	• fair	• good	• none	• good	• none
• MIS link					
	• fair	• good	• none	• best	• none
	• best	• difficult	• fair	• good	• fair

The 1991 RSIS study, therefore, did not recommend that the existing RSIS systems of the SADC railways be replaced with a modern real time RSIS system that could serve both the external and internal operating information system requirements of the Southern African railways. Instead, the 1991 RSIS study proposed that the SADC railways' present systems be upgraded where necessary to collect operating data through the use of faxes, personal computers, and telephone lines, and to exchange this operating data among the railways at night on a "batch" basis through a PC network. The study did not specify the specific types of operating information that would be collected and exchanged among the SADC railways nor did it identify how and for what purposes this operating information would be used.

The primary advantages of option (a), the Current Alternative, are: (i) that there is institutional momentum on some of the railways in the Region, e.g., NRZ and Mozambique, to continue with the development of their own internal RSIS systems; (ii) this alternative can be implemented despite poor regional communications, and (iii) railway managements have

been traditionally reluctant to rely on RSIS systems which are external to their railway, i.e., where the computer center is not located on their property. Thus, the acceptability of this alternative by SADC railways might be easier.

Association of American Railroads (AAR)

The AAR/RailLinc is a system used in the U.S. for data exchange between individual railways. It could be used with the Current Alternative option above to provide upgraded inter-regional information, or alternatively with substantial additional programming, it could be designed as a separate alternative system.

The technical analysis (Annex II.B.1) strongly recommends, however, that the Current Alternative not be adopted as the preferred regional RSIS approach for the following reasons:

- The systems being developed and implemented on SADC railways do not contain the RSIS functions described earlier. They are similar to systems that U.S. railways used during the sixties and seventies. These early systems produced limited operating benefits in terms of improved wagon and locomotive utilization and more reliable and predictable transit times to their shippers. It is also unlikely that the current systems now being implemented on the SADC Railways will produce a full range of operating benefits.

- Several of the assumptions of the 1991 RSIS Report are no longer valid. Spoornet is now quite willing to make its SPRINT system available to the rest of the region. Spoornet recognizes that a common, comprehensive RSIS throughout most or all of the Region is a necessary element for promoting "seamless" transportation services to international customers.

- It now appears that there is sufficient suitable telecommunication trunk capacity in the public telephone network which, in conjunction with the internal telecommunication networks on several of the key railways, e.g., BR, NRZ and ZR, will support the installation of an on-line, comprehensive RSIS.

- Finally, the managements of BR, NRZ and ZR appear to be willing to consider, on its merits, the possible adoption of the SPRINT system for the SADC region. In their opinion, however, any central computer center used for data interchange should ultimately be located within the SADC region rather than in South Africa.

Option (b): The US RSIS Alternative

The U.S. RSIS Alternative would involve the introduction into the SADC region of a modern, comprehensive RSIS System that is currently operating successfully on one or more railways in the United States. For purposes of the technical analysis, two sub-alternative approaches to the basic U.S. RSIS Alternative are examined: (i) implementing one of the comprehensive RSIS systems that are now in operation on major Class 1 railways in the United States such as the Union Pacific Technologies (UPT) system; and (ii) implementing a smaller system that has been designed for U.S.short line railways, such as the Rail Car Management system. Each of these alternatives is described below.

(i) **UPT Sub-Alternative**

Union Pacific Technology is part of the Union Pacific Corporation which includes the U.S. class 1 Union Pacific railway. This railway carries over 200 billion ton-miles of freight traffic per year. In contrast, in 1991 the total SADC railway freight traffic was about 10 billion ton-kilometers (6.3 billion ton- miles).

The UPT RSIS is the only alternative that currently provides all the RSIS functions identified above. The operation of this system, however, requires a central IBM mainframe computer. IBM is not currently able to provide support or maintenance services for a mainframe in the SADC region. During the initial phase of the project, therefore, the Union Pacific facilities in Saint Louis would be used through satellite communication as a service bureau. Information for SADC office accounting systems would be provided via air freighted tapes. A regional main frame computer with back up would be provided during the second phase of the project and the service bureau function would take place in the SADC region.

Limited software modification, primarily to adapt to Southern African coding systems, would need to be done during the first phase. Additional software modification, however might be required during the next phase to modify the system for use on the smaller SADC railways.

This system requires high quality communication capacity that would be rented from the public networks except where it exists on the rail network.

While UPT has substantial support facilities in the United States, it would have to establish new facilities in the SADC region, at least during the installation and program phase of the RSIS project. There would also be a software license fee.

Summary: The UPT sub-option is the most advanced technical option. It is a proven system that would probably need only limited software modification. The necessity of using UP's Saint Louis service bureau during phase one, however, is likely to affect its acceptability to SADC general managers. It also has the highest project cost of any of the alternatives examined.

(ii) **Railcar Management, Inc. Sub Alternative**

Railcar Management, Inc. (RMI) is a U.S. firm that provides application software and services to the railway industry. It currently serves over 200 railways, primarily short line and regional. Its basic Integrated Railroad Control System (IRCS) is a PC based program that supplies overall system integration with modules for wagon control, train consists, shipping documents, special service billing, data inquiry and accounting systems.

This alternative assumes that RMI would use AS400 mini computers for the SADC railways. Extensive software modification would be necessary to increase the system to the full functionality of the Sprint and UPT systems. There would be a one time leasing fee for use of the software.

The RMI alternative is more flexible than the other options. It can readily be adapted to the needs of the smallest railways in the region because it can be PC driven. The computer for message switching would be located in the SADC region.

RMI has substantial support and training facilities in the U.S. The company would, however, need to establish facilities in the region or contract with a local company during project implementation.

Summary The RSIS system is the alternative most directly geared to the needs of the smaller SADC railways. It would, however, probably need the most software modification to provide full functionality.

Option (c): The Sprint Alternative

Sprint is the RSIS system developed in 1988, that is used on the Spoornet rail system. It is based on the Missouri Pacific railroad RSIS system and is quite similar to the UPT alternative. It operates on a main frame computer located in Johannesburg, South Africa. The empty wagon distribution function will be available during 1993 and a pro-active enhancement of the yard control module is anticipated in 1994.

The Sprint system is already used by Namibia and it also provides advance train information for Swaziland. Only minimal software modification would be necessary since there is substantial interchange of Spoornet equipment within the SADC region.

While the Johannesburg computer would be used during the initial phase, either UNIX based work stations or a regionally based main frame would be provided for phase two. Sprint terminals are already operating in Spoornet's Bulawayo office in Zimbabwe.

Summary The Sprint system is technically qualified. It has the enormous advantage of already being operational in the region. Training and technical support would be readily available and relatively inexpensive.

There may be some hesitation on the part of certain railways to give up their current RSIS systems for a Spoornet system. This should not be an insurmountable problem since Spoornet currently supplies as much as 40 percent of the wagons being used in the SADC region. There has also been improved cooperation between Spoornet and the SADC region during the drought.

Exhibit 6.1.1 provides a comparison of the functional capabilities of the various systems. The ACIS rail tracker system is includes because it is currently used by both Malawi and Tanzania. It was not included in the alternatives considered because of its limited scope.

Conclusion

Exhibit 6.6.2 shows the estimated five year implementation costs for the three RSIS alternatives. The figures include technical assistance, training, hardware, software investment and modification, and recurring expenses. A 20 percent contingency is also included.

Exhibit 6.6.2: RSIS FIVE YEAR IMPLEMENTATION COSTS

	RMI	UPT	SPRINT
TA & Training	$3,244,630	$3,244,600	$533,100
H/W &S/W Investment	3,911,100	3,193,100	801,774
Recurring Costs	603,006	2,089,363	3,626,397
20% Contingency	1,551,741	1,705,413	992,254
TOTAL	$9,310,447	$10,232,475	$5,953,525

The Sprint alternative is the lowest priced, costing only about 64 percent of the next closest option. This cost advantage is due to the facts that there is no license fee or charge for the Sprint software, program modifications will be done at cost, and the training and technical support costs will be based on recovery of the individual's salary plus out-of-pocket travel and per diem expenses.

A detailed analysis of the estimated RSIS projects for the three potential alternatives, along with a list of the assumptions used in deriving these costs, is provided in Annex III.J, RSIS Project Costs.

6.6.2. Institutional Analysis

A. The Role of SATCC

In sharp contrast to transport policy analysis, the Rolling Stock Information System is operational, an area where SATCC has neither excelled nor proposed to take the lead. But an RSIS which links multiple railway organizations across international boundaries must have a parent organization which is recognized and supported by users of its information. The advantage of implementing the RSIS component under the auspices of SATCC is the existing organizational structures such as the rail working group and railway administrators network, which form a base from which to build an RSIS operating entity.

SATCC will be critical to establishment of the RSIS, as the SATCC structure and its relationship to the railway administrations will provide the vehicle to get RSIS on the agenda of regional railways, set up organizational meetings, promote the concept, and assist in

building consensus and ownership for the system. The working group structure will provide the opportunity to elicit technical input from the regional railways needed for the detailed design of the system. While SATCC neither wants the responsibility nor has the capacity to engage in day to day railway operations, it is committed to the program and will assist USAID and the regional railways to set up a project funded RSIS unit, implemented under an A.I.D. financed institutional contract, to establish the system. Additional details on the RSIS will follow in Section 4.1, RSIS Component Description.

B. The Role of the Railways

It is important to assess the technical and operational capability of Regional Railways from several perspectives.

Hardware Under all options being considered, most of the RSIS hardware is quite standard and readily available, in most cases in the region. Similarly, service capability is, in most cases, also available within the region. The availability of parts and service should increase during the course of the project. The single exception to this may be the maintenance and servicing of a mainframe computer; this is unavailable at this time in the SADC region.

Software: All RSIS systems will require some software modification over time. This is be easily and cheaply provided under the Sprint alternative, since Spoornet will be updating the system for their own railway. Current indications are that the modifications would be provided at the incremental costs of updating the SATCC railways system. The RailCar Management system would also provide this service, perhaps at a higher cost. The region may find the provision of software modification to be a bit more difficult and expensive under any regional mainframe solution.

Personnel Retention of key operating personnel is perhaps the major sustainability risk. This risk can be lessened, however, if the railways modify their salary and compensation practices to pay competitive wage rates. This would reduce the turnover rate of trained personnel. Continuous training is also needed to ensure that a sufficient pool of skilled personnel is available. Both of these changes will occur as railways begin to operate on a commercial basis.

Management Commitment Management must perceive the benefits of the RSIS system to their railway before the end of the project life. This means that railway operational changes necessary to realize the RSIS system benefits must be implemented. Unless management is committed to the new system, it is likely to revert over time to old operating practices.

Ability and Willingness of Regional Railways to Manage and Finance the Regional RSIS System

The issue of the sustainability of the RSIS system after the five year project life can be separated into several sub-issues including: the technical and operational capability of the regional railways to maintain and use the RSIS system, and the ability and willingness of regional railway systems to manage and finance the continuation of the RSIS system.

The RSIS must ultimately be financed directly by the SADC railways. The central regional computer and its clearing functions will have to be jointly managed. This will be a new and difficult responsibility for the railways. They will have to agree on recourse if one railway does not pay its bill.

6.6.3. Economic Analysis

The cost-benefit analysis for the RSIS Project Component examines three alternative technologies: Railcar - a U.S. system for small scale rail systems; Union Pacific Technologies - U.S. system for large rail systems, and SPRINT - the system operated by Spoornet. The analysis assumes that USAID provides all funds necessary to implement the RSIS for the five year project. Recurring costs are paid by the individual railways after the project is operational (beginning in year three for the phase one railways). In the analysis, the net present value (NPV) of the project, recurring costs, and gross potential savings of the three alternatives are calculated.

The benefit/cost ratio is greater than one for all three RSIS alternatives even at a ten percent reduction in wagon hire charges; the B/C ratio is 2.9, 2.8, and 4.9 for Railcar, UPT and SPRINT, respectively. A B/C measure greater than one indicates that the project benefits are larger than the project costs. At a 50 percent reduction in wagon hire charges, the B/C ratio becomes 14.5, 13.9, and 24.3 for the same firms, respectively.

Note that benefits in the analysis are derived in savings in wagon hire charges to SPOORNET. Benefit measures indicate that the project is justified. A sensitivity analysis using different percentage reductions in wagon hire rates also demonstrates project justification is not dependent on achieving the maximum rate of reduction in wagon hire charges. Similarly, given the different level of project costs in the three alternatives, the RSIS is justified over a very wide range of costs.

It is very important to note that although the RSIS project is being justified on the basis of reduced wagon hire payments and wagon investment requirements through the reduction of wagon turn around times, there are many other important benefits that will be derived from the implementation of a RSIS system in the SADC region. These include an improvement in wagon turn around times, reliability and service made possible through the RSIS should increase rail freight and make the railway more competitive with road. For the first time, the SADC railways will have the potential of offering predictable dock-to-dock transit times to shippers. Diesel locomotive utilization rates will increase and there may be a reduction in the need for additional locomotive investment because of the increased monitoring of preventative maintenance schedules and lube oil testing and the ability to monitor and control the movement of locomotives and trains over longer distances.

The potential benefits from installing a RSIS system are very large. It is important to remember, however, that while the RSIS system will provide on line information, the realization of these benefits will require substantial changes in railway operations. Without these changes there will be little or no benefits from the RSIS system. The implementation of the RSIS is designed to promote these changes at the yard level by issuing work orders through the computer. Unless, however, the railway management begins to adopt a commercial orientation, the long run benefits may be dissipated.

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ACTION: AID-1
INFO: ECON-1 DCM-1 AMB-1

DISTRIBUTION: AID
CHARGE: AID

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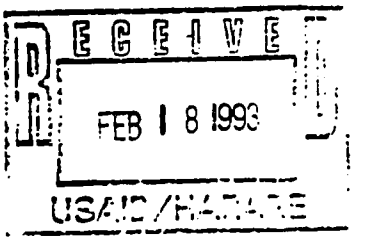

AIDAC

E.O. 12356: N/A
TAGS:
SUBJECT: DELEGATIONS OF AUTHORITY--ZIMBABWE AND SARP

REF: (A) HARARE 012515 (B) STATE 365439 - FY 92

1. THE FOLLOWING IS A CONFIRMATION OF CURRENT DELEGATIONS OF AUTHORITY.

-- A. ZIMBABWE: THE STATUS OF THE DOA'S ARE AS STATED IN REF CABLE.
-- B. SARP: THE STATUS OF THE DOA'S ARE AS STATED IN REF CABLE.

2. ACTIONS ON PENDING - NPD APPROVALS:

A. PER DISCUSSIONS AT OCTOBER MISSION DIRECTORS' CONFERENCE IN PRETORIA, AID/W DISCUSSIONS IN DECEMBER WITH DIRECTOR MORSE, AND SUBSEQUENT COMMUNICATION WITH MISSION, AFR/SA WILL PROCESS NPD PROGRAM CONCURRENCES AND WILL NOTIFY USAID/ZIMBABWE FOR THE FOLLOWING SARP ACTIVITIES:

-- 1. 690-0256 STEP
-- 2. 690-0274 TELECOMMUNICATIONS PROJECT

B. STEP ACTIVITY NEW PROJECT DESCRIPTION (NPD) FOR US DOLLARS 10 MILLION WAS APPROVED IN FY 1993 ABS AND PROGRAM CONCURRENCE AND DELEGATION OF AUTHORITY WERE GRANTED AT THAT TIME. PROJECT WAS NOT AUTHORIZED AS PLANNED SINCE FUNDS HAD TO BE USED FOR THE DROUGHT. SINCE THE NPD FOR STEP IN THE AMOUNT OF US DOLLARS 10.5 MILLION IN THE FY 1994 ABS WAS ESSENTIALLY A RESUBMISSION OF THE NPD APPROVED IN THE FY 93 ABS, IN ACCORDANCE WITH REFTEL (B), YOU ARE GRANTED PROGRAM CONCURRENCE AND DELEGATION OF AUTHORITY FOR PID AND PP APPROVAL.

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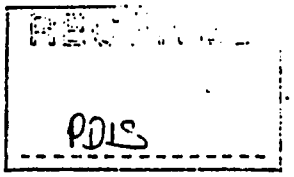

C. FOR TELECOMMUNICATIONS, WE WILL COMMUNICATE PROGRAM CONCURRENCE AS SOON AS NPD REVIEW IS COMPLETED. IN ACCORDANCE WITH BROWN/MORSE TELCON, SINCE TELECOMMUNICATIONS PID/PAIP IS PLANNED AS A NEW FY 1993 START IN A NEW SECTOR, AN AID/W TELECOMMUNICATIONS PID/PAIP REVIEW IS REQUIRED PRIOR TO REPEAT PRIOR TO AID/W CONSIDERING DOA FOR PP AND PROJECT AUTHORIZATION REQUESTS.

3. OTHER ACTIONS:

- 690-0272 LOBITO CORRIDOR: MISSION WAS TO AUTHORIZE/OBLIGATE US DOLS 5.0 MILLION FOR THIS PROJECT. GIVEN THE CURRENT SECURITY PROBLEMS, OUR UNDERSTANDING IS THAT THIS NEW PROJECT START IS ON HOLD UNTIL FY 1994 AND THAT THE US DOLS 5.0 MILLION WILL BE OBLIGATED UNDER REGIONAL DROUGHT EMERGENCY RELIEF FOR FY 1993. PLEASE CONFIRM HOW THESE FUNDS ARE BEING OBLIGATED. CHRISTOPHER
BT
#4660

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

SOUTHERN AFRICA TRANSPORT AND COMMUNICATIONS COMMISSION (SATCC)
CP 2577, MAPUTO MOZAMBIQUE
TELEPHONE: 420214/420246
FAX: 420213
TELEX: 6606/6597 SATCC MO

1 September 1993
TU/L/AAA/93

Mr. Ted Morse
Director
USAID - Harare
ZIMBABWE

Dear Ted,

REQUEST FOR FUNDING OF THE STEP PROJECT

You will recall that since 1991 SATCC and your office have worked together to seek ways of improving the efficiency of the transport system in the SADC region through a programme commonly referred to as STEP (SADC Transport Efficiency Project). Without recounting the history of the analysis and consultations that have been undertaken, which are well known to you, two priority components were identified and approved by the relevant SADC authorities for immediate implementation. These are the Policy Analysis and the Railways Rolling Stock Information System projects. The project design, detailed description of project elements and a plan of implementation of these components of STEP are in the process of being finalised.

With the current emphasis on policy reform and the restructuring of the parastatal transport enterprises both at the national and regional levels, the Policy Analysis Project will provide SATCC with the requisite capacity for analysis of policy issues and for the promotion of appropriate solutions. This is of particular importance in view of the novelty of some of the likely policy options and the natural tendency to resist them on the part of governments, especially when they are not well understood; the ability of SATCC to make convincing cases would circumvent some of these tendencies.

The Rolling Stock Information System Project, on the other hand, has been conceived in collaboration with the region's railways to address the need to improve the tracking of rolling stock and thereby enable the railways to better serve their customers by giving them information on the location of their cargo and to enhance their ability to manage the movement of their rolling stock; this capacity will yield considerable efficiency gains and improve the profitability of the railways.

Regarding the Policy Analysis Project, SATCC has a need for assistance in the form of staff inputs to strengthen SATCC's capacity as mentioned above. In addition to the staff it will be necessary to provide such other inputs as will be required to ensure the efficient implementation of the project. The staff under the project will be fully integrated into the SATCC organisation structure and will be under the supervisory authority of the relevant SATCC staff.

In this regard, we hereby request the support of USAID in providing the inputs detailed above which SATCC is not able to provide from its own resources. The details of such inputs have already been identified in the design but shall continue to be a subject of consultations between us.

I trust that you shall see you way clear to accede to this request.

Yours sincerely,

Percy M. Mangoaela
Director

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
GOAL: ENHANCE THE ENABLING ENVIRONMENT FOR INCREASED TRADE COMPETITIVE-NESS AND INCREASED PRIVATE SECTOR INVESTMENT IN THE SADC REGION.	***MEASURES OF GOAL ACHIEVEMENT:*** SADC COUNCIL OF MINISTERS APPROVE THE POLICY AGENDA. LEGISLATIVE AND REGULATORY RESTRICTIONS AFFECTING TRADE AND INVESTMENT POLICIES ARE REMOVED BY NATIONAL GOVERNMENTS.	NATIONAL LEGISLATION OF SADC MEMBER STATES. ROAD TAXATION POLICIES. RAIL TARIFF POLICIES. PRICING AND INVESTMENT POLICIES. ROAD MAINTENANCE POLICIES. HARMONIZATION OF LICENSES, PERMITS & FEES TRADE STATISTICS.	1. SUFFICIENT INVESTMENTS MADE BY OTHER DONORS FOR SYSTEMS INFRASTRUCTURE. 2. POLICY REFORMS LED BY BANK ACHIEVED. SADC GOVERNMENTS PURSUE PRIVATIZATION. 3. WORLD BANK'S RAILWAY RESTRUCTURING EFFORTS ENCOURAGE PRIVATIZATION. 4. OTHER DONORS ASSIST WITH RETRENCHMENT OF REDUNDANT STAFF, IMPROVED MANAGEMENT AND OPERATIONAL PERFORMANCE THROUGH TRAINING. 5. POLITICAL SUPPORT FOR RESTRUCTURING AND OPERATIONAL & MANAGEMENT EFFICIENCY CONTINUES. 6. OPEN COMPETITIVE ENVIRONMENT EXISTS IN SADC PRODUCTIVE/COMMERCIAL SECTOR.
PURPOSE:	***END OF PROJECT STATUS:***		***ASSUMPTIONS FOR ACHIEVING PURPOSE:***
INCREASE EFFICIENCY, RELIABILITY AND COMPETITIVENESS OF THE SURFACE TRANSPORT SYSTEM.	1. INCREASE VOLUMES OF RAILWAY TRAFFIC AND RESULTING REVENUES. 2. DECREASE TURNAROUND TIMES OF ROLLING STOCK AND ASSOCIATED COSTS. 3. INCREASE UTILIZATION OF RAILWAY ROLLING STOCK. 4. DECREASE PUBLIC SERVICE OBLIGATIONS AND COSTS. 5. INCREASE ACCESS TO ENTRY BY PRIVATE TRANSPORT PROVIDERS. 6. IMPROVED SADC BALANCE OF PAYMENTS POSITION.	IBRD SECTOR REPORTS. RAILWAY PERFORMANCE REPORTS. PROJECT EVALUATION REPORTS & AUDITS. PROJECT COMPLETION REPORTS. FINANCIAL STATEMENTS.	1. SUPPORT FOR POLICY REFORMS BY MINISTERS OF TRANSPORT AND COMMUNICATIONS IS SUSTAINED. 2. COOPERATION AND COORDINATION BY RAILWAYS IS CONTINUED. 3. LOP IS ADEQUATE TO ACCOMPLISH PROJECT. 4. FUNDS ARE AVAILABLE TO COMPLETE PROJECT. 5. RAIL SERVICE IS COMPETITIVE WITH ROAD TRANSPORT.
OUTPUTS:	***MAGNITUDE OF OUTPUTS:***		***ASSUMPTION OF ACHIEVING OUTPUTS:***
1. SATCC POLICY ANALYSIS: POLICY ANALYSIS AGENDA FORMULATED. POLICY ANALYSIS CARRIED OUT. REGIONAL CONSENSUS ON POLICY AND REGULATORY REFORMS ACHIEVED. REGIONAL DATA BASE ESTABLISHED. TRANSPORT PLANNING MODEL INSTALLED. POLICY COORDINATION AND ADVOCACY FOR REFORM PROCESS STRENGTHENED. **2. RSIS:** RSIS OPERATIONAL AND PROVIDING IMPROVED WAGON MANAGEMENT. INFORMATION ON REGION-WIDE BASIS COMMERCIAL ACCESS TO RSIS ACHIEVED. DECLINING MARKET SHARE BY RAIL ARRESTED. IMPROVED REVENUE POSITION OF REGION'S RAILWAYS ACHIEVED.	1. POLICY ANALYSIS UNIT IS FUNCTIONAL. 1.1. FIVE POLICY ISSUES ARE ANALYZED FOR EACH SURFACE TRANSPORT MODE. 1.2 POLICY PAPERS ARE PRESENTED AT SEMINARS AND REGIONAL WORKSHOPS. 1.3 TRANSPORT DATA BASE IS ON LINE FOR ACCESS BY NATIONAL GOVERNMENTS AND OTHERS. 1.4 SADC GOVERNMENT IMPLEMENT POLICY REFORMS. 1.5 TRANSPORT PLANNING MODEL IS OPERATIONAL. 2. RSIS SYSTEM INSTALLED AND OPERATIONAL. 2.1 RAILWAYS TRANSMIT INFORMATION VIA RSIS. 2.2 WAGON DETENTION TIMES REDUCED. 2.3 WAGON AVAILABILITY INCREASED. 2.4 NUMBER OF FOREIGN WAGONS ON-HIRE REDUCED. 2.5 WAGON UTILIZATION RATES INCREASED. 2.6 SHIPPERS CAN LAUNCH QUERIES ABOUT SHIPMENTS AND RECEIVED ALMOST REAL-TIME RESPONSE. 2.7 COMMERCIAL DEPARTMENTS REPORT INCREASE IN TRAFFIC ON OFFER. 2.8 QUARTERLY TRAFFIC REPORTS SHOW INCREASE TRAFFIC CARRIED BY RAILWAYS. 2.9 FINANCIAL STATEMENTS REVEAL INCREASE REVENUES TO RAILWAYS.	1. POLICY ANALYSIS GROUP. 1.1 POLICY STUDIES & REPORTS. 1.2 POLICY SEMINARS AND WORKSHOPS. 1.3 PRESENTATION OF POLICIES REFORMS TO THE COMMITTEE OF MINISTERS. TRAFFIC CONTROL REPORTS FROM RAILWAYS. REPORTS ON PERFORMANCE INDICATORS. FINANCIAL STATEMENTS FROM RAILWAYS. MECHANICAL ENGINEER'S REPORT ON ROLLING STOCK. QUARTERLY SURVEY OF MAJOR SHIPPERS. TRAFFIC REPORTS. QUARTERLY AND ANNUAL FINANCIAL STATEMENTS.	***POLICY ANALYSIS*** 1. SADC COUNCIL OF MINISTERS ARE WILLING TO ADOPT, IMPLEMENT AND ENFORCE POLICY AND REGULATORY REFORMS AT THE NATIONAL LEVEL. 2. A SADC POLICY AGENDA IS AGREED TO AND ACTED UPON. 3. SATCC UNDERTAKES TO PROMOTE POLICY AND THROUGH WORKSHOPS, SEMINARS AND OTHER MEANS TO DISSEMINATE POLICY INFORMATION. 4. NATIONAL GOVERNMENTS ARE WILLING TO PROVIDE TIMELY AND CONSISTENT DATA IN A UNIFORM FORMAT. 6. SUCCESSFUL DESIGN CALIBRATION AND TESTING IS PERFORMED FOR EACH CORRIDOR AND SURFACE TRANSPORT MODE IN SADC REGION. 7. SATCC'S INSTITUTIONAL LINKAGES AND MANDATE ARE ADEQUATE TO PROMOTE THE POLICY REFORM PROCESS AND FACILITATE POLICY COORDINATION. ***RSIS*** 1. AN ADEQUATE TELECOMMUNICATIONS SYSTEM IS IN PLACE TO FACILITATE INTER-RAILWAY COMMUNICATIONS. 2. COMMERCIAL SHIPPERS WILL REALIZE THE BENEFITS OF AN RSIS SYSTEM. 3. BETTER CUSTOMERER'S INFORMATION WILL MAKE ADDITIONAL TRAFFIC AVAILABLE TO THE RAILWAYS. INCREASE TRAFFIC LEVELS WILL PRODUCE ADDITIONAL FOR THE RAILWAYS. 4. OPERATIONAL EFFICIENCIES WILL ATTRACT ADDITIONAL TRAFFIC TO THE RAILWAYS.

INPUTS:	BUDGET EXPENDITURES BY TYPE: (In U.S. '000)		ASSUMPTIONS FOR PROVIDING INPUTS:
1. SATCC: ASSISTANCE TO PROVIDED TO ESTABLISH A POLICY ANALYSIS GROUP IN SATCC. -LONG TERM TA INITIATED -SHORT TERM TA INITIATED -POLICY ANALYSIS FRAMEWORK ESTABLISHED - DATA COLLECTION SYSTEM, ETC. -POLICY PROMOTION MECHANISM ESTABLISHED - SEMINARS, WORK SHOPS, STATISTICS PUBLICATIONS, ETC. -TRANSPORT MODEL INSTALLED. -TRANSPORT DATA BASE INSTALLED. 2. RSIS: IMPLEMENTATION PLAN FOR ESTABLISHMENT OF SYSTEM BY CONTRACTOR IS COMPLETED. REGION WIDE RSIS SYSTEMS PROTOCOLS ESTABLISHED BY CONTRACTOR. -EQUIPMENT AND SOFTWARE SPECIFICATIONS COMPLETED.	See Section 4.5, Summary Financial Plan	PIRS, EVALUATION REPORTS, FINANCIAL AUDIT REPORTS. POLICY ANALYSIS AGENDA PLACED ON SADC'S PROGRAM OF ACTION. CHIEF OF PARTY AND MODAL SPECIALISTS IN PLACE. MONTHLY PROJECT MANAGEMENT REPORTS. HARDWARE AND SOFTWARE PROCURED & INSTALLED. REGION-WIDE INAUGURAL ADVANCED CONSIST SENT TO ALL RAILWAYS.	1. NO MAJOR DELAYS IN GETTING CONTRACTORS IN PLACE. 2. APPROPRIATELY QUALIFIED TA PERSONNEL AVAILABLE. 3 RSIS PERSONNEL ARE PROPERLY TRAINED AND REMAIN WITH THE RAILWAYS. 4. RAILWAYS REMAIN COMMITTED TO RSIS SYSTEM INSTALLATION. 5. RSIS, PROTOCOLS, FINANCIAL AND INSTITUTIONAL ARRANGEMENTS ARE AGREED TO AND CONCLUDED IN A TIMELY MANNER.

Gray Amendment Considerations

The Gray Amendment (Section 579 of P.L. 101-167, the Foreign Operations Export Financing and Related Programs Appropriation Act, 1990) requires A.I.D. to ensure participation in AID projects by business concerns which are owned and controlled by socially and economically disadvantaged individuals, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic American, and private voluntary organizations which are controlled by individuals who are socially and economically disadvantaged, including women, (referred to herein as Gray Amendment entities).

The requirements of AIDAR Notice 90-2, implementing section 579 of the Foreign Assistance Appropriations Act requires that for any contract in excess of $500,000 (except for a contract with a disadvantaged enterprise) not less than 10 percent of the dollar value of the contract must be subcontracted to Gray Amendment entities, unless the contracting officer certifies that there is no realistic expectation of U.S. subcontracting opportunities or unless the Administrator approves an exception. This provision applies to "buy-ins" as will as project specific contracts.

Certification

Elements of the project are appropriate for minority or Gray Amendment organization contracting. The procurement plan of this project has been developed with full consideration of maximally involving Gray Amendment organizations in the provision of required goods and services. The Mission will make every effort to identify disadvantaged enterprises, particularly women and minority-owned firms, which can handle studies and analyses planned in the project. Where possible, qualified Gray Amendment firms will be given considerations for direct contracting as well as in consideration of the buy-in option for services required.

Furthermore, the Mission will in the case of any contract in excess of $500,000 funded from amounts covered by the Gray Amendment include a provision requiring that no less than ten percent of the dollar value of the contract be subcontracted to Gray Amendment entities unless the Contracting Officer certifies that there is no realistic expectation of U.S. subcontracting opportunities, or unless the prime contractor is a Gray Amendment entity.

Ted D. Morse, Director

Sept. 13, 1993

Date

INITIAL ENVIRONMENTAL EVALUATION

I. Project Data

Location		Zimbabwe
Title		SADC Transport Efficiency Project (STEP) (690-0256)
Funding	:	~~US$15.0~~ million
Life of Project	:	5 Years
IEE Prepared By	:	Charles Schaibal 1/20/93 Mission Environmental Officer
Environmental Action Recommended	:	Categorical Exclusion
Concurrence	:	Ted Morse, Director
Date	:	Jan 29, 1993

Clearances:
Donald Keane, RLA/Southern Africa — Keane/Harmon fax Date: January 13, 1993

II. Review by Bureau Environmental Office

Concur	:	✓
Request Reconsideration	:	
Signature	:	
Name	:	J. GAUDET
Date	:	3/15/93
GC/AFR	:	MN Kleinman (3/16/93)

GC

III. PROJECT OBJECTIVE

The goal of the Southern Africa Development Community (SADC) Transport Efficiency Project is to enhance the enabling environment for increased trade and investment for the SADC region by increasing reliability and decreasing costs of transport.

IV. PROJECT ELEMENTS

There are only two (2) elements of the project, provision of Technical Assistance and implementation of a Rolling Stock Information System (RSIS).

The Technical Assistance will focus on research analysis and advice on needed reforms to regulations and policies that are hindering transport and efficiency. The Southern Africa Transport and Communications Commission (SATCC) Technical Unit will be provided with the capacity to address efficiency or "software" constraints, and therefore assist the organization to carry out its mandate to encourage efficient utilization of infrastructure previously established or rehabilitated during the 1980s.

RSIS will establish a region wide system for the exchange of basic information on tracking and management of railway rolling stock. The system will include communication equipment to link major locations within each SADC railway to a central computer and file server which will store all regional information on the movement of goods for access by each of the SADC railways.

V. ENVIRONMENTAL ACTION RECOMMENDED

This project will provide technical assistance for policy research and advice and information sharing equipment and software to the Southern African Transport and Communications Commission, which serves the 10 SADC countries. Neither of these activities will have any foreseeable effect on the natural or physical environment of the SADC region. Therefore, in accordance with CFR Part 216.2 (c) (1) (i) and CFR Part 216.2 (c) (2) a CATEGORICAL EXCLUSION is recommended.

5C(2) - ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE? Yes

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. **Host Country Development Efforts** (FAA Sec. 601(a)): Information and conclusions on whether assistance will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

The STEP project, through SADC regional transport policy reform and enhanced transport efficiency, is designed to have a direct impact on international trade, competitiveness, private sector development and the improvement of technical efficiency. To the extent that it reduces transport costs and increases reliability of the regional transport system, it will increase the SADC Region's attractiveness to investors.

2. **U.S. Private Trade and Investment** (FAA Sec. 601(b)): Information and conclusions on how assistance will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

The majority of technical assistance and training under the project will be delivered through institutional contracts. To the extent feasible, the procurement of goods and services under the project will be sourced from the U.S.

3. **Congressional Notification** a. **General requirement** (FY 1993 Appropriations Act Sec. 522; FAA Sec. 634A): If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the Appropriations Act notification requirement has been waived because of substantial risk to human health or welfare)?	N/A. The activity was previously justified to Congress.
b. **Notice of new account obligation** (FY 1993 Appropriations Act Sec. 514): If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and has such obligation been subject to regular notification procedures?	N/A DFA funds.
c. **Cash transfers and nonproject sector assistance** (FY 1993 Appropriations Act Sec. 571(b)(3)): If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic policy reforms to be promoted?	N/A Project Assistance.
4. **Engineering and Financial Plans** (FAA Sec. 611(a)): Prior to an obligation in excess of $500,000, will there be: (a) engineering, financial or other plans necessary to carry out the assistance; and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	(a) Yes (b) Yes
5. **Legislative Action** (FAA Sec. 611(a)(2)): If legislative action is required within recipient country with respect to an obligation in excess of $500,000, what is the basis for a reasonable expectation that such action	No legislative action required.

will be completed in time to permit orderly accomplishment of the purpose of the assistance?

6. **Water Resources** (FAA Sec. 611(b); FY 1993 Appropriations Act Sec. 501): If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.)

Not for water and water related.

7. **Cash Transfer and Sector Assistance** (FY 1993 Appropriations Act Sec. 571(b)): Will cash transfer or nonproject sector assistance be maintained in a separate account and not commingled with other funds (unless such requirements are waived by Congressional notice for nonproject sector assistance)?

N/A - Project does not have cash transfer assistance.

8. **Capital Assistance** (FAA Sec. 611(e)): If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?

Project is not capital intensive.

9. **Multiple Country Objectives** (FAA Sec. 601(a)): Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

See No. 1.

10. **U.S. Private Trade** (FAA Sec. 601(b)): Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	See No. 2.
11. **Local Currencies**	
a. **Recipient Contributions** (FAA Secs. 612(b), 636(h)): Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	N/A. Regional Project.
b. **U.S.-Owned Currency** (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No excess U.S. owned local currency.
c. **Separate Account** (FY 1993 Appropriations Act Sec. 571). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:	N/A - Project wil not result in the generation of local currencies.
(1) Has A.I.D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?	N/A.

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the DA or ESF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government? — N/A

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes? — N/A

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government? — N/A

12. **Trade Restrictions**

a. **Surplus Commodities** (FY 1993 Appropriations Act Sec. 520(a)): If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? — Project is not for production of any commodity for export.

b. **Textiles (Lautenberg Amendment)** (FY 1993 Appropriations Act Sec. 520(c)): Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of — No.

textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

13. **Tropical Forests** (FY 1991 Appropriations Act Sec. 533(c)(3)(as referenced in section 532(d) of the FY 1993 Appropriations Act): Will funds be used for any program, project or activity which would (a) result in any significant loss of tropical forests, or (b) involve industrial timber extraction in primary tropical forest areas?

(a) No

(b) No

14. **PVO Assistance**

a. **Auditing and registration** (FY 1993 Appropriations Act Sec. 536): If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?

No direct assistance to PVOs.

b. **Funding sources** (FY 1993 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"): If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?

N/A. Assistance not to U.S. PVOs.

15. **Project Agreement Documentation** (State Authorization Sec. 139 (as interpreted by conference report)): Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision).

Confirmation will be cabled.

16. **Metric System** (Omnibus Trade and Competitiveness Act of 1988 Sec. 5164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance activity use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

Assistance activities will generally use metric system.

17. **Women in Development** (FY 1993 Appropriations Act, Title II, under heading "Women in Development"): Will assistance be designed so that the percentage of women participants will be demonstrably increased?

Yes

18. **Regional and Multilateral Assistance** (FAA Sec. 209): Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.

This activity is regional. The Host Country Implementing entity is the Transport and Communications Commission of the Southern Africa Development Community.

19. **Abortions** (FY 1993 Appropriations Act, Title II, under heading "Population, DA," and Sec. 524):

a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization? — No

b. Will any funds be used to lobby for abortion? — No

20. **Cooperatives** (FAA Sec. 111): Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life? — No

21. **U.S.-Owned Foreign Currencies**

a. **Use of currencies** (FAA Secs. 612(b), 636(h); FY 1993 Appropriations Act Secs. 507, 509): Are steps being taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. are utilized in lieu of dollars to meet the cost of contractual and other services. — Yes

b. **Release of currencies** (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? — U.S. owns no excess local currency.

22. **Procurement**

a. **Small business** (FAA Sec. 602(a)): Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? — Yes

b. **U.S. procurement** (FAA Sec. 604(a) as amended by section 597 of the FY 1993 Appropriations Act): Will all procurement be from the U.S., the recipient country, or developing countries except as otherwise determined in accordance with the criteria of this section? — Yes

c. **Marine insurance** (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?	N/A. No discrimination exists.
d. **Non-U.S. agricultural procurement** (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)	N/A
e. **Construction or engineering services** (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)	N/A
f. **Cargo preference shipping** (FAA Sec. 603)): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?	N/A
g. **Technical assistance** (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the	Yes

c. **Marine insurance** (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?	N/A. No discrimination exists.
d. **Non-U.S. agricultural procurement** (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)	N/A
e. **Construction or engineering services** (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)	N/A
f. **Cargo preference shipping** (FAA Sec. 603)): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?	N/A
g. **Technical assistance** (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the	Yes

facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?	Yes
h. **U.S. air carriers** (International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?	Yes
i. **Termination for convenience of U.S. Government** (FY 1993 Appropriations Act Sec. 504): If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?	Yes
j. **Consulting services** (FY 1993 Appropriations Act Sec. 523): If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)?	Yes
k. **Metric conversion** (Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest	See No. 16 above.

documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

1. **Competitive Selection Procedures** (FAA Sec. 601(e)): Will the assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? — Yes

23. **Construction**

a. **Capital project** (FAA Sec. 601(d)): If capital (e.g., construction) project, will U.S. engineering and professional services be used? — N/A - Not a capital project.

b. **Construction contract** (FAA Sec. 611(c)): If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? — N/A - No construction contracts anticipated.

c. **Large projects, Congressional approval** (FAA Sec. 620(k)): If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed $100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress? — Project will not exceed US$100 million.

24. **U.S. Audit Rights** (FAA Sec. 301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? — Yes

25. **Communist Assistance** (FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? — Yes

26. **Narcotics**

a. **Cash reimbursements** (FAA Sec. 483): Will arrangements preclude use of financing to make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? Yes

b. **Assistance to narcotics traffickers** (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use of financing to or through individuals or entities which we know or have reason to believe have either: (1) been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance? Yes

27. **Expropriation and Land Reform** (FAA Sec. 620(g)): Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? Yes

28. **Police and Prisons** (FAA Sec. 660): Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes

29. **CIA Activities** (FAA Sec. 662): Will assistance preclude use of financing for CIA activities? Yes

30. **Motor Vehicles** (FAA Sec. 636(i)): Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes

31. **Military Personnel** (FY 1993 Appropriations Act Sec. 503): Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes

32. **Payment of U.N. Assessments** (FY 1993 Appropriations Act Sec. 505): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? Yes

33. **Multilateral Organization Lending** (FY 1993 Appropriations Act Sec. 506): Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes

34. **Export of Nuclear Resources** (FY 1993 Appropriations Act Sec. 510): Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? Yes

35. **Repression of Population** (FY 1993 Appropriations Act Sec. 511): Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes

36. **Publicity or Propaganda** (FY 1993 Appropriations Act Sec. 516): Will assistance be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? No

31. **Military Personnel** (FY 1993 Appropriations Act Sec. 503): Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes

32. **Payment of U.N. Assessments** (FY 1993 Appropriations Act Sec. 505): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? Yes

33. **Multilateral Organization Lending** (FY 1993 Appropriations Act Sec. 506): Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes

34. **Export of Nuclear Resources** (FY 1993 Appropriations Act Sec. 510): Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? Yes

35. **Repression of Population** (FY 1993 Appropriations Act Sec. 511): Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes

36. **Publicity or Propaganda** (FY 1993 Appropriations Act Sec. 516): Will assistance be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? No

37. **Marine Insurance** (FY 1993 Appropriations Act Sec. 560): Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? Yes

38. **Exchange for Prohibited Act** (FY 1993 Appropriations Act Sec. 565): Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law? No

39. **Commitment of Funds** (FAA Sec. 635(h)): Does a contract or agreement entail a commitment for the expenditure of funds during a period in excess of 5 years from the date of the contract or agreement? No

40. **Impact on U.S. Jobs** (FY 1993 Appropriations Act, Sec. 599):

(a) Will any financial incentive be provided to a business located in the U.S. for the purpose of inducing that business to relocate outside the U.S. in a manner that would likely reduce the number of U.S. employees of that business? No

(b) Will assistance be provided for the purpose of establishing or developing an export processing zone or designated area in which the country's tax, tariff, labor, environment, and safety laws do not apply? If so, has the President determined and certified that such assistance is not likely to cause a loss of jobs within the U.S.? No

(c) Will assistance be provided for a project or activity that contributes to the violation of internationally recognized workers rights, as defined in section 502(a)(4) of the Trade Act of 1974, of workers in the recipient country?	No
B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY	
1. **Agricultural Exports (Bumpers Amendment)** (FY 1993 Appropriations Act Sec. 520(b), as interpreted by conference report for original enactment): If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities: (1) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (2) in support of research that is intended primarily to benefit U.S. producers?	N/A - Not for agricultural development.
2. **Tied Aid Credits** (FY 1993 Appropriations Act, Title II, under heading "Economic Support Fund"): Will DA funds be used for tied aid credits?	No
3. **Appropriate Technology** (FAA Sec. 107): Is special emphasis placed on use of appropriate technology (defined as relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	An appropriate Rolling Stock Information System (RSIS) will be designed, using smaller scale computer systems, as required, to meet the needs of low traffic SADC regional railways.

4. **Indigenous Needs and Resources** (FAA Sec. 281(b)): Describe extent to which the activity recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	One of the key precepts of the STEP project is that the SADC Region has a limited technical base for implementing the project. This is especially true of the transport sector, in which project interventions are directed. The project will enhance regional analytical and technical capacity.
5. **Economic Development** (FAA Sec. 101(a)): Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?	Yes
6. **Special Development Emphases** (FAA Secs. 102(b), 113, 281(a)): Describe extent to which activity will: (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.	6.a. The activity will lower transport costs and increase transport efficiency in the SADC region, thereby lowering the cost of consumer products, including staple foods and agricultural inputs critically needed by the poor. 6.b. The activity will enhance private sector development and competitive forces. 6.c. Self help activities will benefit from the enhanced climate for business starts which results from improved transport efficiency. 6.d. Women will benefit equally in economic benefits resulting from improved transport efficiency. 6.e. A primary emphase of this regional project is to enhance cooperation between SADC countries to harmonize and rationalize the body of transport policies and regulations.
7. **Recipient Country Contribution** (FAA Secs. 110, 124(d)): Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?	7. N/A. Regional Project.

8. **Benefit to Poor Majority** (FAA Sec. 128(b)): If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority? Yes

9. **Abortions** (FAA Sec. 104(f); FY 1993 Appropriations Act, Title II, under heading "Population, DA," and Sec. 534):

a. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? No

b. Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations? No

c. Are any of the funds to be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization? No

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services? No

e. In awarding grants for natural family planning, will any applicant be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning? N/A

f. Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to No

methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?	
g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization?	No
10. **Contract Awards** (FAA Sec. 601(e)): Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes
11. **Disadvantaged Enterprises** (FY 1993 Appropriations Act Sec. 563): What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?	If not accomplished under prime contracts, a minimum of 10% of each contract funded by the project will be subcontracted for disadvantaged enterprises.
12. **Biological Diversity** (FAA Sec. 119(g): Will the assistance: (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?	a. No b. No c. No d. No

13. **Tropical Forests** (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c) as referenced in section 532(d) of the FY 1993 Appropriations Act):

a. **A.I.D. Regulation 16:** Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Yes

b. **Conservation:** Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources; (2) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (6) conserve forested watersheds and rehabilitate those which have been deforested; (7) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (9) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, Yes

and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests; (11) utilize the resources and abilities of all relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?

c. **Forest degradation:** Will assistance be used for: (1) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

(1) No
(2) No
(3) No
(4) No
(5) No
(6) No

d. **Sustainable forestry:** If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry?	N/A - Project does not relate to tropical forests.
e. **Environmental impact statements:** Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment?	Yes
14. **Energy** (FY 1991 Appropriations Act Sec. 533(c) as referenced in section 532(d) of the FY 1993 Appropriations Act): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases?	N/A - Project does not relate to energy.
15. **Debt-for-Nature Exchange** (FAA Sec. 463): If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management.	N/A - Project will not finance a debt-for-Nature Exchange.
16. **Deobligation/Reobligation** (FY 1993 Appropriations Act Sec. 515): If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same region as	N/A - No deob/reob authority is sought.

originally obligated, and have the House and Senate Appropriations Committees been properly notified?

17. **Loans**

a. **Repayment capacity** (FAA Sec. 122(b)): Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest. — N/A - Not a loan.

b. **Long-range plans** (FAA Sec. 122(b)): Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? — N/A - Not a loan.

c. **Interest rate** (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter? — N/A - Not a loan.

d. **Exports to United States** (FAA Sec. 620(d)): If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? — N/A - Not a loan.

18. **Development Objectives** (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (2) help develop cooperatives, especially by technical — The STEP project will involve the poor in development through across-the-board access to lower cost products, including agricultural inputs and other intermediate goods needed for small business productivity. As members of the SADC community, rural and urban poor and women will have equal access to lower cost goods needed to improve their lives.

assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (3) support the self-help efforts of developing countries; (4) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (5) utilize and encourage regional cooperation by developing countries?

19. **Agriculture, Rural Development and Nutrition,** and **Agricultural Research** (FAA Secs. 103 and 103A):

a. **Rural poor and small farmers:** If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

Assistance is only indirectly designed for agriculture, rural development or nutrition, through lower cost transport costs.

b. **Nutrition:** Describe extent to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people.

The project will not work in the development of foodstuffs or nutrition regimes.

c. **Food security:** Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the

The project will not work in the area of food security or management of food stores, except through the provision of lower cost agricultural inputs and better access for farmers to markets.

poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

20. **Population and Health** (FAA Secs. 104(b) and (c)): If assistance is being made available for population or health activities, describe extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach. N/A

21. **Education and Human Resources Development** (FAA Sec. 105): If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, and strengthens management capability of institutions enabling the poor to participate in development; and (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and implementation of public and private development activities. N/A

22. **Energy, Private Voluntary Organizations, and Selected Development Activities** (FAA Sec. 106): If assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is: N/A

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of

research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment;

b. concerned with technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

c. research into, and evaluation of, economic development processes and techniques;

d. reconstruction after natural or manmade disaster and programs of disaster preparedness;

e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance;

f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development.

23. **Capital Projects** (Jobs Through Export Act of 1992, Secs. 303 and 306(d)): If assistance is being provided for a capital project, is the project developmentally sound and will the project measurably alleviate the worst manifestations of poverty or directly promote environmental safety and sustainability at the community level? N/A

C. CRITERIA APPLICABLE TO ECONOMIC SUPPORT FUNDS ONLY

1. **Economic and Political Stability** (FAA Sec. 531(a)): Will this assistance promote economic and political stability? N/A

To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA?

2. **Military Purposes** (FAA Sec. 531(e)): Will this assistance be used for military or paramilitary purposes? N/A

3. **Commodity Grants/Separate Accounts** (FAA Sec. 609): If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? (For FY 1993, this provision is superseded by the separate account requirements of FY 1993 Appropriations Act Sec. 571(a), see Sec. 571(a)(5).) N/A

4. **Generation and Use of Local Currencies** (FAA Sec. 531(d)): Will ESF funds made available for commodity import programs or other program assistance be used to generate local currencies? If so, will at least 50 percent of such local currencies be available to support activities consistent with the objectives of FAA sections 103 through 106? (For FY 1993, this provision is superseded by the separate account requirements of FY 1993 Appropriations Act Sec. 571(a), see Sec. 571(a)(5).) N/A

5. **Cash Transfer Requirements** (FY 1993 Appropriations Act, Title II, under heading "Economic Support Fund," and Sec. 571(b)). If assistance is in the form of a cash transfer: N/A

a. **Separate account:** Are all such cash payments to be maintained by the country in a separate account and not to be commingled with any other funds? N/A

b. **Local currencies:** Will all local currencies that may be generated with funds provided as a cash transfer to such a country also be deposited in a special account, and has A.I.D. entered into an agreement with that government setting forth the amount of the local currencies to be generated, the terms and N/A

conditions under which they are to be used, and the responsibilities of A.I.D. and that government to monitor and account for deposits and disbursements?

c. **U.S. Government use of local currencies:** Will all such local currencies also be made available to the U.S. government as the U.S. determines necessary for the requirements of the U.S. Government, or to carry out development assistance (including DFA) or ESF purposes? N/A

d. **Congressional notice:** Has Congress received prior notification providing in detail how the funds will be used, including the U.S. interests that will be served by the assistance, and, as appropriate, the economic policy reforms that will be promoted by the cash transfer assistance? N/A

6. **Capital Projects** (Jobs Through Exports Act of 1992, Sec. 306, FY 1993 Appropriations Act, Sec. 595): If assistance is being provided for a capital project, will the project be developmentally-sound and sustainable, i.e., one that is (a) environmentally sustainable, (b) within the financial capacity of the government or recipient to maintain from its own resources, and (c) responsive to a significant development priority initiated by the country to which assistance is being provided. (Please note the definition of "capital project" contained in section 595 of the FY 1993 Appropriations Act.) N/A

DRAFTER:GC/LP:BLester:1/21/93:check1

STATUTORY CHECKLIST SUPPLEMENTS FOR AFRICA FY 1993

The following checklist supplements 5C(2) - ASSISTANCE CHECKLIST:

D. CRITERIA APPLICABLE TO DEVELOPMENT FUND FOR AFRICA ASSISTANCE ONLY

1. (FAA Sec. 496): If assistance will come from the Sub-Saharan Africa DA account (the DFA), is it--

(1) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant;

(1) Yes, the poor majority will be primary beneficiaries of lower cost goods resulting from decreased transport costs.

(2) to be used to promote sustained economic growth, encourage private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector;

(2) Yes, improved transport efficiency is a key building block for private sector development.

(3) to be provided in a manner that takes into account, during the planning process, the local-level perspectives of the rural and urban poor, including women, through close consultation with African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa;

(3) Yes, local level perspectives will be critical inputs to policy analysis.

(4) to be implemented in a manner that requires local people, including women, to be closely consulted and involved, if the assistance has a local focus;

(4) Yes, the project will work primarily with local transport sector players.

(5) being used primarily to promote reform of critical sectoral economic policies or to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services education, and income generating opportunities; and

(5) Yes, transport sector policies.

(6) to be provided in a manner that, if policy reforms are to be effected, contains provisions to protect vulnerable groups and the environment from possible negative consequences of the reforms?

2. (FY 1993 Appropriations Act): Have measures been taken to assure that DFA funds will not be used for tied-aid credits?

Yes, project funds will not be used for tied-aid credits.

E. CRITERIA APPLICABLE TO DFA AND DFA ASSISTANCE TO ETHIOPIA, SOMALIA AND SUDAN

(Horn of Africa Recovery and Food Security Act, P.L. 102-274 April 21, 1992): If DA or DFA assistance is provided to Ethiopia, Somalia or Sudan other than through--

(1) U.S., international or indigenous PVOs, as defined in FAA §496(e); or — (1) N/A

(2) international organizations that have demonstrated effectiveness in working in partnership with local NGOs and are committed to the promotion of local grassroots activities on behalf of development and self-reliance in the Horn of Africa-- — (2) N/A

has a certification been made with respect to that country by the President to the appropriate congressional committees that the government of the specified country--

(1) has begun to implement peace agreements, national reconciliation agreements, or both; — (1) N/A

(2) has demonstrated a commitment to human rights within the meaning of FAA §§116 and 502B; — (2) N/A

(3) has manifested a commitment to democracy, has held or established a timetable for free and fair elections, and has agreed to implement the results of those elections; and — (3) N/A

(4) has agreed to distribute developmental assistance on the basis of need without regard to political affiliation, geographic location, or the ethnic, tribal, or religious identity of the recipient. (4) N/A

F. CRITERIA APPLICABLE TO DA AND DFA ASSISTANCE TO ZAIRE

(FY 1993 Appropriations Act): Have measures been taken to prohibit transfer of DA or DFA funds to the Government of Zaire, recognizing however that this does not prohibit NGOs from working with appropriate ministries or departments of the Government of Zaire. N/A

G. CRITERIA APPLICABLE TO ESF ASSISTANCE TO KENYA

(FY 1993 Appropriations Act Sec 577): If ESF funds are made available for Kenya, has the President of the United States determined and certified to Congress that the Government of Kenya- N/A

(1) has released all political detainees and has ended the prosecution of individuals for the peaceful expression of their political beliefs;

(2) has ceased the physical abuse or mistreatment of prisoners;

(3) has restored judicial independence;

(4) has taken significant steps toward respecting human rights and fundamental freedoms, including the freedom of thought, conscience, belief, expression, and the freedom to advocate the establishment of political parties and organizations; and

(5) has set and published an elections schedule or timetable for the holding of multi-party elections.

H. CRITERIA APPLICABLE TO ASSISTANCE TO LIBERIA

Democratic and Electorial Assistance (P.L. 102-270, April 16, 1992): is assistance being provided to Liberia notwithstanding FAA Section 620(q) or any similar provision and solely for nonpartisan election and democracy building assistance to support democratic institutions in Liberia or for assistance for the resettlement of refugees, the demobilization and retraining of troops and the provision of other appropriate assistance to implement the Yamoussoukro peace accord. If so, has the President determined and certified to the Committee on Foreign Relations and the Committees on Appropriations of the Senate and the Common Foreign Affairs and the Committee on Appropriations of the House of Representatives - N/A

(1) that Liberia has made significant progress toward democratization,

(2) that the provision of such Assistance will assist Liberia in making further progress and

(3) that the assistance in the U.S. national interest?

ROLLING STOCK INFORMATION SYSTEM

1.0 TECHNICAL

1.1 BACKGROUND AND RATIONALE

The key to efficient railway operation is the proper scheduling of trains and maintaining high utilization of rolling stock. An important element in this process is up-to-date, reliable information on the location and condition of the railway's rolling stock. In the past, railways throughout the world relied on manual systems based on paper and teletype or phone communication. As train operations became more complex and traffic levels increased, however, modern railways began to shift to computer based systems with dedicated communication facilities. These Rolling Stock Information Systems (RSIS) are also used to schedule equipment maintenance and generate management statistics.

The need for an improved Rolling Stock Information Systems in the SADC area has been recognized since the early 1980s. Railway performance was hampered by long wagon turn-around times and the inability to determine the location of much of their equipment. Shippers, in particular, were unable to locate their cargo after it had been consigned to the railway and a great deal of traffic was shifting to road.

Several attempts were made to correct these problems. USAID, for example, helped finance the early development of the Advanced Cargo Information System (ACIS) by UNCTAD. This system, however, has proved to be unsatisfactory as a transportation management information system for a number of reasons. The system was initially designed from the shippers perspective, primarily to track cargo and only later was it modified to assist train operations. The lack of good regional communications for either intra or inter railway movements limited the reliability and use of ACIS across national borders. In addition, ACIS is a passive data collection system that is not directly integrated into transmitting transportation decisions to the wagon, locomotive and train. Although USAID is no longer financing ACIS development, the system is still being used in Malawi and Tanzania.

In 1991, USAID's STIPA[1] report reiterated the importance of an effective rolling stock information system for improving railway operations. The RSIS project was ranked 9th out of 48 projects that were evaluated. Following this report USAID sponsored A Technical Feasibility Study of a Rolling Stock Information and Management System for SADC Railways in late 1991.

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[1] SADCC Transportation Investment Priority Assessment (STIPA). This 1991 USAID report prioritized transportation project investments for the SADCC area.

General Managers of the SADC Railways also continue to have a keen interest in developing and implementing a RSIS system in order to improve customer service and reduce operating costs. Both regional railway associations, the SADC Railway Administrations and the Inter Railway Administrations, have endorsed the RSIS concept. In addition, several individual SADC railways are currently involved in the development or improvement of their own RSIS systems. See Annex III.E and III.I for a complete discussion of the world-wide RSIS experience and the lessons learned.

The key features of the RSIS system that are attracting so much interest are the ability of the system to promote "seamless" service to railways customers and make substantial improvements in the predictability of loaded transit times.

World experience shows that a number of operational benefits accrue from using a RSIS system, but the direct benefit of the RSIS that is used in this report to justify USAID's investment in the SADC region is the likely1142Ximproveinwagon utilization and the reduction in wagon hire payments to Spoornet. In total, the SADC Railways are currently making net wagon hire payments to Spoornet of between $2 and $3 million per month or about $32 million per year. Even a modest reduction in these charges would be enough to justify the RSIS investment.

National Railways of Zimbabwe (NRZ) has set an internal standard of two days for a wagon to remain in a marshalling yard. As illustrated in the following table, which summarizes an analysis of a random sample of 191 wagons, however, the average length of stay for a wagon in a NRZ yard appears to be substantially in excess of this standard.

AVERAGE NUMBER OF DAYS PER YARD IN NRZ (a)		
Load/Empty Status	**Destination**	**Average Days**
Loaded	Local	7.1
Loaded	South Africa	7.8
Loaded	Zambia	6.3
Loaded	Total	7.0
Empty	Local	8.8
Empty	Off Line (b)	5.6
Empty	Total	7.3
Total	Total	7.0

(a): Based on a sample of 191 wagons taken on December 31, 1992.
(b): 31 out of 32 empty wagons, which were destined off line in the sample data base, were destined to South Africa; the remaining empty wagon was destined to Zambia.

NRZ could save approximately $14,000 in wagon hire charges on the few wagons in this one yard alone, if the railway could manage to reach their two day goal. The savings over the entire NRZ system, as will be shown later, would be enormous.

The railways of North America have discovered that the implementation of an interactive, comprehensive RSIS is an important tool for achieving this improvement in the utilization of both wagons and locomotives.

1.2 FUNCTIONS OF A COMPREHENSIVE RSIS SYSTEM

The following criteria and guidelines were developed by examining RSIS systems and their operation throughout the world. These guidelines are used here to evaluate RSIS alternatives for the SADC region.

Interactive vs. passive data collection

Early RSIS systems produced few operating benefits because they were passive collectors of information. They produced operating statistics and wagon movement histories, supporting wagon hire accounting, and permitted location inquiries for individual wagons. Since they were not integrated into the railways operating system, it was not mandatory to correct or remove inaccurate information. In many cases, the railways began to revert to their old manual systems as the integrity of the new data base deteriorated. Interactive systems are directly involved in the day-to-day operation of the railway. The RSIS system issues work orders and makes up train schedules. This forces the railway staff to maintain the integrity of the data base and prevents a return to the old manual system.

Other factors in the maintenance of data base accuracy to support detailed transportation decision making, are the use of extensive logical edits before the data base is updated, a reduction in the requirement to input wagon initials and number to an absolute minimum, and the updating of the data base as a byproduct of communicating transportation decisions from the supervisor to the shunting engine and train crews.

In addition to capturing all the movement and change of status information on wagons, intermodal containers, locomotives and trains, the RSIS system should be capable of supporting those key functions which, based on the experience of other freight oriented railways, produce most of the tangible operating benefits. These key functions include:

- Monitoring train performance based on stored train schedules for each regularly operated train;

- The ability to develop, execute and monitor dock-to-dock schedules for each wagon so as to offer highly predictable transit times to the shipper, even if the transit involves more than one railway;

- Empty wagon distribution based on stored wagon distributor instructions which are applied as soon as the empty wagon is received in interchange or is reported released by the consignee so as to reduce substantially the requirement to place empty wagons on hold tracks and, thus, to make significant improvements to wagon turn around times;

- On line control of yard classification activities by yard management through the monitoring of the exact location and status of all wagons in the yard and the issuance of shunting instructions to shunting engine crews via the RSIS system so as to reduce the amount of time individual wagons are in yards;

- Dynamic adjustment by system transportation management of classification work to be done by each marshalling yard and train blocking plans so as to reduce the number of times individual wagons are "yarded", i.e., handled by a marshalling yard;

- Monitoring locomotive preventative maintenance schedules and lube oil test results so as to permit, for example, the assignment of a single through locomotive safely to long distance unit trains that crosses into the neighboring railway; and

- The ability for centrally located transportation management to assign all individual road haul locomotives to all through trains so as to better control horsepower per ton for each train, improve locomotive power balancing across the railway, and, as a result, significantly improve locomotive utilization.

1.3 EVALUATION OF RSIS ALTERNATIVES

The evaluation process considered two additional elements in addition to the RSIS functions mentioned above:

(i) The minimization of implementation risks thorough effective training of the users of the RSIS system. For example, there should be the opportunity for implementation trainers and other key transportation and computer operator personnel not only to receive classroom training on the operation and use of the system, but more importantly, to receive "hands-on" training on another railway where the RSIS system is currently installed.

(ii) The complexity and cost of the RSIS system should be in proportion to (a) the ability of the employees in the field to make reports to and receive instructions and other feedback from the system, (b) the ability of transportation management to exploit the capabilities of the system, and (c) the projected up front project costs and the on-going operating costs should compare favorably with the potential tangible benefits of the system.[2]

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[2] Most railways which have installed comprehensive RSIS systems have found that the long term benefits from these systems have far exceeded the projected tangible benefits on which these systems were originally justified. Annex 9 summarizes the experience of British Rail and Canadian National, both of whom have made a post audit analysis of the long term impact of their RSIS systems.

1.4 COMMUNICATIONS

Each of the three comprehensive RSIS systems evaluated is heavily dependent for their operation upon the availability of high grade communications such as microwave or satellite systems. Intra-yard and minor inter-yard connections, however, can use copper, open wire communications systems. Lack of good communications, for example, is one of the reasons often cited for the weak performance of the ACIS system. The unavailability of communications also influenced the recommendations of the 1991 RSIS study for USAID.

For these reasons, the availability of high grade communications has been given particular attention. Since it is anticipated that the proposed RSIS system will be implemented first along the Botswana-Zimbabwe-Zambia corridor (see section 4.6), special attention was paid to communication in these three countries.

ZAMBIA. Zambia currently has adequate microwave communications in place for the RSIS system. There is a railway based/dedicated system in Kabwe that has been installed within the last two to three years. This system is currently being used for the Zambia railways Central Traffic Control system. Only 24 of the 30 available channels are currently being used.[3]

The Zambian PTC is also in the process of increasing its international satellite communication capability. The digital switch will increase from 150 channels to 2,700 channels. Funding has been secured for this project and a contract has been signed. The new channels will be available by the end of 1993. PTC has also indicated that it is willing to provide a dedicated two megabyte width channel connected to any location in the world for $18,000 per year.

A relatively minor additional investment will be sufficient to establish connections between PTC lines and the railway.

ZIMBABWE. The current internal NRZ communication system depends on copper open wire except for two links. There is one microwave link between Dabuka and Harare, and another fiber optics link between Harare and Mutare.

The Zimbabwe PTC has indicated, however, that there is adequate high quality trunk capacity capable of data transmission in the public network to reach major railway reporting locations such as Beitbridge, Plumtree, Bulawayo, Victoria Falls. NRZ can rent these dedicated lines (mostly microwave) for $Z8.50 per km per month. If, and when, the railroad develops its own communications system these costs are likely to fall.

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[3] Information provided by both PTC and the Zambia Railway chief engineer.

The adequacy of the current Zimbabwian PTC system has already been demonstrated by Spoornet. They are connected with their Sprint system in Johannesburg from Bulawayo on a leased PTC line. Spoornet is also in the process of setting up Sprint terminals in Gabarone and Maputo.

BOTSWANA. The Botswana Railway is currently using copper open wire for communications. They have, however, completed plans to install a fiber optics system along the railway right-of-way. Although financing for the project has not been finalized, the project is expected to be operational by 1995.

Botswana railway believes that, at the present time, there is adequate trunk capacity in the PTC microwave system which parallels the railway right-of-way. The costs of leasing the PTC system have not been fully established, but it is anticipated that the charges will be similar to those that were quoted by the Zimbabwe PTC.

SOUTH AFRICA. Within South Africa, including Johannesburg and interchange stations to the north, communication is excellent.

SUMMARY. Many observers, especially those who are dependent on the public phone system in the region, are quite skeptical that the quality and quantity of communication needed for a comprehensive RSIS system is really available in this region. If it takes ten or twenty tries to make a phone call within the city of Harare, how could it be possible, using the current PTC system to send hundreds of data messages per day between Botswana, Zimbabwe and Zambia? The answer lies in the differences between the phone system and RSIS communication network.

The phone system handles many messages for different locations by routing them though switches. As the lines become busy, the switches reroute the messages or queue them. When the switches become overloaded it becomes impossible to get through or connection is made to a wrong number.

The RSIS will use dedicated lines that require little or no switching. These lines exist and are of sufficient quality to handle data. Therefore the RSIS should not encounter the poor level and quality of service that phone customers encounter.

Sufficient adequate high quality communication capacity appears to be available -- at least for the three countries that are the most likely candidates for the first phase of the RSIS project -- for a comprehensive RSIS system either through the use of the railways communication system supplemented, or where necessary, through national PTC systems. Long-term rental costs for leased communication lines will likely fall as new railway communication capacity, already in the planning stage, comes on line.

It was not possible to obtain firm information on the adequacy of quality communication capacity in all the other countries of the SADC region. It is understood, however, that several regional telecommunication projects are already under consideration. Even if current communication capacity is limited in some parts of the region, there may be sufficient communication capacity in these countries by the end of Phase I (approximately three years) to implement the RSIS system.[4]

One of the first tasks of the RSIS project team will be to make a detailed technical survey of both public and railway telecommunication capabilities. This will include checking for failure rates and the suitability and adequacy of the system to handle telecommunication requirements.

[4] The entity that will install the RSIS should have the capacity to account for RSIS communication needs.

2.0 ECONOMIC ANALYSIS

2.1 COST-BENEFIT ANALYSIS

Exhibit 4.3 shows the cost-benefit analysis for the three alternatives. The following assumptions are used in this analysis:

- USAID provides all funds necessary to implement the RSIS for the five year project. Recurring costs are paid by the individual railways after the project is operational (beginning in year three for the phase one railways).

- New terminal equipment is purchased every five years under the RAILCAR and UPT scenarios. Terminal equipments is leased through out from DATAVIA under the Sprint scenario. (This assumption is necessary to make alternative comparisons possible.)

- The basis for calculating the quantifiable gross cost saving potential is the net wagon hire payments made to Spoornet during the last twelve months. For Botswana Rail, NRZ, Swaziland, and Zambia Rail this is $31,000,000. For CFM and Tazara it is $1,000,000. The discount factor for calculating net present value is 12 percent.

In Exhibit 4.3, the net present value (NPV) of the project, recurring costs, and gross potential savings of the three alternatives are shown. The NPV allows costs and benefits that occur during different periods to be compared. Note that gross potential savings are the maximum possible savings if all wagon hire charges were eliminated. This is probably an unrealistic assumption, thus the net present value of the USAID investment assuming various percentage reductions in wagon hire charges is calculated (see Exhibit 4.4). Even with the extremely conservative assumption of only a 10 percent reduction in wagon hire due to the project, the USAID investment is justified. The much more likely 50 percent reduction in wagon hire charges indicates the tremendous potential advantage that efficiency improvement projects have over most infrastructure projects when considering rates of return.

See Annex III.J for a detailed analysis of the costs and systems evaluated.

The benefit/cost ratio is greater than one for all three RSIS alternatives even at a ten percent reduction in wagon hire charges; the B/C ratio is 2.9, 2.8, and 4.9 respectively. A B/C measure greater than one indicates that the project benefits are larger than the project costs. At a 50 percent reduction in wagon hire charges, the B/C ratio becomes 14.5, 13.9, and 24.3.

Exhibit 4.3. Ten Year Financial Returns

	RAILCAR	UPT	SPRINT
USAID Investment	$8,872,000	$9,836,000	$3,762,000
NPV of USAID Investment	$6,781,000	$7,190,000	$2,787,000
NPV of Railway recurring Investment	$961,000	$887,000	$1,839,000
Gross Potential Savings before recurring costs	$225,200,000	$225,200,000	$225,200,000
NPV, Gross Potential Savings	$105,494,000	$105,494,000	$105,494,000

Exhibit 4.4. Net Present Value of USAID Investment

Percent Reduction in Wagon Hire	RAILCAR	UPT	SPRINT
10%	141%	134%	313%
20%	297%	281%	691%
30%	453%	428%	1070%
40%	608%	575%	1448%
50%	764%	721%	1827%

Both benefit measures indicate that the project is justified. The exhibit with different percentage reductions in wagon hire rates also demonstrates project justification is not dependent on achieving the maximum rate of reduction in wagon hire charges. Similarly, given the different level of project costs in the three alternatives, the RSIS is justified over a very wide range of costs.

Other Benefits:

It is very important to note that although the RSIS project is being justified on the basis of reduced wagon hire payments and wagon investment requirements through the reduction of wagon turn around times there are many other important benefits that will be derived from the implementation of a RSIS system in the SADC region.

The improvement in wagon turn around times, reliability and service made possible through the RSIS should increase rail freight and make the railway more competitive with road. For the first time, the SADC railways will have the potential of offering predictable dock-to-dock transit times to shippers.

Diesel locomotive utilization rates will increase and there may be a reduction in the need for additional locomotive investment because of the increased monitoring of preventative maintenance schedules and lube oil testing and the ability to monitor and control the movement of locomotives and trains over longer distances.

The experience of railways such as British Rail (BR), Burlington Northern (BN), Canadian National (CN), Southern Pacific (SP), Union Pacific (UP) and others who have installed comprehensive Rolling Stock Information Systems and associated telecommunication networks illustrate that these systems have had a major impact not only on management structure and labor productivity but also on the basic financial viability of these railways. These railways originally justified their RSIS and telecommunications investment by projecting a modest increase in wagon turn around time and equating the savings in wagon investment with the cost of the systems. Today, however, railway managements have found that the primary benefit of RSIS has been in the provision of a critical link in the process of making fundamental changes in the policies and structure of their railway, rather than simply improving turn around times.

The managements of both British Rail and Canadian National, for example, found that the operating improvements that were made possible as a result of implementing a comprehensive RSIS far exceeded original expectations. They also found that benefits continue to accrue many years after the original implementation as system refinements and enhancements are made and as operating management becomes more skilled in exploiting the capabilities of the system. The realization of benefits on Railways of Southern Africa will also most likely be greater than originally projected but will take many years to realize fully. However, Southern African railways have the advantage of studying how BR, CN and the other railways who have installed a comprehensive RSIS have organized themselves to better exploit the full potential of these systems. Thus, the management of SADC railways may be able to expedite the learning process on their Railways (See Annex 6 for a more detailed description).

Potential Risks:

The potential benefits from installing a RSIS system are very large. It is important to remember, however, that while the RSIS system will provide on line information, the realization of these benefits will require substantial changes in railway operations. Without these changes there will be little or no benefits from the RSIS system. The implementation of the RSIS is designed to promote these changes at the yard level by issuing work orders through the computer. Unless, however, the railway management begins to adopt a commercial orientation, the long run benefits may be dissipated.

Exhibit 4.5 shows freight traffic for the SADC railways over the last three years. Because of the drought, 1992 was an unusual year and Zambia statistics were not yet available. In the 1990-1991 period, however, nearly all SADC railways lost traffic on both a tonnage and a ton kilometer basis[1]. This is a trend that has been going on for some time in the region. Unless this trend is quickly reversed, several of the railways will cease to exist before a RSIS system becomes fully operational.

Fortunately there is some indication that railway management attitudes in the region are changing. For example, NRZ and Zambia Railway are undergoing or about to undergo restructuring; CFM restructuring is under consideration and discussions have begun between the World Bank and Malawi railway. In addition, this project includes assistance toward railway management.

Sustainability of RSIS:

The issue of the sustainability of the RSIS system after the five year project life can be separated into several sub-issues including: the technical and operational capability of the regional railways to maintain and use the RSIS system, and the ability and willingness of regional railway systems to manage and finance the continuation of the RSIS system.

The discussion of post project sustainability has several implicit assumptions. First, that the RSIS becomes fully implemented during the project period. This means that the basic methods of railway operations are revised to meet the interactive nature of a comprehensive RSIS system. If this occurs, it will be difficult for the railway to revert to the current paper system now in use in much of the region. Second, it assumes that sufficient regional personnel have been trained during the project life to adequately manage the RSIS system and continue training future RSIS personnel after the project is turned over to the railway.

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[1] The 1990-1991 period was selected for comparison rather than 1991-1992 because the drought and emergency food relief shipments might distort normal changes in railway traffic.

3.0 INSTITUTIONAL ANALYSIS

Technical and Operational Capability of Regional Railways

Hardware: Under all options being considered, most of the RSIS hardware is quite standard and readily available, in most cases in the region. Similarly, service capability is, in most cases, also available within the region. The availability of parts and service should increase during the course of the project.

The single exception to this may be the maintenance and servicing of a mainframe computer; this is unavailable at this time in the SADC region.

Software: All RSIS systems will require some software modification over time. This is be easily and cheaply provided under the Sprint alternative, since Spoornet will be updating the system for their own railway. Current indications are that the modifications would be provided at the incremental costs of updating the SATCC railways system. The RailCar Management system would also provide this service, perhaps at a higher cost. The region may find the provision of software modification to be a bit more difficult and expensive under any regional mainframe solution.

Personnel: Retention of key operating personnel is perhaps the major sustainability risk. This risk can be lessened, however, if the railways modify their salary and compensation practices to pay competitive wage rates. This would reduce the turnover rate of trained personnel. Continuous training is also needed to ensure that a sufficient pool of skilled personnel is available. Both of these changes will occur as railways begin to operate on a commercial basis.

Management Commitment: Management must perceive the benefits of the RSIS system to their railway before the end of the project life. This means that railway operational changes necessary to realize the RSIS system benefits must be implemented. Unless management is committed to the new system, it is likely to revert over time to old operating practices.

Ability and Willingness of Regional Railways to Manage and Finance the Regional RSIS System

The RSIS will ultimately be financed directly by the SADC railways. The central regional computer and its clearing functions will have to be jointly managed. This will be a new and difficult responsibility for the railways. They will have to agree on recourse if one railway does not pay its bill.

As soon as the SADC Railways Administrations approve the RSIS, they must establish a working group to prepare for implementation.

Project Recommendation

While all three RSIS alternatives are technically and economically feasible, the Sprint alternative is has preference for several very important reasons.

- The Sprint system is operating within the Southern Africa region and is already being used by one SADC country, Namibia (it is also tracking Swaziland transit traffic, although the system is not fully operational in that country). Basic railway operations, nomenclature, and employee skill levels are quite similar to those of South Africa. The Sprint system, therefore, will require less software modification, to provide full functionality, and the training and implementation components should be faster and contain less risk. This is an extremely important consideration when considering implementing a project as complex and time consuming as an RSIS system.

- The other rolling stock alternatives would require additional time to become familiar with the Southern African region and to adapt their training material to local conditions. The general level of computer awareness and literacy rate in Southern Africa, for example, is simply much higher in the United States.

- The Sprint system also has a clear geographical advantage. It will be much easier and faster to provide training and support services. High levels of technical assistance can be made available at short notice. Cost and travel time considerations make this process more difficult for the other alternatives.

- Spoornet has a substantial personal stake in successful implementation and operation of the Sprint system in the SADC region. There is a significant interchange of rail traffic between South Africa and the SADC countries. Improved rail service would benefit both South Africa and SADC railways. It would enhance their ability to compete with motor carriers.

- The Sprint alternative is significantly less expensive. In recognition of the significant benefits from a single regional RSIS system, Spoornet will provide the Sprint software without cost and is willing to provide other services at very favorable rates.

In summary, the implementation risks are much less under the Sprint alternative, sustainability is more likely, and project costs are reduced.

2.0 ECONOMIC ANALYSIS

2.1 POLICY REFORM PROGRAM EVALUATION

The USAID project of policy support to the SATCC technical unit is designed to promote increased efficiency in the transport sector by encouraging better coordination and planning, faster project implementation, and improved SATCC transportation initiatives. The USAID project will support SATCC initiatives such as integration of regional transportation, railway restructuring, transportation information development, promotion of the private sector, and the improvement of transportation costing. The project will provide technical assistance and computer support, training activities, and funds for workshops and seminars. For the purposes of financial benefit analysis only, we are utilizing a five year project cost of between $5 to $7 million (a generous estimate).

While it is clear that enormous economic benefits will occur if the initiatives supported by the project, such as railway restructuring, improved train operations, cross border interchange rules, etc. are successful, it is much less clear how to distribute the dollar benefits that occur among policy development, project preparation and project implementation. The USAID project support to the SATCC policy unit will involve policy initiatives, training, consensus building and the development of workshops. Final adoption and implementation of any of the policies promoted by SATCC will not be carried out simply by SATCC, but rather by individual governments, institutions, and transport companies. Considerable additional expenses for labor redundancy payments, privatization programs and other activities may also be incurred at that stage in project implementation.

For the purpose of this benefit evaluation, it is assumed that successful implementation of the USAID policy support project will reduce the necessary time for implementing the reform process. For instance, railway restructuring and subsidies reduction will occur at a point in time earlier than without this project. This will occur because the policy unit will collect information and prepare analyses in support of the policy reform. It will help to develop and build a consensus for change at the national and modal level. SATCC's training and workshops will provide education and tools to implement policy reforms.

To the extent that this occurs and the necessary time for policy reform is reduced, the benefits that accrue during this period can be considered project benefits. Since the cost of railway restructuring to the railways themselves remains the same, those costs do not enter into the benefit analysis for the USAID/SATCC project, although without the project there might be more disorganization and the costs of railway restructuring would be higher.

The processes of policy reform can be long. De-regulation of the trucking industry in the U.S. took at least 15 years. Rail privatization reforms in the U.K. have already taken eight

years, SADC reforms in road user charging have already taken seven years without implementation. There is a great need to learn from the experiences of other countries of the region and the world. SATCC, with USAID's help will be in the position to perform this role. Transportation reforms should proceed on a faster basis.

Illustrative Benefits of Railway Restructuring:

The SADC railways are currently incurring operating losses of approximately $265 million annually. On several railways, restructuring programs are beginning to reduce and eliminate these losses. These initiatives include legislative and regulatory reforms to encourage railways to operate as commercial enterprises, privatization programs to encourage the spin off of certain activities to the private sector, and labor redundancy programs to rationalize the labor force.

The USAID/SATCC policy support program will provide substantial support for all these initiatives. It will identify and evaluate legislative and regulatory constraints to commercially viable operations of the railways, it will hold workshops on privatization, and it will disseminate examples of successful experiences from railways throughout the region and the world. It will provide training and it will also help build a consensus for reform from governments, railways and shippers.

If the railways are able to reduce their operating losses by half as a result of restructuring activity -- a conservative estimate -- their governments will save $125 million annually. If the activities of the SATCC policy unit in support of this activity result in these savings occurring even one year earlier, then $125 million in benefits can be attributed to the USAID/SATCC project.

Exhibit A2.1 provides an illustrative example. It assumes project costs of seven million dollars spread out evenly over a five year period. The first benefits of the SATCC policy unit efforts occur in year three. SATCC support of railway restructuring results in earlier implementation of SADC railway programs. This benefit is spread over five years because restructuring activities are occurring at different times on different railways.

Based on this analysis, if support of SADC railway restructuring activities was the only activity the USAID/SATCC policy project unit undertook during its entire five year life it would have a Net Present Value of 66.44 assuming a 12 percent interest rate. The Benefit Cost ratio would be 13.29.

Exhibit A2.1. Illustrative Project Benefits
($ Millions)

Year	Project Costs	Reduced Railway Subsidies	Net Benefit
1	-1.5		-1.5
2	-1.5		-1.5
3	-1.5	25	23.5
4	-1.5	25	23.5
5	-1.5	25	23.5
6		25	23.5
7		25	23.5

MPV = 66.44 at 12 percent
B/C = 13.29

The SATCC policy unit will, of course, be involved in a number of other policies, such as regional integration of the SADC railways and facilitating cross border interchange agreements. These too will provide substantial economic benefits. The USAID Train Operations Improvement Study calculated that SADC railways could save $1.689 million in fuel alone from the reduction in locomotive idling if the recommended train operation improvements, mainly involving border crossing delays, were implemented[1]. A portion of these benefits should be attributed to this project if it results in accelerating the agreement process among SADC members.

[1] Final Report of Train Operations Improvement Study, page 4-2, December 16, 1992.

Competitive Transport Environment

A major USAID goal is to encourage the development of a competitive transport environment where the market forces determine the supply and demand of transportation services on the basis of efficiency, cost and service. This would produce enormous benefits compared with the current SADC environment of government or parastatal ownership. Although the monetary benefits cannot be quantified, it is clear that the following initiatives provide ample justification for the proposed USAID project.

Information is a necessary ingredient for a competitive market. Transportation firms need to know the cost of providing service in order to successfully market their product. Shippers need to know transport costs in order to select routes and carriers. USAID assistance with transportation costing and the SATCC transportation unit will increase the amount and quality of information.

Increasing the involvement of the private sector will also create a better competitive environment for transportation and thus increase service and lower costs.

A SATCC legislative and regulatory review will help identify institutional constraints that inhibit efficient transportation and raise costs. Regulations that restrict motor carriers from competing with railways, for example, have proven to increase transit times and costs, yet provided little benefits for the railways they were designed to protect.

Finally, the USAID project will encourage the development of trained regional transportation professionals in both SATCC and the national governments. This will increase the transportation policy making capacity within the region and should promote project sustainability.

3.0 INSTITUTIONAL ANALYSIS

3.1 Overview of SATCC

The importance of transport and communications in the fostering of cooperation and economic integration within and between countries is well recognized. Transport and communications facilitate the realization of fundamental activities in economic development and cooperation.

The Southern Africa Transport and Communications Commission (SATCC) was established in July 1981 as the first Commission of the Southern Africa Development Coordination Conference (SADCC)[1] in explicit recognition that transportation and communications projects were integrally linked to the achievement of SADCC's four broad objectives:

- Reduction of external dependence of SADCC member states, especially but not solely on the Republic of South Africa.
- Creation of operational and equitable regional integration.
- Mobilization of domestic and regional resources to carry out national, regional and international policies to reduce dependence and build genuine regional coordination.
- Joint action to secure international understanding of and practical support for the SADCC strategy.

The Convention to establish SATCC expressed the mandate and responsibilities of the Commission as follows:

- Provide coordination in overcoming transport and communications problems in the region.
- Provide economic and efficient means of transport and communications in the region.
- Achieve self-sufficiency in technical manpower, training and development.
- Encourage the efficient utilization of available resources for the improvement of transport and communications in the region.

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[1] SADCC, established in 1980, is currently known as the SADC: the Southern African Development Community.

Mozambique was nominated as the coordinating country for transport and communications[2] and is host to the Commission's Technical Unit.

The supreme body of the SATCC is the Committee of Ministers comprising one member from each SATCC State. The members are usually the respective Ministers responsible for transport and communications. The Committee of Ministers is advised by the Coordinating Committee. This is usually made up of the Permanent Secretaries or senior government officials from the same ministries. The Committee of Ministers typically considers only issues which have been scrutinized by the Coordinating Committee. As sector coordinator, Mozambique chairs both the Coordinating Committee and the Committee of Ministers.

Superimposed above the SATCC organization is the main body of SADCC. The upward reporting relationships move through four levels, each increasingly non-sector specific: (i) sector coordinators; (ii) the Standing Committee of Ministers; (iii) the Council of Ministers; and, (iv) the Heads of States Summit.

Within SATCC, the Technical Unit is the executive arm of the Commission and reports to the Coordinating Committee. The Technical Unit is the only permanent organizational entity in the SATCC framework. It is staffed by a Director, and about 12 professionals who have expertise in specific transport and communications sectors, the planning function, administration and finance, and information-related services.

In addition, a number of "working groups" have been established within the SATCC structure, although they were not specifically called for in the SATCC convention. These working groups are defined on a sectoral or sub-sectoral basis. They are meant to meet once or twice a year to consider technical and operational matters of regional importance. At present, the SATCC holds regular working group meetings of its member railways, ports, airlines and departments of civil aviation, departments charged with road infrastructure and road transport, telecommunications administrations, postal services, and meteorology departments.

The working groups are made up of chief executives or heads of institutions responsible for the respective subsectors in each member state. When they are unable to attend meetings in person, the chief executives or heads are represented by their deputies or relevant senior officials. As a general rule, the Coordinating Committee considers issues only after they have been discussed at the working group level.

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[2] Under the overall organizational structure of the SADCC, a different country acts as "host" to SADCC's various sectoral and functional Commissions.

The working groups, in turn, often seek the advice of technical subcommittees or subgroups. Some of these subcommittees are permanently constituted such as the Technical, Commercial and Training subgroups of the Railways Working Group, or the Airlines Schedules subcommittee. However, many working groups have created *ad hoc* subcommittees to deal with specific issues such as establishment of telecommunications tariffs, road transport training plan, and drafting terms of reference for the proposed Regional Air Transport Council. These subcommittees are disbanded when the task is completed.

3.1.2 The Performance and Effectiveness of SATCC

SATCC was not only the first Commission established by SADCC, but is one of only three SADCC entities that has been funded by SADCC as a group. SATCC's performance and effectiveness, since its inception, with regard to its primary functions and activities has been mixed. SATCC has played an important and effective role in providing secretariat services and mobilizing donor resources to fund capital investment projects. It has met with only modest success in assisting with operational coordination. The Unit has had limited success in developing human resources, performing information-related functions, and in promoting enhanced policy formulation and coordination.

Secretariat Services: The Technical Unit provides secretariat services to the various entities of SATCC, including the working groups, Coordinating Committee and the Committee of Ministers. The Unit administers meetings and keeps records of deliberations. It also provides the analytical base and technical input to ensure that members have the most recent information to discuss agenda items in detail. This input is provided either by in-house experts, or with the help of consultants provided through donor support or the SATCC budget.

Overall, SATCC has been very effective in performing its Secretariat role at the general level. Meetings are well planned and organized. Minutes of meetings are accurately recorded in detail, and are produced and disseminated in a timely fashion.

With respect to Working Groups and subcommittees, SATCC has often played an even more comprehensive secretariat role, including the identification of key issues, drafting of meeting agendas, drafting of Terms of Reference for analytic studies, and acting as the primary selector of and interface with consulting teams. This was an appropriate and necessary role for SATCC during the 1980s. However, unfortunately, this may have served to decrease the degree of ownership felt by some of the Working Groups of the analytic output of the Group. There has been a heavy reliance on non-working group members to perform analytic work, especially expatriate consultants and to a lesser extent core SATCC staff. This also has served to diminish the Group's ownership of analytic products, and undermined its effectiveness in arguing for operational and policy reforms when presented to the Coordinating Committee for approval.

The frequency and regularity with which different Working Groups meet varies considerably. For example, the Railways Administrations Group and related subcommittees meet regularly. The Working Group has consistently met one to two times a year over the last several years, and its subcommittees meet even more frequently. In contrast, the Ports and Shipping Group is reported to have met only a handful of times since SATCC was created.

The information provided by the SATCC/TU (Technical Unit) in support of meetings is substantial, but is often incomplete and/or out of date. This has occurred primarily due to three factors:

- Member countries and transportation entities have been less than fully cooperative in responding to SATCC/TU requests for base information. This is partly because they have limited staff resources to respond, and partly because they feel that SATCC is a "one way street", that is, SATCC asks for considerable information but provides very little useful information in return.

- The members of the Working Groups and subcommittees have a low level of ownership in SATCC-related analytic work, as discussed above. Thus, they have limited incentive to expend significant effort to provide the SATCC/TU with information.

- The SATCC/TU has experienced difficulties organizing its information function. This is discussed in further detail below.

Investment Projects: SATCC/TU's role and activities in connection with investment projects include: (i) project identification and description; (ii) preparation of Terms of Reference; (iii) meetings with financiers and consultants; (iv) review of studies; (v) monitoring and updating of projects; and, (vi) reporting to SATCC/SADCC entities.

Much effort was placed on these types of activities during SATCC's first ten years of existence. SATCC has met with considerable success in mobilizing and managing resources for investment projects, particularly those of a capital or infrastructure nature. While the balance has shifted recently in favor of monitoring project progress and adjusting existing plans, as opposed to identifying new projects, investment projects still constitute one of SATCC's main areas of success.

By mid 1992, the SADCC transport and communications program of approved projects had grown to over $6.6 billion, representing about 78 percent of the entire SADCC program[3].

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[3] SATCC Quarterly Bulletin, Issue Number 2, April-June, 1993.

Out of this requirement, the financing for $3.1 billion had been secured and about $450 million was under negotiation. This represented 83 percent and 94 percent, respectively, of all funds secured and under negotiation for the entire SADCC program.

The shortfall of about $3.5 billion between projects approved and those for which finance has been secured or is being negotiated can be explained by a number of factors, including the following[4]: (i) the approved investment program contains some large projects which have not been attracting donor support, in some cases because they are considered of low priority, and in other cases because they are not regional in nature; (ii) the poor security situation which prevailed in Mozambique and Angola; (iii) substantial inflationary cost increases; and (iv) new projects being added to the original list of investment projects, such as projects for Namibia (which was not an original member of SATCC) and for new projects in the fields of postal services and meteorology (which were added later to the SATCC portfolio of sectors).

The continued emphasis and success of SATCC with respect to capital investment projects will largely be related to changes in external circumstances rather than the manner in which SATCC conducts and manages the relevant activities internally. Major factors limiting the continued success or appropriateness of SATCC in mobilizing resources for such projects include: (i) increased resistance of donors to provide substantial financial resources, due to the declining health of their home economies and the increased emphasis on providing donor resources to other regions such as Eastern Europe and the former Soviet Union; and (ii) the changing mandate and mission of SATCC, which includes a much greater emphasis on policy advocacy and promotion and on "software" projects aimed at improving the efficiency and effectiveness with which existing transportation capacity is used.

Operational Coordination: Operational coordination to "promote rational and integrated utilization of the various systems existing in the region"[5] has increasingly become a focal point of SATCC's activities. In 1981 SATCC spent almost no time on operational coordination, placing greater emphasis on investment projects. Nordic financed resident staff of the Unit estimated that in 1984 the TU used no more than 25 percent of the time available on operational coordination. However, by 1991, the time spent on operational coordination was estimated to have increased to 50 to 75 percent[6]. The Working Groups and subcommittees are the main institutional forum in which operational coordination issues are identified and analyzed.

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[4] "SATCC Technical Unit: Options for the Future", Final Report, SIDA, April 1992.

[5] Preamble to the Convention establishing SATCC.

[6] "SATCC Technical Unit: Options for the Future", Final Report, SIDA, April 1992.

While considerable effort has been spent on operational coordination, only small gains have been made in the actual implementation of proposed operational improvements. This less than ideal implementation performance emanates from a number of sources, including but not limited to the following:

- **Inconsistent Group membership.** Some Groups and subcommittees meet quite irregularly or sporadically. In addition, the individuals attending the meetings often varied considerably and there was high turnover over the years. This diminished the pace at which individuals were able to absorb information, retarded the process of deriving consensus on key issues and recommendations, and limited the ability to argue effectively in front of the Coordinating Committee.

- **Low levels of ownership in Group recommendations.** Ownership in the work and recommendations of the Groups and subcommittees, as stated above, was low due to a heavy dependence on the SATCC/TU and consultants for organizing and carrying out the Group's activities[7]. In addition, the analytical work done by outside consultants often resulted in recommendations that were either inappropriate for the region and/or were based on poor baseline data.

- **Weak linkage with national level decision-makers.** The linkage between the Groups/subcommittees and national level policy makers and those charged with operational reform was weak. Effective institutional linkages were not put in place. Limited effort was made to create a participatory process in which national level entities were involved at key junctures in the analytical process. The issues addressed were often of regional importance but of limited immediate appeal or priority to national-level decision makers. The lack of sound, well-argued recommendations also decreased the extent to which they were adopted and implemented at the national level.

Information-Related Functions: The SATCC Convention has several references to collating, analyzing and disseminating information. Thus, one of the functions to be performed by the Technical Unit was to "gather information on the actual transport and communications systems, including bi-lateral and transit traffic and compile and evaluate such information". The Coordinating Committee shall "disseminate information to Member States". In addition, many of the other functions performed by SATCC require current access to reliable and up-to-date information on a number of different topics.

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[7] Actual performance in this regards varies across the different working groups and subcommittees. However, few can claim to have had stellar performance.

Initially, SATCC focused on providing information on the investment projects presented to the international community for funding. Later, data on intra-regional traffic flows on a broad basis was collected in order to produce traffic forecasts, to carry out strategic regional transport planning, and to monitor actual development of traffic flows. However, it was not until the mid-to-late 1980s that a more systematic approach to data collection, storage, and retrieval was advanced.

In the late 1980s, an Information Center was established as an entity of the Technical Unit in recognition of the proposition that information "could rapidly become the single most important service which SATCC provides".[8] However, the information center has not developed quite as envisaged due to a number of factors, including: (i) the types of information to be handled by the Center remained undefined for a long time; (ii) efforts to maintain links to liaison officers in the Member States have failed; (iii) inadequate staffing of the Information Center; and (iv) the lack of visible and useful outputs from the Center.

Recent efforts have been made to address some of these issues. A workshop on SATCC's information functions was held in November 1991 and provides a fairly comprehensive listing of data types and sources with which SATCC should deal[9]. However, while the data needs are now better defined, only modest advance has been made in effectively collecting, collating and analyzing the information. In addition, full staffing according to the newly approved (1993) reorganization and staffing plan for the Information Center has yet to be achieved.

Creating and maintaining effective links with member states with regard to information flows required further development. The perception still exists that data, if it flows, is only in one direction, that is, into SATCC but not back to member states and/or transport enterprises. The related weakness of a lack of visible and useful outputs from the Center also needs to be addressed. The recent initiation of publishing a SATCC newsletter is an advance.

In summary, SATCC should be able to adequately perform the information-related functions, narrowly defined, in support of its traditional functions, assuming that established staff positions are filled as planned, requisite resources are forthcoming, and the linkage to the national level can be established in an effective manner. This is not a trivial undertaking. However, in addition, the current challenge is to build the information capacity of the organization which is in support of its new mandate and mission, namely policy advocacy and promotion.

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[8] From a study on the SATCC Organization done by Anderson and Mulaisho in 1988.

[9] "SATCC Information Workshop", Proceedings Report, January 1992.

Human Resource Development: The development of the SADCC region's own human resources is strongly supported in both the Lusaka Declaration and the Convention on SATCC.[10] The Convention includes the objective "to achieve self sufficiency in technical manpower, training and development". According to a subsequent agreement, the SADCC Regional Training Council (RTC) is responsible for general training (such as language courses), handles scholarships, and provides general assistance on matters pertaining to manpower, human resources development and training. SATCC handles all sector-specific training.

Initially, training was not given much consideration by SATCC. However, from just one project defined in 1980, the number of training projects is now over 20. In addition, some of the working groups have established special sub-groups on training. SATCC's Technical Unit has a Training Expert, who primarily has worked on training within the railway subsector, but does participate in all training activities within SATCC as time permits.

The first training projects defined by SATCC aimed at an analysis of the need for training within the different sub-sectors and identification of available courses and facilities. Emphasis has now shifted to organization and delivery of training courses themselves, including training of trainers. As of early 1992, assessments of training needs were completed or on-going for all the major subsectors, and actual training activities were underway for railways, road transport, civil aviation and postal services.

In addition, SATCC has been involved in informal training through: (i) workshops and seminars; and (ii) transfer of know-how within SATCC's TU through on-the-job training.

SATCC's performance with regard to training seems to have been minimal during the 1980s, despite the fact that human resources development has been a primary objective of SATCC since its creation. The level of activity has accelerated in the 1990s, albeit from a low base. Further reforms in this area are needed. In fact, the Canadian International Development Agency (CIDA) is now embarking on a new program to assist SATCC in human resource development. The CIDA program will provide regional training to the transport sector. While the major emphasis will be on the rail sector, it will also include road and aviation. The project will include a project manager in Maputo. It will use the SATCC Technical Unit as a focal point for training activities.

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[10] The Lusaka Declaration resulted in a Memorandum of Understanding that "created" SADCC, and led subsequently to the Convention that established SATCC in 1981.

Policy Formulation and Coordination: SATCC's activities to date with regard to policy formulation and coordination have largely focused on the first development objective stated in the Lusaka Declaration, namely "the reduction of economic dependence, particularly, but not only, on the Republic of South Africa".

This objective was largely, but not completely, achieved. SATCC's primary role was the provision of infrastructure to build alternative regional capacity and to establish corridor-based transport systems. However, SATCC's role has mainly been lodged at the operational level. In addition, given the modest effectiveness of working groups, the main mechanism to achieve operational coordination (see above), it is a matter of debate as to the extent of SATCC's impact even at the operational level. The corridor-based transport systems may well have developed even in the absence of SATCC. In addition, a number of issues related to the corridors which are regional in nature remain unresolved. These include, for example, interchange rules, which are in theory prime candidates to be addressed by SATCC.

Whether SATCC has the capacity and constituent support to effectively act as an advocate and promoter of broader policy issues related to the transportation sector has basically been untested in the past, and is indeed the focus of the STEP project.

3.1.3 SATCC's Challenges in the 1990s and the Constraints to be Addressed

The mission and mandate of SATCC has changed in the 1990s. SATCC's emphasis is now on: (i) policy analysis, advocacy and promotion; and (ii) "software" projects aimed at enhancing the efficiency and effectiveness with which existing transport and communications infrastructure is used. This is a radical departure from its focus in the 1980s.

This shift in focus is largely in response to significant changes in the external environment.

- Avoiding dependence on the Republic of South Africa is no longer an imperative. In fact, South Africa may well soon join SADC/SATCC.

- Civil wars in Mozambique and Angola have subsided, although how lasting the peace will be is a matter of speculation.

- Renewed concerted efforts to enhance regional cooperation, integration and conflict resolution are being made. The reconstitution of SADCC as SADC is a conscious reflection of this.

- Outside resources to the region are becoming more limited, as donors' home economies decline and as development assistance priorities shift to other areas such as

Eastern Europe and the former Soviet Union.

- A growing realization in the region that adequate infrastructure capacity exists but that it is inefficiently managed.

- Worsening public sector financial performance in the national economies of the region, and a growing awareness that public enterprises must be run on a commercial basis and/or be privatized.

The new role of SATCC in this environment is well recognized and has been ratified by SADC/SATCC. However, a major transformation of the organization is needed if it is to respond effectively to the new mandate. The process of transformation will take several years.

That said, SATCC has already taken some significant concrete steps to start the process of transformation. SATCC has adopted "policy" as its main focus. Significant support from member states for SATCC to play a role in policy promotion has been garnered. SATCC is in the process of hiring personnel more suited to policy analysis and "software" projects. A thin layer of well-qualified senior management has been put in place to guide the process of transformation and re-direct the organization. SATCC has begun to seek new sources of financial support both within the donor community and from member states and national transport enterprises.

SATCC's past performance as an organization is only partially indicative of how it might perform in the future. This is due to the substantial changes in the environment in which it operates and in its own mission and mandate. Nonetheless, a number of interrelated issues have served to reduce the overall performance and effectiveness of SATCC in the past and are likely to persist into the future. These include but are not limited to the following:

- Inadequate resources and staffing levels to support a number of SATCC's primary functions.

- Limited ability to collect, analyze and disseminate relevant, high-quality data.

- Heavy dependence on external consultants both to assist in running the organization and carrying out technical functions and activities.

- Complex and "weighty" organizational and bureaucratic structure at several levels including within the Technical Unit, within SATCC, and between SATCC and SADCC.

- Weak linkages with governments and transport enterprises at the national level, both for information collection and dissemination and for influencing policy change.
- Lack of permanent organizational status and an inability to enforce its recommendations.
- Management processes and practices which limit the degree of "ownership", and thus the chances for policy implementation.
- Limited capacity to conduct policy analysis, advocacy and promotion.

These issues are still prevalent in SATCC, although some advances have been made in the very recent past. However, these issues and characteristics of SATCC will nonetheless be inherited by future programs aimed at enhancing the efficiency and effectiveness of SATCC. Any new program supporting SATCC must be conscious of these organizational issues and seek to assist in their reform.

SATCC POLICY ANALYSIS ASSISTANCE

1.0 Technical Analysis

1.1 POLICY AND REGULATORY FRAMEWORK

Much of the transportation policy, legislative and regulatory framework in the countries of the region date from colonial times. Although new initiatives are beginning, many Railway Acts and Provisions were enacted during the 1920s to 1950s. Railways operate under "common carrier" obligations and value-based tariff structures that were typical throughout the world during the 1950s. Regulations covering vehicle construction and maintenance standards, operations, licensing, taxation and ownership are also outdated. Variations exist among countries and particularly among the former Portuguese and British colonies. However, progress is being made as a model driver's license has been agreed upon and a model Driver Training Manual has been established.

Because of the high proportion of international transit traffic in the region, these differences increase transportation costs and hamper efficient service. Clearly, increased regional cooperation is needed. SATCC presently promotes harmonization in all these areas. Over the last ten years, however, except for obtaining regional agreement on a Model Traffic Statute, SATCC has had somewhat limited success.

SATCC has an important role to play in the process of promoting and implementing regional transportation policy reform. Careful selection and development of the reform agenda is necessary, however, to enhance the likelihood of success.

1.2 POLICY REFORM AGENDA RATIONALE

In developing a policy agenda. the following factors have been considered:

- USAID project goal and purpose;
- the ongoing policy reform agenda of SATCC;
- the main areas of regional policy being pursued in the transport sector;
- the identification of additional agenda items for consideration;
- appropriate issues and criteria to be used in prioritizing the agenda;

- the future shape of the SATCC policy reform agenda; and
- SATCC capacity and resource constraints.

The project goal and purpose suggest that a policy reform agenda lead specifically to improvements in transport efficiency and a reduction in the barriers to trade and investment in the region. The main areas of regional policy being pursued are:

- Reform regulations and legislation
- Remove barriers to trade and investment
- Improve transport capacity
- Improve transport management and operations
- Enhance the competitive environment

SATCC's comprehensive program of policy reforms is presently grouped by modes. In developing policy selection rationale, consideration has been given as to whether policy initiatives should continue to be pursued on a mode to mode basis or whether recognition should be given to a more integrated and intermodal approach under the broader policy areas previously suggested. SADC is already committed to greater integration in all sectors and the role of SATCC has changed to reflect a move towards intermodalism.

As a result of possible shifts in regional priorities, SATCC's future role could be quite different than at present. This project therefore considers what policy areas are appropriate for SATCC to promote during the 1994 to 1999 span of the project. The selection of specific policy initiatives to pursue relies on the range of criteria chosen for selection and on a qualitative approach more than a quantitative one.

The analysis that resulted in this policy reform agenda is presented in Annex III.C. Achieving regional policy reforms involving ten or more countries is extremely difficult. Only those areas of policy reform which stand the best chances of adoption and implementation have been selected. Over optimistic involvement by SATCC and its international supporters in policy areas which have little or no hope of implementation within a reasonable time frame are avoided.

The policy items that emerge from the selection process dovetail with the current SATCC agenda to ensure consistency and parity with ongoing programs, and to ensure that the project is participatory and the initiatives assimilated.

1.3 INDICATIVE PROGRAM OF POLICY REFORM

A policy reform program is suggested to provide a focus for identifying the various inputs needed for this project component. It is an indicative program, however, as the selection of the actual policy agenda is the prerogative of SATCC. The program must also be indicative at this stage because the project design is taking place during a period of rapid and significant change in the region. Many countries are beginning to undertake regulatory and legislative reforms which may well be finalized during the time of this project component. Program flexibility is needed to allow for shifting priorities.

The following policy reform agenda for SATCC review has been identified.

- Promote greater regionalization of transport services and institutions.
- Promote restructuring and rationalization of transport firms to allow them to operate on a commercial basis.
- Promote the development and dissemination of transportation information.
- Encourage the development of the private sector.
- Encourage methods of transport costing.

For a more detailed discussion of the analytical process by which the reform agenda was developed, see Annex III.C.

Promote Greater Regionalization of Transport Services and Institutions

Problem Statement: The SADC countries are heavily dependent on the movement of both import and export freight traffic across national borders. In 1991/92, for example, almost half of the 29 million tons of traffic handled by the nine SADC rail systems was regional, i.e., crossing at least one border. Similarly a large share of road haulage is also transit traffic. Unfortunately, there are a number of legislative, regulatory, political and operational constraints that occur as freight moves across national borders that increase the cost and reduces the level of service.

On the railroad side there is a need for improved interchange rules that will reduce the need for duplicative inspections of rolling stock at border crossings, facilitate run-through of locomotives and reduce transit times. Improved procedures for joint rail tariffs would allow the rails to be more competitive with road haulers. The improvement in transit service and reduced costs paid by shippers would then be passed through to the economy for future investment and growth.

On the road haulage side, increased standardization of operating requirements, documentation and border crossing practices would reduce transit times and improve service.

Objective: The objective of this policy is to improve the efficiency and reduce the cost of transport service by promoting increased regional standardization and coordination of transportation operations and services, both rail and road. Where possible regionalization may also promote economies of scale in certain operations such as locomotive overhaul.

General Policy Description: Regional integration of transport services would be encouraged at several levels. At the political level efforts would be directed toward eliminating rules and regulations that interfered with the efficient flow of traffic across borders. At the modal level efforts would be directed at integrating transport through standard operating practices and rules such as encouraging the run-through of locomotives to reduce rail transit times.

It is important to note that increased regionalization does not mean that transport services will be provided as though there were a single company with a common tariff schedule. The different SATCC ports and transportation corridors are in competition with each other. This rate and service competition is healthy and will promote efficiency. It should be encouraged. Regional integration, on the other hand, is intended to remove artificial or uneconomic barriers to trade or transportation. Increased regional integration is fully consistent with a high degree of competition in the provision of transportation services.

Reform Process: The process of regionalization is already underway. The reconstitution of SADCC and SADC reflected the support for this goal at the highest level. The SATCC organization is also moving in this direction. Several efforts by the working groups of the Railway General Manager Administrations, for example, are promoting actions such as improved interchange rules and the publication of a joint rail tariff book. This project will provide SATCC with the technical and policy expertise to continue and improve this process.

Actions by the Policy Unit: The promotion of regional integration will take place over a considerable period of time. In some cases it will require enactment of new legislation by individual countries; in other cases it will require agreement by transportation organizations in different countries. Some of the actions of the Policy Unit include:

- Produce an inventory of legislative, regulatory and operational practices that interfere with the efficient movement of international transport in the region.
- Develop and promote agreements and model legislation that remove these restrictions.
- Conduct workshops, promote research and provide technical assistance to build consensus for the necessary changes.

- Promote and obtain agreement on possible organization structures, membership, functions, and method of financing for modal organizations and associations that would promote regional integration and coordination of transport services at the operational level.

Expected Results: Integration and standardization of transportation services at the regional level is somewhat analogous to restructuring of the transport firm at the national level. It improves transit times and reduces costs by removing non-economic constraints. The creation of an Association of Southern Africa Railways together with a program of regional train operation improvements and the implementation of an RSIS system by the SADC railways is an example of a way to create an integrated regional railway system that is capable of offering reliable, efficient, low-cost service that competes effectively with road haulers.[1]

Promote Restructuring and Rationalization of Transport Firms to Allow Them to Operate on a Commercial Basis.

Problem Statement: SADC railways today share common problems of excess capacity, declining demand and lack of profitability. The nine SADC rail systems together employ about 80,000 people, have a joint route network of 13,500 kilometers and handled only 29 million tons of traffic in 1991/92. A good indicator of system utilization is traffic density; in SADC railways, traffic density is very low, equivalent to .740 million tons per kilometer. By contrast, the Union Pacific Railways system utilization is 16 million tons per kilometer. The probable capacity of the SADC system is over 50,000 x 10^6 net ton km. The underutilized railways will generate strong competition for freight and some railways may have difficulty generating enough revenue to finance future operations and maintenance. There are about 800 mainline locomotives hauling the 29 million tons, or 100 tons per day, the equivalent of just three trucks. The hauling capacity of these locomotives is between 800 and 2,400 tons; consequently, the regional locomotive fleet is significantly underutilized.

There are about 40,000 wagons regionally (30,000 in the SADC inventory and 10,000 on hire) which hauled 29 million tons, the equivalent of just 2.1 tons per day per wagon or only five percent of potential capacity. There is excess maintenance capacity in locomotive workshops and substantial duplication of other regional railway assets.

Regional rail freight traffic has declined from a market share of about 85 percent in 1981 to 30 percent in 1991.

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[1] Chapter 5 provides a more complete description of an Association of Southern Africa Railways and train operations improvements.

SADC railways had losses of $265 million in 1990. This is equivalent to one percent of the total GDP of all the countries in the SADC region. National governments can no longer afford to support their railway systems. The railways must either reform and restructure their operations or go out of operation.

Objective: The main objective of the restructuring policy is to rationalize the operations of transportation enterprises and make them responsive to market place demands and less dependent on government support. By requiring these firms to operate along commercial lines, competitive incentives to promote efficiency will be introduced.

Policy Description: The promotion and facilitating role of the policy unit will occur as transport institutions, i.e., railways, undergo restructuring and rationalization. Policies should be established to enable the institutions to converge around common goals and objectives. For example, SATCC should be able to obtain consensus among the nine railways that the main railway objective is commercial and not social, and that appropriate structures should be business sector oriented rather than the traditional functional style of management. In addition, the SATCC framework should include general agreement on government-institution relationships, i.e., the extent of ministry intervention on employment, pricing, investment and operations. In short, restructuring and rationalization policies will encourage railways to become more commercially orientated, autonomous and dynamic organizations with accountable management and clear and efficient decision making structures.

Reform Processes: To a large extent the process of railway restructuring takes place at the national level or within the railway itself. A number of SADC railways have already begun this process. However, the reform process will be greatly helped if a regional framework can be developed. SATCC could also help by providing information on successful restructuring efforts, and workshops and seminars on restructuring issues. At the political level SATCC can help build consensus for change.

Actions by the Policy Unit:

- Complete problem identification and promote research on railway restructuring issues such as the treatment of public service obligations, i.e., requiring governments to pay for the costs of providing publicly mandated service such as low cost passenger fares.

- Arrange railway restructuring workshops to provide information and promote railway restructuring.

- Monitor regional railway restructuring activities and establish data benchmarks to measure progress.

- Provide technical assistance on restructuring implementation to Ministries of Transport.

Expected Results: Railway restructuring will reduce annual government subsidies to the railways. It will also improve transit times and railway service. SATCC efforts should increase the likelihood of successful restructuring efforts.

Promote the Development and Dissemination of Transportation Information

Problem Statement: The provision of reliable, timely, comparable information is the key to policy reform, management decision-making and day to day operations. Although vast quantities of information are collected in each SADC country, lack of appropriate and timely information continues to be a major constraint. At a regional level information distribution must be strengthened.

The importance of how data collection influences policy is frequently overlooked. In the SADC region, for example, rail statistics are usually based on tonnage moved and ton kilometers of traffic. In modern railways, however, dollar revenues and revenue miles of traffic are used. U.S. railway managers, for instance, are much less likely to carry unprofitable traffic and much more likely to know their cost structure.

The most sophisticated transport distribution models and computer programs are no more reliable than the validity of the basic data inputs that they use. In the SADC region, unfortunately, the timeliness, reliability and comparability of regional data is often quite limited.

Data collection should be based on the needs of data users. Frequently decision makers are not consulted about their needs. As a result a great of data collection effort is inappropriate.

Policy Objective: To provide current and comprehensive information services to the public and private sector on performance, and other aspects affecting regional transport and communications.

Policy Description: A regional transport and communication information service located in SATCC will facilitate the collection and dissemination of reliable transport data on a timely basis. The service will encourage consistency in data collected at the national level so that regional comparisons and consolidation are possible.

Reform Process: Improvement of data collection quality and timeliness is a vital component of this program. SATCC does have two activities in their current program which should be noted.

1. SATCC Statistics Data Base. This has been carried out by CIDA and will need to be fully reviewed and updated upon commencement in 1994.

2. Package of Transport Statistics Programs, not yet started.

It is understood that efforts are already being undertaken in Zimbabwe and Lesotho to improve transport statistics programs. These efforts must be strengthened.

There are several processes and formats for the distribution of various types of information from newsletters to statistical digests. Readership, advertising and even pricing of information services should be examined. The recent creation of a SADC newsletter is a good step in this direction.

Actions for the Information Unit:

- Reorganize the information unit in SATCC to meet new goals and objectives.
- Thoroughly research information needs and processes from source to consumption. Determine the appropriate distribution means and networks.
- Conduct research on the use of collected data. Evaluate the potential for user fee financing.
- Provide technical assistance to national governments to determine budget needs for information services, reviewing information unit organization and providing distribution of data.
- Provide workshops and seminars for national governments and other users on the collection of, interpretation and use of information.
- Review and monitor effectiveness of data collection and information services and modify the process accordingly.

Expected Results:

- Information unit reorganized and in place
- Detailed schedule of information sources and needs
- Agreements by sources to provide information

- Systems in place for data/information processing
- Publication and distribution of information.

Encourage the Development of the Private Sector

Problem Statement: Most transportation in the SADC region, particularly railways, is provided by parastatal or government firms. As such, they are not very responsive to market demand or price signals. Governments have determined the types and levels of services to be provided and the rates that will be charged. Labor has been hired under civil service regulations and it is difficult to adjust to new market conditions. The result over time has been huge government subsidies and declining service levels.

In other parts of the world, increased commercialization of transport services and introduction of private sector competition have increased the efficient use of transport resources and reduced the need for government subsidies.

Private sector involvement can take many forms ranging from the privatization of the entire firm to the spin off of collateral activities such as catering, hotel, and certain maintenance activities. Evidence is clear that greater private sector participation provides better more efficient transportation service. The issue is how to adapt this fact to the needs and experiences of Southern Africa. SATCC, as the leading regional transportation organization, has this important role to play.

Policy Objective: To support and encourage the aggressive involvement of private sector participation in the provision of SADC transportation services.

Policy Description: Private sector involvement can be encouraged by removing the restrictions of parastatal transport institutions that constrain private sector involvement. SATCC can also help build consensus for change by providing information on successful involvement of the private sector in transportation activities throughout the region and in other areas of the world.

Private sector participation changes the role of the government from a provider of transportation services and economic regulator to a promoter of a competitive market for transportation services and protector of public interests and enforcer of operational and safety standards. Benefits accrue because, under the private sector, the market's price signals, rather than the government determines what types and quantities of transport services are to be provided. Governments cease involvement in economic regulation but must refocus their regulatory efforts toward promoting safety and ensuring that a competitive framework prevails. SATCC has an important role in facilitating this process at the national level.

Reform Process: Increased private sector involvement occurs at the firm level and is facilitated by national rules and regulations. SATCC has no direct way of increasing private sector involvement. Nevertheless, as a regional organization SATCC has an important role to play in promoting increased involvement of the private transportation sector. The reform process will include identification of potential private sector roles within transport organizations. SATCC's policy unit will facilitate the process and try to ensure that common agreement is reached by supplying research and analysis, and evidence of similar reforms elsewhere. The reform process will be assisted by technical assistance in the preparation and implementation of contracting out procedures. The reform process in this area will coincide with that of the restructuring process.

Actions:

- Obtain agreements from governments and transportation organizations on the practice of contracting out specific activities to the private sector.
- Provide policy analysis and research in support of these policies.
- Provide inputs to support restructuring reforms.
- Advise on strengthened contracts and procurement procedures.
- Provide contract support and legal advice to national governments on contracting out procedures.
- Support the removal of restricted practices that limit the involvement of the private sector.

Expected Results:

The results of this policy reform will be observed mostly at the country level as individual private firms become increasingly involved in providing services that are currently provided by governments or parastatal organizations.

- Increased agreement throughout the region on the advantages of private sect involvement and contracting out.
- Identification of opportunities for private sector involvement.
- Development of sample contracting and procurement procedures for contracting with the private sector.

- Removal of legislative and regulatory restrictions to private sector involvement.

Encourage Methods of Transport Costing

Problem Statement: Appropriate methods of determining the actual cost of providing transport services are not widely used in the SADC region. This is not a particular problem as long as national governments are determining the quantity of transport services to be provided, the tariff levels to charge and are willing to make up any revenue short-fall. Under a competitive market system, however, the firm must know the cost of providing service in order to price and market its services. If it does not, wiser competitors will undercut its price on profitable service and leave it with the unprofitable portion of the business. Eventually the firm will fail.

In the SADC region rail tariff structures are typically inadequate and do not reflect the costs of providing the service. Changes brought about through capital investment are not properly evaluated due to incorrect assumptions on replacement costs.

The problem has been exacerbated in railways in developing countries through overreliance on historic accounting data and/or average costs. Accounting and historic data bases provided woefully inadequate sources of data for cost, were extremely out of date or reflected significant underspending on spare parts or maintenance or overspending on security and other activities.

The need exists for a "normative" costing method which provides cost data on what should be required to sustain reasonable performance levels. In that way tariffs, investment appraisal, subsidy negotiations and policy decisions will all be based on more realistic cost assumptions.

Policy Objectives: To introduce costing methods and practices which provide a sound basis for pricing investment and policy decisions.

Policy Description: Transport costing data is necessary in order to price and market transportation services. Transport firms, as a general rule, should not accept traffic that does not provide revenue sufficient to cover the long run variable costs of providing that service. SADC railways, in particular, have much to learn about marketing and pricing their services from other railways of the world.

Some of the new railway legislation being introduced in the region recognized that a commercially oriented railway relies heavily on a knowledge of its cost of providing service. The draft legislation for deregulating NRZ states that in fixing tariffs, "the tariff for any

class of traffic is not less than direct costs of carrying that traffic."[2] The problem is that methods for determining direct costs are not defined. SATCC can provide a useful service by assisting regional transportation organizations in their transportation costing efforts.

Reform Process: The reform process must commence by convincing railway management of the validity of normative costing.[3] Current costing models must be reviewed.

The SATCC policy unit will provide short term technical assistance to implement transport costing throughout the region.

The reform process will also educate those involved in marketing and decision making on the use of transport cost information.

Actions by the Policy Unit:

- Review available traffic costing models, analyze and research impact of introducing normative costing methods.
- Introduce transport costing methods to SADC railways and governments.
- Implement transport costing methodology throughout region.
- Hold appropriate workshops and seminars.

Expected Results:

- Agreement by SADC railway managers on principles.
- Methods, models, manuals, and procedures in place.
- Improved understanding of the cost of providing railway services.
- More competitive marketing by railways that reduces losses and is more responsive to road haulage competition.

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[2] Government of Zimbabwe Draft Railways Amendment Bill, 1993.

[3] The World Bank in several of its activities has proposed this approach. See, for example, Technical Assistance to Indonesian Railways, World Bank, 1988-1991, and Review of the Financial Viability of Transit Corridors in Southern Africa, World Bank, 1990.

Regional Trade and Investment Patterns

INVESTMENT FLOWS INTO THE REGION

Flows to Developing Countries

The recent efforts in a number of developing countries to restructure and liberalise the economies and move towards market-based economies and export-led growth are bringing about changes that are favourable for foreign direct investment (FDI). Economies are opening up and steps are made to attract foreign investment: investment policies are reviewed or elaborated when absent, one-stop investment centres are set up, investment and/or export incentives are instituted, and state-owned enterprises are being privatised. More than 70 countries were undertaking privatisation programmes during the latter half of the 1980s, and the annual number of privatisations worldwide more than quadrupled during that time. The volume of FDI flows to developing countries increased sharply from an annual average of US$6.6bn in 1975-79 to US$16.4bn in 1980-84, but has since remained fairly stable at that level. Despite this increase, its share in total global investment flows fell from around 31 percent in 1980-84 to 10 percent in 1989 (see table 1 below). Looking at the distribution of the flows to developing countries one sees that Asia receives about two-thirds of total flows, Latin America about 30 percent and Africa a mere 7 percent. Investments in Asia have also proved to be efficient in respect of growth/unit of investment. During the 1980s the top ten receiving countries (Argentina, Brazil, China, Egypt, Hong Kong, Malaysia, Mexico, Singapore, Thailand and Taiwan Province of China) secured around 70 percent of all flows to developing countries. The least developed countries (LDCs), received less than 1 percent of the developing country total.

Table 1: Global distribution of foreign direct investment flows (annual averages US$bn)

Inflow to	Annual averages		1985	1986	1987	1988	1989
	1975-79	1980-84					
Industrial Countries	21.0	36.9	35.9	64.6	96.0	123.5	161.2
Developing Countries	6.6	16.4	12.5	12.8	16.6	17.5	18.1
Developing countries' share of total investment flows (percent)	23.9	30.8	25.8	16.5	14.7	12.4	10.1
Total	**27.6**	**53.3**	**48.4**	**77.4**	**112.6**	**141.0**	**179.3**

Source: *Balance of Payments Statistics* (various issues), IMF

Table 1 shows an increase in total FDI since the beginning of the 1980s. The latter half of the decennium saw a sharp increase in total global flows from US$48.4mn in 1985 to US$179.3mn in 1989, to be compared with an annual average of US$28mn during the latter half of the 1970s. Despite this increase the share of flows going to developing countries has fallen from 25.8% to 10.1% in the same four years.

Flows to Sub-Saharan Africa

As noted above Africa receives about 7% of total world investment. The greatest part of this sum goes to the northern African countries. According to Multilateral Investment Guarantee Agency (MIGA) figures, which unfortunately for some countries only show "partial period", the largest receivers of FDI in absolute terms during 1986-90 were Nigeria, Zambia (partial period), Gabon, Côte d'Ivoire, Swaziland, Botswana, Cameroon (partial period), and Kenya. When looking at FDI as a percentage of GDP during the same period the small countries emerge as the greatest hosts of foreign investments: Swaziland (8.0), Seychelles (7.8), Botswana (5.1), Lesotho (2.8). FDI per capita (US$, 1990 prices) gives roughly the same picture with the Seychelles (332) in the lead, followed by Botswana (87), Swaziland (71), Gabon (52), and Mauritius (26).

Flows to Southern Africa

Flows to Southern Africa have been marginal, with net outflows of investment from South Africa peaking at US$765mn in 1980 and US$497mn in 1985 due to sanctions and the deteriorating political situation. Since then the outflows have slowed down, with positive net inflows in 1998-89, and a low net outflow of US$8mn in 1991. Successful countries in attracting FDI have been Botswana, Lesotho, Swaziland and Mauritius. All these countries enjoy a number of the criteria stated below as being desired by foreign investors, such as political and economic stability, open economies and (quasi-) convertibility of currencies.

According to an IFC study, *Trends in Private Investment in Developing Countries 1993* (1992), countries that have been successful in attracting foreign investment have had a combination of some of the following criteria: macroeconomic stability; sound public finance; open export-oriented economy; convertibility (or quasi-convertibility) of national currencies; realistic real exchange rates; large-scale privatisation programmes; well developed infrastructure; and relatively low restrictions on the repatriation of profits. Another important factor is membership of regional trading groups as this reduces the risk that future governments will reverse liberalisation efforts. In this respect Southern (and Eastern) Africa with its efforts to create a common market is on the right track. Privatisation programmes have been developed in some countries. In Zambia more than 140 companies are to be privatised under the Privatisation Act. For this purpose a special agency, Zambia Privatisation Agency has been formed. In Mozambique total assets to be

privatised are worth around US$1.5-2bn. Steps towards achieving macroeconomic stability, realistic exchange rates, convertibility of national currencies are being taken under structural adjustment programmes which are being implemented in a number of countries in the region. All these factors contribute to making Southern, and Eastern Africa more attractive to foreign investors in the future. Factors harming the region are corruption, inefficiency and the interrupted peace process in Angola and escalating violence in South Africa.

Table 2: Foreign Direct Investment in Selected Countries in Southern and Eastern Africa (US$mn net)

Country	1980	1985	1986	1987	1988	1989	1990
Botswana	109	52	70	114	40	98	148
Mauritius	1	8	7	17	24	35	41
South Africa[1]	-765	-497	-116	-163	98	10	-5
Swaziland	17	10	28	39	39	62	40
Zimbabwe	2	3	7	-31	-40	-10	16

Source: UNDP, World Bank (1992) *African Development Indicators*
Note [1]: Source is IMF (1992) *International Financial Statistics Yearbook*

Table 2 should be treated with some caution as the figures in some cases are World Bank "guesstimates". Furthermore, it is impossible to make an analysis based on net figures, without having access to the breakdown of inflows, disinvestment, remitted dividends etc. What can be extracted is how the level of investment in South Africa follows the political climate, with great disinvestments in 1985 at the time of the debt standstill. We also see evidence of Mauritius' and Swaziland's investment booms. Mauritius launched its Export Processing Zone Scheme as early as in 1971. From 1971 to 1984 FDI inflows lingered around US$2-5mn per year. In 1979 a World Bank/IMF supported Structural Adjustment Programme was adopted and, in line with this, investment and export incentives were revamped. As a result the economy started picking up in the first half of the 1980s and FDI flows increased significantly in 1987. Net direct investment flows remained high until 1991 when it showed a decrease, mainly due to increased investments abroad by Mauritian residents. Swaziland experienced a similar boom during the same time period, mainly due to the deteriorating political climate in neighbouring South Africa, and hence relocations of South African firms to Swaziland. The rate of FDI has slowed down lately and Swaziland now risk losing potential investors to South Africa and the favourable export incentives that are offered there. Botswana's increase in foreign investment flows started already in 1978 when investments rose from US$12mn in 1977 to US$41mn in 1978, and has been kept high ever since. The investment situation in Zimbabwe has been poor during the latter half of the 1980s with sizeable disinvestments, probably by South African investors. As of late, Zimbabwe Investment Centre (ZIC) has received a number of enquiries from potential South African investors. ZIC approved investments (industrial, mining, commercial, and agricultural projects) amounted to Z$2,094.1mn between August 1989 and December 1991, Z$1,628.1mn in 1992 and Z$208.4mn during the first four months of 1993.

EXPORT CONCENTRATION

COUNTRY	MAIN EXPORT	SHARE	3 MAIN EXPORTS	SHARE
ANGOLA	Oil	90 %	Oil, refined Petroleum Liquified gas	96 %
BOTSWANA	Diamonds	78 %	Diamonds Nickel/Copper Beef	92 %
LESOTHO	Mohair	24 %	Mohair Wool Clothing	60 %
MALAWI	Tobacco	55 %	Tobacco Tea Sugar	79 %
MOZAMBIQUE	Prawns	42 %	Prawns Cashew nuts Petroleum	80 %
SWAZILAND	Sugar	42 %	Sugar Wood pulp Fruit	75 %
TANZANIA	Coffee	50 %	Coffee Cotton Tea	62 %
ZAMBIA	Copper	85 %	Copper Electricity Zinc	92 %
ZIMBABWE	Tobacco	30 %	Tobacco Gold Ferrochrome	55 %

Source: SADCC Regional Economic Survey, 1988 and Imani Development

Impact of Transport Efficiency on Regional Trade

The efficient movement of people and goods is a vital component to the economic well being of any country. In Southern Africa it is even more important to service the needs of international trade from land locked countries over very long distances, transiting through two or three other countries to the ports and consequently the world market. Colonial development, political changes following independence, inappropriate macroeconomic policies, security problems, relatively weak economies, rapidly rising population, skills shortages, and more recently drought and health problems, have left the region particularly vulnerable, requiring international support for quite some time to come.

Fortunately, the future in the region is beginning to look brighter. The recent crippling drought has ended. Peace, in Mozambique, gives great hope not only to the people in that country but also to the economies of landlocked countries that have in the past relied on its sea ports (Maputo, Nacala, Beira) and associated transit routes. Namibia, independent in 1990 together with Swaziland, Lesotho, and Botswana have shown that economic alliances with South Africa do not need to compromise domestic policies. And South Africa itself, so dominant and important to the region as a whole, is undergoing significant political change which, if supported by the international and regional community, will emerge as the main economic driving force to the benefit of all the people of the subcontinent.

Maintaining international support is critically important to help the region through its transition to democracy and free market economies. Trade is the life blood to all economies. Obtaining a better balance of trade throughout the region, reducing barriers to the free movement of goods and people, increasing the size of the internal market of the region, and liberalizing restrictions on investment and currency are all major issues requiring support by the international community.

Transport efficiency is clearly vital both to facilitate trade and reduce the costs of raw materials, goods and resources. Transport costs account for up to 50 percent of the total landed cost of imported products and account for up to 30 percent of the cost of export materials. Support to improve the efficiency of the transport sector to reduce costs is thus of considerable importance. The colonial period left a well-defined network of trade routes to ship raw materials out from landlocked areas and imported materials in. Trade route security is vital, and indeed substantial investment in developing new routes and improving older ones has occurred during the last 25 years. These efforts may not have been so necessary had the transition to independence been peaceful. The problem now is to ensure that these transport corridors operate as efficiently as possible to maximize the use of their high capacity.

If interregional trade and domestic markets are to flourish, then investment will be needed in

local transport and communications systems. One problem is the shortage of skills in the transport and communications sector, particularly in management where the experience base is low. Correcting this problem will take time, possibly another generation. Although this problem has been recognized, the international community has generally supported projects such as the Beira corridor, rather than human resources, management systems, and institutions.

The public sector has suffered most from skills shortages. Low pay and poor working conditions have not been conducive to retaining quality personnel. Many people, when trained in the public sector, quickly leave for more lucrative private sector positions. Even when internationally supported programs improve manpower resources, they are undermined by low wages. The public sector is also typified by large numbers of employees and low productivity which, while understandable politically, is not conducive to economic efficiency, financial performance, or the ability to pay a more competitive salary to fewer, more highly experienced staff. The need for restructuring the public sector is widely recognized.

In transport, railway organizations are particularly in need of restructuring. The railways of SADC employ around 80,000 people for only 13,500 route kilometers with an annual throughput of just 29 million tons. The total subsidy to SADC railways is over $350 million per year excluding grants and external investment. Comparable, well-run railway networks employ considerably less people. Clearly there is a need for regionalization and restructuring.

The components of this project seek to facilitate regionalization by promoting the concept of intra-regional railways and communication systems and, more significantly, by producing policy advice which will facilitate the process of restructuring and change.

In doing so, the role of the railways in the transport sector as a whole should be kept in mind. The aim should be to promote the optimal efficiency of the sector as a whole, and this will require that inter-modal competition take place under equal conditions, i.e., policies in the road sub-sector should not undermine those in the rail sector.

Essentially, there are three modes of surface transport: rail, road and sea. Because many of the countries are landlocked, the role of coastwise sea transport tends to be neglected. Yet, historically, much of the trade between South Africa and the countries to the north has used coastwise shipping before being put onto rail or road from, say, Beira to Harare. Of course, trade between port destinations in maritime countries, e.g., Mozambique and Tanzania, could use sea transport only. The advantages of sea transport are that the "way" is free (the investment is at the port itself), it is the least polluting of the modes, and the providers of the service are private shipping companies. The disadvantages relate to the need for transshipment for delivery or to inland destinations.

With regard to the inland modes, there is a general belief that they are not competing under equal conditions at present. This is a controversial point, however, and revolves around whether or not there is full cost recovery from road users. Whereas railways are expected to bear the responsibility for investment in new capital projects and rolling stock as well as the costs of maintenance, and to recover these expenditures by way of tariffs charged to users, roads are constructed and maintained by governments. Road haulers have the use thereof without any direct payments except in the case of license fees (which are often inadequate) or tolls (in the few cases where toll roads exists). There may also be a special tax on fuel in order to recover full user charges (a general sales tax or customs and excise duties on fuel are legitimately treated as part of general government revenue in the same way as taxes on other goods). The problems are, first, that the impost is often far too low to recover the costs incurred in constructing the roads to the strength required to carry heavy vehicles, and second, that in many countries the temptation has been to subsume the proceeds into general government revenue rather than creating a special dedicated fund for road construction and maintenance. Thus, road users (and especially road haulers) are often not paying sufficiently high user charges, and what they are paying is not being used for roads anyway.

Although some studies have been made of cost recovery in the PTA and SADC countries, and there has been an agreement (although with loopholes) on the level of road user charges for heavy vehicles, there is still a strong view in the region (articulated by SATCC and Spoornet, for instance) that there is an under- recovery of costs. What is clear is that both modes should operate under equal conditions if efficient inter-modal competition is to be achieved. This means that they should be subjected to the same taxation and cost recovery requirements and that neither should be in receipt of subsidies except when they are required by government to fulfil public service obligations. Another important point is that adequate measures should be introduced for the control of axle loads since vehicle overloading adds considerably to the damage inflicted on road surfaces.

Policy Reform Selection -

A. The Selection Process

The analytic process by which the indicative policy reform agenda was developed is discussed below. The design team established a set of criteria reflecting local, regional, and international experience. To assist in the process, a wide range of selection criteria was applied, reflecting local, regional, and international experience. A World Bank study[1] suggests the importance of these criteria in the design of a policy reform program.

1. Economic Performance. Policy reforms should supply a positive stimulus to the economy; costs and the benefits should be demonstrated and understood in any policy design.

2. Financial Performance. The financial performance of corporations will be affected by policy reforms; the effects should be understood and generally should be positive.

3. Degree of Regionality. For involvement by SATCC, the extent to which the policy reforms are regional in sphere of influence is very important. In the transport and communications sub-sector, nearly all policies have some regional impact. For policy reform promotion by SATCC, only those with maximum regional impact should be selected.

4. Appropriateness. As indicated in 2.3 above, SATCC may not be the most appropriate institution to promote certain policy reforms; barriers to trade and movement of cargo, for example, may be better facilitated by the PTA.

5. Acceptability. Policies must be acceptable -- even if not fully agreed with -- by the several parties involved, whether government ministries, railways, private transport providers, shippers, etc.

6. Assimilation. Capacity by governments to implement policy change is vitally important. Either skill shortages, or other priorities may preclude a government's ability to take on the program of a proposed reform.

7. Sustainability. Even if policies are established, the capacity of governments to implement them may be very limited. Enforcement of, for example, traffic

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[1] Ian G. Heggie. Designing Major Policy Reform, Lessons From The Transport Sector; Discussion Paper No. 115; World Bank; 1991.

regulations, load restrictions, or vehicle inspections is difficult.

8/9. Robustness and Obsolescence. In a rapidly changing world, events may overtake certain policies, or current thinking or technology may alter radically. Even recognizing the time required to establish policies, most major reforms should be able to stand the test of time.

10. Social Betterment. Policies, on the whole, should endeavor to make life better for the people and improve the quality of human resources through improved opportunities.

11. Impact. Some policy reforms may have long term socio-economic effects and others more immediate impacts. SATCC should promote policies with a more immediate effect.

12. Preparatory Time. Major policy reforms may take up to 15 years to implement. While SATCC has been making progress in some reforms over the last 12 years, policy formulation, adoption, and implementation is slow or in some cases has not begun. Priorities should be on reforms which have a relatively short preparatory time.

13. Administration. Some USAID project support is more time consuming than others; the level and capacity of USAID support must also be considered in policy selection.

To prioritize this fairly wide range of selection criteria, the design team (including SATCC officials) evaluated each criteria from O to 5 to reflect their relative importance. Following is the criteria ranked in descending order of importance together with the mean score for the team.

	Criteria	Mean Score/Weighing
1.	Economic Performance	4.9
2.	Sustainability	4.6
3.	Financial Performance	4.4
4.	Assimilation	4.4
5.	Regionality	4.2
6.	Appropriateness	3.7
7.	Acceptability	3.7
8.	Social Betterment	3.6
9.	Impact	3.0
10.	Robustness	2.7
11.	Obsolescence	2.7
12.	Administration	2.6

13. Preparatory Time 2.2

It is interesting to note that the length of lead time for policy reform to take place was considered to be of the lowest priority. In addition to the expected high ranking of economic and financial criteria, however, sustainability (government capacity to maintain policy) and assimilation (government capacity to implement policy) were rated very highly.

The purpose of this multi criteria analysis was to rationalize a long list of policy reform initiatives into a policy reform agenda that best complies with the criteria and, by implication, with the objectives of the policies identified. To this end a general policy agenda has been developed by the design team after discussions with government, parastatals and SATCC itself. The resulting general agenda presented below broadly represents all policies currently being pursued by regional or national interests.

POLICY REFORM - GENERAL AGENDA

1. Regulatory and Legislative Reform

   (a) Promote deregulation in transport institutions
   (b) Harmonize vehicle/drive and licensing laws
   (c) Harmonize operational regulations
   (d) Harmonize standards of enforcement

2. Reduction of Barriers to Trade Investment

   (a) Promote through movement of cargo in transit
   (b) Harmonize regional import tariffs and duties
   (c) Harmonize documentation and procedures
   (d) Promote regional trade integration

3. Transport Capacity Improvements

   (a) Promote regional technical standards for infrastructure provision
   (b) Promote capacity improvements to meet demand
   (c) Promote intermodal transport
   (d) Promote regional technical standards for infrastructure maintenance

4. Improve Transport Efficiency

   (a) Promote regionalization of transport and communication institutions
   (b) Promote restructuring and rationalization
   (c) Promote information services

(d) Promote manpower development and training -
(e) Promote common operating standards and safety

5. Enhance the Competitive Environment

(a) Harmonize road taxes and duties
(b) Encourage the development of the private sector
(c) Harmonize policies of public financing in transport
(d) Enhance competition between modes
(e) Encourage common methods of transport costing
(f) Encourage the application of common method of investment appraisal

To progress the process of policy selection further and produce an agenda for implementation, each policy area was assessed for compliance against each of the criteria. A maximum of ten scored total compliance and zero no compliance at all. The results of the multi criteria selection process are presented in Exhibit A-2.1. The matrix shows the range of policy reforms by main policy heading, the criteria (1 to 13 as listed in the criteria weighing above), and the mean weights for each. The results provide a rational basis for compiling a policy reform agenda.

Exhibit A-2.1

Policy Selection Matrix

Ref	Policy Reform Areas	Criteria Weightings	1	2	3	4	5	6	7	8	9	10	11	12	13	Score	Weighted Score
			4.9	4.4	4.2	3.7	3.7	4.4	4.6	2.7	2.7	3.6	3	2.2	2.6		
1	Regulatory & Legislative Reform																
1A	- Promote Deregulation in Transport Institutions	6	7	3	6	5	4	6	7	9	3	6	2	4	70	252
1B	- Harmonize Vehicle/Driver Licensing	3	2	9	8	7	7	9	9	8	2	6	6	5	83	292
1C	- Harmonize Operational Regulations	3	5	7	8	9	7	9	9	9	2	8	6	8	90	316
1D	- Harmonize Enforcement Standards	3	2	6	6	5	4	2	4	8	7	7	3	4	65	226
2	Reduction of Barriers to Trade																
2A	- Promote Through-Movement of Cargo	8	6	7	4	8	5	6	5	8	2	7	4	7	79	289
2B	- Harmonize Import Tariffs & Duties	6	2	9	4	4	5	8	2	9	1	4	2	3	59	222
2C	- Harmonize Documentation & Procedures	5	5	9	4	7	8	8	6	2	4	5	5	6	74	275
2D	- Promote Regional Customs Union	6	7	9	3	5	4	7	6	9	2	6	4	3	73	270
3	Transport Capacity Improvements																
3A	- Promote Regional Technical Standards	4	3	6	9	7	6	7	7	8	3	4	5	6	79	279
3B	- Promote Infrastructure Improvements	6	6	5	6	8	7	7	6	7	5	6	5	4	81	295
3C	- Promote Intermodal Transport	7	7	7	8	6	7	6	5	7	3	3	4	7	77	284
3D	- Promote Regional Maintenance Standards	4	5	4	3	4	4	5	7	8	6	3	5	4	64	225
4	Improve Transport Management & Operations																
4A	- Promote Regionalization of Transport Institutions	6	6	9	9	7	5	7	6	9	5	5	4	3	85	312
4B	- Promote Restructuring & Rationalization	9	9	6	7	6	3	5	7	8	2	3	4	3	74	274
4C	- Promote Regional Information Flows	7	6	9	9	7	6	5	7	6	6	4	6	7	93	333
4D	- Promote Manpower Development & Training	6	6	4	5	9	3	2	7	6	9	2	2	3	70	257
4E	- Promote Common Operating Standards & Safety	6	7	7	6	6	7	7	6	6	6	6	2	3	3	60	299
5	Enhance the Competitive Environment																
5A	- Taxes & Duties	5	6	6	6	3	5	7	7	8	2	7	5	4	75	270
5B	- Encourage the Development of Private Sector	7	6	5	6	6	4	7	7	6	6	4	4	5	79	286
5C	- Harmonize Policies of Public Financing in Transport	7	6	7	6	4	5	4	7	7	3	4	4	3	69	254
5D	- Enhance Competition between Modes	7	6	6	6	7	5	4	3	6	6	5	4	2	71	264
5E	- Encourage Common Methods of Transport Costing	7	6	6	7	6	7	7	6	6	6	6	7	6	97	348
5F	- Promote Standard Investment Appraisal Procedures	7	6	6	9	6	5	5	4	4	7	4	7	6	82	299

B. The Policy Reform Agenda

The general areas of policy reform are analyzed according to problems and issues; main policy objectives; general policy description; status; actions; policy benefits; disadvantages; implementation process; and the SATCC policy unit.

1. Regulatory and Legislative Reform

Problems and Issues. The fundamental problem to be resolved is the extent to which government involvement and controls are required in the transport sector in order to allow it to function at its most efficient. The main public policy issues are in the retention of appropriate checks and balances in the system. Concerns include the loss of policy controls, reduction in operating and safety standards, reduction in service quality and scope. Additionally, many governments do not have the capacity to effectively implement existing regulations and must utilize administrative resources more effectively.

Policy Objective. The main policy objective of the reform is to free the transport sector of controls which affect its ability to operate commercially and to harmonize the remaining controls in the region.

General Policy Description. SATCC and PTA have been pursuing regulatory reform in the region. The agendas of the road traffic and transport operational sub-committee of SATCC and that of the PTA contain pertinent items regarding policy reform, particularly deregulation of the trucking industries, harmonization of driver training and licensing and many operational aspects such as vehicle inspection procedures, speed limits, insurance and obtaining agreement on maximum driving hours/day. Many of these reforms are in an advanced state of preparation, and legislation has been drafted. One of the main problems is the strength of the road trucking lobby and the lack of capacity by some governments to implement and enforce regulations.

Specific Policy Reforms.

1.A Promote deregulation in transport institutions: There is wide variability between SADC members in the regulation of the road, rail and telecommunication subsectors. Regulations particularly involving permits for road trucking and price controls in rail and telecommunications should be phased out. It is necessary to accomplish these reforms in a regional context to avoid competition bias and restricted practices between countries.

1.B Harmonize vehicle/driver licensing: Vehicle weights, condition and insurance regulations vary between each country, impeding cross border operations; with similar consequences, driver age and qualifications vary. Such regulations need to be harmonized.

1.C Harmonize operational regulations: Vehicle operations regulations need to be both strengthened and harmonized. Restrictions on driving hours are either non-existent or not enforced. Restrictions on trucking movements and markets are variously controlled. Overloading is a major problem and the entire policy requires reform in a regional context.

1.D Harmonize enforcement standards: Without enforcement there is little point to regulatory reform. Agreement to harmonize enforcement standards, though difficult, is necessary. Recognition of government capacity to implement and enforce regulations is not sufficiently taken into account.

Status. Most SADC countries are pursuing regulatory reform programs. In Zimbabwe legislation is drafted to deregulate trucking and rail. It is possible that deregulation legislation will be in place by the end of 1993.

Actions. SATCC promotes reform framework; legal assistance for drafting regulations; more judicious phasing in of regulations by each country; technical assistance to some governments for implementation; more resources for enforcement of new regulations.

Benefits. Removal of inappropriate regulations will enable road operations to react more responsively and commercially. Relaxation of licensing will introduce more competition. Regional harmonization will enable more integrated operations between countries. All will result in reduced costs. Overall, a fairly positive economic performance can be expected and a good impact on corporate profitability.

Disadvantages. More spare parts and vehicles will be imported and some departmental reorganization in government will take place. The costs of increased traffic policing and vehicle inspection will rise.

Implementation. Governments understand the attention they must pay to implementing regulations and legislation.

SATCC Policy Unit. The policy unit has a limited role in this area as many governments are deregulating trucking and passenger transport industries. The main task for the unit is to insure that the policy reforms are harmonized, to provide information and, if necessary, analysis to support the process.

2. Reduction of Barriers to Trade and Investment

Problems and Issues. Barriers to trade exist in the form of variable customs regulations and enforcement procedures, import tariffs and other duties between members of SADC. These barriers constrain the free movement of goods and services within the region and slow the movement of international trade and transit cargo through the region.

The issues involved center on concern over relaxing of trade controls, customs procedures, security, and the levy of taxes and duties. Other issues are broader, affecting international trade agreements, balance of payments management, and foreign exchange accounts.

Main Policy Objective. The long term objective of policy reforms in this area would be for SADC to be a single trading area and customs union with no internal restrictions on movement and the removal of duties on trade.

General Policy Description. Reduction of barriers to trade and investment are urgently needed in a region with such a low level of internal trade and poor internal markets. Relaxation of fiscal policies to eliminate import duties on intra SADC trade and free up the movement of capital and labor would do much to boost the SADC economies. Policy reforms in this area are slow and could take decades. Nevertheless, common trade documentation is accepted and so are broader principles of free trade.

Specific Policy Reforms.

2.A Promote through movement of cargo: Border checks for through and transiting cargo should be eliminated.

2.B Harmonize import tariffs and duties: This already exists within the SACU grouping while a gradual reduction of tariffs is occurring in the PTA countries. Eventually there must be harmonization between the SACU and non-SACU countries in the region.

2.C Harmonize documentation and procedures: These are almost in place throughout SADC. They will enable door to door uninterrupted movement of cargo.

2.D Promote regional trade integration: The entire SADC area is covered by either a customs union (SACU) or a preferential trade area. As discussed in

section 1.3, the policy aim should be to find a mechanism for bringing those two groups closer together and eventually forming a single market.

Status. Many of these policy components are being pursued by PTA. The SADC trade unit in Dar es Salaam has been virtually non-effective and many believe it should be shut down. However, trade rather than transport now has a central focus in SADC and a study funded by the EEC **[**more to be added here; Duane?]** to look at integrating transport and trade is planned. Some practical progress has been made by UNCTAD in promoting combined transport documentation and through bills of lading; these have been generally well received. Import tariffs are more difficult to harmonize in a region where economic performance varies so much, and little progress has been made.

Actions. Fully accept combined transport documentation and through bills of lading; allow free passage of all good in transit without customs intervention; country fiscal policy should eliminate import tariffs from fellow SADC members and create a customs union; SADC fiscal policy should harmonize and agree on a single structure of duties on non-SADC imports.

Benefits. The SADC internal market is basically non-existent. Trade between SADC members is negligible, nor has it changed since the formation of SADC in 1980. The harmonization of trade policies, removal of import tariffs between SADC countries will help to stimulate intra-SADC trade. More significantly once trade flows occur, fiscal and economic policies will converge, and currency exchange restrictions in SADC will be lifted. The benefits of these processes will be an expanded SADC internal market and less dependence on exports from RSA or internationally. With an expanded market and relaxation of trade restrictions inward investment will accelerate, jobs will be created and the economy will grow.

Disadvantages. It is possible that imports may increase and balance of payments deteriorate in some countries if investment rules are relaxed; disinvestment would then occur.

Implementation. Such policies reforms are the domain of SADC and the PTA. However, there has been too much attention focused on transport rather than trade and investment.

SATCC Policy Unit. The unit must strengthen its relationship with the PTA, and with SADC and the Trade and Industry Technical Unit. The lack of such coordination in the past should be reversed.

3. Transport Capacity Improvement

Problems and Issues. The problem has shifted considerably from investment in various regional transport corridors that provide alternatives to those through South Africa, to making the best use of available resources for international traffic and improving the capacity for intra-regional transport by rail, road, and sea. The problems now are of maintenance policy and of harmonizing standards. Over $7 billion of investment has been allocated to the regional transport sector, three times more than to all other SADC sectors combined. Further investment on this scale is unlikely. Instead, assistance is needed to maintain and manage the transport and communication system. The present quality of asset maintenance may be such as to undermine investment. At a country level, policies should improve local transport and communications capacity and set in place appropriate sustaining systems and resources.

Main Objective. The objective of these policy reforms would be to improve regional transport capacity by promoting intermodal transport, and closer harmonization of standards of infrastructure design and maintenance.

General Policy Description. Improvements are needed to make the best use of new and rehabilitated infrastructure and equipment by ensuring that maintenance is to a good standard and new designs meet regional and international standards. Full costs should be recovered from users. Care should be taken to observe South African standards in most areas to ensure full compatibility. Difficulty in implementation may be offset by promoting a regional classification for road, rail, and possibly telecommunication infrastructure. Intermodal planning and infrastructure should be improved and more emphasis placed on intra regional transport.

Specific Policy Reforms.

3.A Promote regional technical standards: For the provision of infrastructure, these would produce a Southern African highway design capacity manual.

3.B Promote infrastructure improvements to meet demand: Excess capacity should not be produced, but rather, allocate regional funding to projects based on level of regional demand.

3.C Promote intermodal transport: This will reduce the cost of transhipment and interchange costs, and encourage the development of inland clearance depots.

3.D Promote regional maintenance standards: Such technical standards would be applied on a regionally designated route structure.

Status. Most SATCC road and traffic working groups contain policy items on the agenda, but other than traffic signing, there has been little progress.

Actions. Most action in this area could be transferred to member states from SATCC where technical capacity and resources will be required to implement policy reform. General actions will be needed to designate regional, national and local routes; develop regional highway design and maintenance standards and produce manuals; promote intermodal transport particularly with the private sector; promote intra-regional transport development.

Benefits. Lower vehicle operating costs; less accidents; faster journey times; increased productivity.

Disadvantages. More capital investment; public spending on maintenance.

Implementation Process. A clear agenda needs to be set for the regional working groups with achievable targets for all policy areas. Technical assistance should be sought, possibly using, for example, the South African Roads Manual.

SATCC Policy Unit. A much reduced role for the unit in promoting transport capacity policies should be sought, with the member states themselves promoting and implementing capital investment projects. The SATCC role in promoting regional standards is evident through working groups. The policy unit can provide inputs, that is, a regional approach to investment approval, support working groups and provide information and analytical services.

4. Improve Transport Management and Operation

Problems and Issues. Efficiency improvements are urgently needed. SADC railways are all heavily subsidized, overstaffed and inefficient. At the same time, government intervention in railways is chronic leaving railway management no commercial flexibility. The industry requires restructuring and rationalizing to reduce costs and induce more customer orientation. The telecommunications industry requires similar reforms. The main issue concerning rail is that the SADC system is simple and traffic relatively light. Regionalization, ultimately leading to a single SADC railway, could bring enormous benefits of economies of scale, but the political dimension makes that unlikely. The establishment of regional associations for rail, telecommunications and air are distinct possibilities that could provide an excellent framework to improve efficiency.

Main Policy Objectives. To improve the operational efficiency of regional transport

and communications systems.

General policy Description. The need to improve efficiency particularly in the rail sub-sector is great. The general policy is to improve performance, reduce costs and create a more commercial approach. Government needs are to relinquish certain controls, especially tariff setting, and to permit management more freedom. At a regional level, railway management envisions a regional railway administration which would provide the appropriate environment to closer and more effective cooperation. The need to improve, particularly management skills, is widely recognized; increased management accountability will have a very positive effect.

Specific Policy Reforms.

4.A Promote regionalization of transport institutions. This policy includes establishing the Association of Southern Africa Railways.

4.B Promote restructuring and rationalization. This is vital in order for rail subsidies to be reduced.

4.C Promote information flows. Nearly all policy reforms as well as SATCC's profile will benefit from an improved climate of information exchange.

4.D Promote manpower development and training. This is central to almost all other policy actions.

4.E Promote common operating standards and safety. This will provide a better enabling environment for an integrated system.

Status. Regionalization of railways has progressed slightly beyond a conceptual stage but real responsibilities and resources have not been considered. Rail restructuring is being actively promoted in some countries by the World Bank and also by USAID in Swaziland, and by both in Mozambique. Support to these policy reforms is very necessary but as yet SATCC is not involved. SATCC does have an information service, and publishes a quarterly newsletter which provides a good basis from which to expand information services further. SATCC does have a regional manpower development program although there is insufficient funding to provide comprehensive support. Common operating standards are generally in place but regional operating manuals do not exist.

Actions. Many actions are required to improve transport efficiency and policy reforms which are central to STEP and which were also assessed as most appropriate for policy unit support: strengthen SATCC working groups within the operational

coordination and development program; improve statistics and information services; strengthen policy advisory services in SATCC; establish regional policy coordination positions in Ministries of Transport.

Benefits. Lower transport costs; less public expenditure; economies of scale; better management skills.

Disadvantages. Unemployment; loss of sovereignty.

Implementation Process. Actions are initiated by member countries and working groups supported by analysis and information from SATCC, and implemented by rail and other operating organizations.

SATCC Policy Unit. The policy unit will support the process of policy reform through the provision of research, analysis and information generally, and specifically through the interactive program of policy reform described in Chapter 2), and the information service.

5. Enhance the Competitive Environment

Problems and Issues. The competitive environment in the transport and communications sector has suffered from the prevalence of political dogma and post colonial consciousness. Road transport though, generally in the private sector, has been constrained by too much government interference and restricted practice where the public sector has a vested interest. Rail has not been perceived as a commercial, business entity and has been treated as a government department where the Ministry is more important than the customer and the services are protected from competition. They are parastatals, owned by government and run by civil servants rather than business people. (Telecommunications, though generally more profitable, has been limited in scope and ability to invest in the services so desperately needed.

The issues really reduce to political inclination, fear of the private sector, and loss of public accountability. Attitudes in governments are changing toward a free market economy, however, and this project can play an important role in enhancing the competitive environment in Southern Africa.

Policy Objectives. To provide the right environment in the transport sector where competition is on the basis of price and quality of service

General Policy Description. The transport sector in South African countries accounts for between two and eight percent of the Gross Domestic Product (GDP);

two to five percent of GDP are government subsidies. The reform of public enterprises in the transport sector to greater commercialization involves many actions, from removing price controls and subsidies to partial and complete privatization. The general policy will be to enhance the competitive environment by promoting a variety of appropriate reforms. Within a regional context, it will be important for SATCC to translate broad regional economic policies into policy controls for the transport sector which they are to promote and support. The policy reform agenda will include giving public enterprises greater control over management decisions, particularly regarding personnel, and cutting costs implemented under the restructuring and rationalization policy. Those actions are prerequisite to allowing public enterprises normal management freedoms to price services on a commercially sound basis. Following from that vitally important policy area is the creation of a transport and communications environment in which road and rail can compete fairly and equitably without restraint or restriction in similar markets both nationally and regionally. Under these circumstances, the private sector supplies goods and services. Fiscal policy should avoid discriminating between road and rail unless for strategic reasons. Public investment policies should be properly evaluated to avoid suboptimal distribution of resources.

Specific Policy Reform.

5.A Harmonize taxes and duties: Taxes and duties vary tremendously between road and rail; rail is exempt from import duty while truckers can pay up to 100 percent. Clearly, the competitive environment is influenced.

5.B Encourage the development of the private sector: With the transport and communications sectors consuming such a high proportion of GDP, the scope for private sector development is great.

5.C Harmonize policies of public financing: This involves the removal of subsidies and preferential finance to public enterprises. It also includes levying appropriate charges to ensure that the road users pay for maintenance.

5.D Enhance competition between modes: This involves the removal of all restricted practices which can heavily bias competition.

5.E Encourage common methods of transport costing: Central to any pricing, investment, or policy decision is accurate knowledge of costs. In addition, current restructuring legislation is woefully lacking in the region.

5.F Promote standard investment appraisal methods: Investment decisions by government in road, rail, air, ports, and shipping must be appraised within a

common framework to avoid biases in resource-allocation.

Status. Currently little or no progress has been made on any of these policy reforms. SATCC does not have any projects underway, although some road/rail working group actions have been initiated, particularly in reviewing restrictive practices and looking at transport costing systems.

Actions. Clearly, there are a number of actions that need to be pursued in this policy reform area: strengthen SATCC policy unit; set up transport Ministry liaison officers; strengthen road and rail working groups; introduce private sector participation in working groups; providing short term technical assistance for costing and investment appraisal policies reforms.

Benefits. Reduced public sector spending; enhanced management skills; improved allocation of resources.

Disadvantages. Higher prices; loss of public jobs.

Implementation Process. Most SADC governments accept that economic reforms are needed and that growth will come from the private sector. The process for implementation is likely to be incremental, and within each country.

SATCC Policy Unit. The unit shall fully support initiatives in this reform area through strengthened operational working groups including representatives from the private sector. There is potential for a general transport policy reform working group consisting of Ministerial liaison officials. The unit will provide research and analysis, and the supporting information service data and promotional information.

Summary

1. Five policy reform groups containing twenty three specific policy reforms have been reviewed.

2. The SATCC policy unit will have limited resources and should concentrate only on those reforms and initiatives which are most appropriate to this project and in which the opportunity for success is greatest.

3. Policy unit efforts are best directed to promoting policy reforms to improve transport management and operations and to enhance the competitive environment. General support is needed to implement reforms already being advanced to improve transport capacity. Trade issues are best led by other institutions. Some limited support to harmonizing vehicle licensing and

operating standards would be needed.

4. Based on the selection process, the policy reform agenda should prioritize its involvement in the following specific policy reforms:

   (a) Promote regionalization of transport institutions (4.A).

   (b) Promote restructuring and rationalization (4.B).

   (c) Promote regional information flows (4.C).

   (d) Encourage the development of the private sector (5.B).

   (e) Encourage methods of transport costing (5.E).

   (f) Promote standard investment appraisal procedures (5.F).

ASSOCIATION OF SOUTHERN AFRICA RAILWAYS

1. Promoting the Integration of Southern Africa Railway Service

Problem: A large share of the rail traffic in the Southern Africa region involves movements of goods through different countries over several railways. Although a similar Cape gauge rail is used throughout, these movements encounter custom and documentation problems, equipment inspection and crew changes at borders, communication problems and the use of different types of equipment on each railway.

The resulting coordination and operational problems raise the cost and decrease the reliability of railway service. As a result, shippers suffer and a lot of rail competitive freight traffic goes by road.

Bilateral agreements currently exist between individual countries, but these agreements have not been satisfactory in addressing the underlying railway problems or promoting regional coordination.

Prior to independence of the countries in Southern Africa, rail systems were much more integrated and provided uniform rail service. The Rhodesian Railway used to run over 2,000 km all the way from Mafikeng to the Copper Belt through, what is now three separate countries. There were strong cooperative agreements between existing railways which facilitated the movement of cargo to and from regional ports. Since independence, however, the Southern Africa railway system has, for a number of reasons, become more fragmented. Botswana railway separated from NRZ and the new TAZARA railway was built. Donors have also added to the coordination problem by introducing non-standard rail equipment.

In order for the SADC rail systems to serve their customers well and become more competitive with the road sector there needs to be a strengthening of coordination between individual railway systems for those railways that interchange freight traffic. This will enable them to operate like a single, integrated railway and achieve similar levels of efficiency and service.

Internal railway restructuring to make railways operate along commercial principles is necessary and solves one part of the railways problem, but regional integration of SADC railway service for international trade is an <u>equally important</u> objective if the railways want to become viable and competitive with road haulers.

A strong, profitable integrated railway system that operates efficiently can provide enormous benefits and promote economic growth while still operating within a framework of national autonomy as long as there is an organizational structure to deal with common railway operational business practices. A separate Association of Southern Africa Railways (ASAR) is the most direct method of achieving this objective while still allowing individual railways and corridors to compete with each other.

The railway administrations of the SADC region will benefit from the creation of an association by being in a better position to compete with road haulers; shippers will benefit through better and more reliable service and Governments will benefit through a reduced level of subsidies.

Foreign experience: In Europe the International Union of Railways (UIC) performs this coordination function. In the United States it is the American Association of Railways (AAR). The AAR also, through its RAILINC subsidiary, coordinates information on all rail interchange traffic movements throughout the US.

Africa can learn a lot from studying the organization and functions of these associations, but it is also important to recognize that there are a number of differences between the railway environment of Southern Africa and the railway environment of either Europe or America.

A much larger share of European railway service, for example, is made up of passenger traffic rather than freight traffic as is the case with the SADC railways. In addition, the UIC is not heavily involved in the operational practices of its member railways. In the US, on the other hand, railways are almost entirely freight oriented. They operate under the jurisdiction of a single national government. The US Congress has established safety, license qualification and environmental railway legislation for all American railroads, these are enforced by a single Federal Railroad Administration. A substantial portion of the AAR's time is spent in lobbying Congress or the Federal Government concerning railway interests. There is no similar legal mechanism for controlling inter-railway operations within the SADC region, and indeed the fact that there are ten countries in SADC (of which nine have railways) is a binding constraint on the integration of virtually any regional function.

Conclusion: While SADC railways will benefit greatly from the integration that a railway association provides, no single model exists in the rest of the world that can be directly adapted into the SADC region.

2. Background

There are already several African railway associations. The Union of African Railways (UAR) was established in 1972. It represents about 29 members under its five sub-regions. While many SADC railways are members of the UAR, this association is not directly involved in SADC railway operations. It provides coordination for national, sub-regional and regional efforts for the development of railways in the various areas of Africa. Two other railway organizations, the SADC Railway Administrations and the Inter Railway Administrations, currently exist in the SADC region to promote regional cooperation and standardization. To date, although these associations have had some success in identifying regional operating issues, they have had a much more modest role in implementing change. The memberships and responsibilities of the two organizations are almost identical. The principal differences are the involvement of the SADC Railway Administrations in identifying and securing financial support for railway capital projects and the membership of South Africa and Zaire in the Inter Railway Administrations.

The SADC Railway Administrations is made up of the General Managers from each of the nine SADC railways. The General Managers meet on average once a year. The Railway Administrations reports through the SATCC technical unit to the SATCC Coordinating Committee. The SATCC technical unit provides secretariat and support services for the SADC Railway Administrations on a part time basis. These functions include making up an agenda and keeping and preparing minutes.

There are four Subgroups (Technical, Commercial, Traffic and Training) which meet about twice a year. Under some of the Subgroups are several working groups such as the Joint Operations Improvement and Joint Marketing Effort Working Groups that meet on an as needed basis. The subgroups prepare technical papers, consider issues and make recommendations to the working groups.

During the 1980s the SADC Railway Administration concentrated on the solicitation of donor support for rehabilitation of railway infrastructure and the acquisition of railway equipment for SADC railways. Recently, however, as the infrastructure of the railways improved, the focus has begun to shift. Emphasis is now being given to the improvement of operational efficiency and training activities. (See 2.7)

The Inter Railway Administrations includes, in addition to the nine SADC railways, both Spoornet and the SNCZ railway of Zaire. The General Managers of this organization meet once a year. The two sub-committees (Commercial, and Mechanical and Electrical

Engineering) meet three times a year. Spoornet provides secretariat and support services for the Inter Railway Administrations.

At the April 1993 meeting of the SADC Railway Administrations in Windhoek, Namibia it was agreed by the General Managers that they would formally disband the Inter Railway Administrations at the next IRA meeting which will be held in Cape Town during August 1993. Spoornet and Zaire railways will then be invited to attend SADC railway administration meetings until their countries join SADC. Subgroups of both organizations will also merge.

While some uncertainty has been expressed that this action may be a bit premature, it demonstrates a clear attempt by the SADC railways to consolidate their activities. This will be a significant improvement, eliminate duplication, and concurrently save scarce institutional resources. With the future integration of South Africa into a regional body such as SADC there is simply no need for two parallel railway organizations pursuing nearly identical programs.

3. Creation of an Association of Southern Africa Railways

There has been a great deal of discussion about the possible creation of an Association of Southern Africa Railways (ASAR). Some of the first recommendations were made in the 1991 USAID financed STIPA report and in the Canadian financed Study of Interchange Rules for Rail Operations in the SADCC Region.

The STIPA report called for the creation of an ASAR in the SATCC region similar to the Association of American Railroads. Its functions would include: providing a permanent staff for the General Managers Conference and various technical subgroups, developing standards, providing a "clearing house" for demurrage charges and wagon repair billing. It would also be involved in wagon location and promoting international rail transportation within the region.

The Interchange Rules for Rail Operations study went even further than the STIPA report. It proposed that the new association have a staff of six and an annual budget of about US$500,000. It also described two possible organizational structures.

USAID made a presentation concerning the creation of an Association of Southern Africa Railways (ASAR) to the Technical and Commercial SubGroups of the SADC Railway Administrators in Bulawayo in May 1992. After extensive discussion, it was agreed by the General Managers that a study should be done.

In July 1992 at Mbabane, Swaziland, the SATCC Committee of Ministers decided that while an association of SADC railways might be an good idea, "it might nevertheless not be the highest priority". They asked for an investigation of whether the best course of action lay in the immediate establishment of the Association or the strengthening of the capacity of the Technical Unit to undertake the tasks envisaged for the proposed ASAR.

The ASAR issue came up again at the April 1993 meeting of SADC Railway Administrators in Windhoek, Namibia. The members adopted the following recommendations:

- That issue by issue formation of regional institutional frameworks approach be adopted starting with the frameworks for the regional Rolling Stock Information System and the Regional Manual of Interchange Rules at the implementation of these projects. These regional institutional frameworks could be the predecessor organizations for a regional railway association.

- Later, consideration be given to the desirability of forming a Railway Association to consolidate and coordinate the activities of such regional institutional frameworks.

- As soon as it is possible the activities of SATCC and IRA be combined to avoid duplication.

- Mechanisms be established by the Railway Administrations to ensure that regional interventions agreed to are implemented by all Railways.

- There is need for more permanent railway experts at SATCC to allow for continuity and expeditious implementation of decisions by the Railway Administrations.

Subsequently, it was agreed that the railways themselves would finance one additional expert to service the Technical Subgroup at an annual cost of about US$ 60,000. The General Managers therefore recognize the advantages of a stronger integration of their railways. They are even willing to finance part of the cost of strengthening their present organization. However, they favor an evolutionary approach toward the creation a new ASAR.

4. Results of Interviews

During the course of this project analysis the team interviewed representatives from SATCC, the SADC Railway Administrations and the InterRailway Administrations on the desirability of forming a

separate ASAR. For the most part, their views were quite consistent with those expressed by the General Managers at the Windhoek meeting. The long-term need and advantage to the SADC region of having a more integrated regional railway system was recognized. They also recognized that a stronger regional railway organization is an important element in this process. They realize that this is likely eventually to lead to an ASAR. In the short-run, however, they believed that the SADC Railways Administrations already provides many of the functions that a new association might provide. They therefore would prefer to focus resources to strengthen the SADC Railway Administrations until there are new functions to deal with; the RSIS itself is such a function. At that time they believe the SADC Railway Administrations can be separate from the SATCC technical unit, and an ASAR can be formed.

It was pointed out to the team that several regional groups already exist that, can or do, deal with railway issues. At a time when the railways are already trying to consolidate the SADC Railway Administrations and the Inter Railway Administrations, it would be inappropriate to form a new ASAR.

5. Options

The team evaluated three options for dealing with regional railway issues: status quo, create a new ASAR, and the evolutionary approach.

The Status Quo

SADC Railway Administrations receive technical and administrative support from the SATCC technical unit. The formation of new working groups for joint marketing and joint operations improvements indicates a new interest in promoting a more commercial railway orientation (a major focus of SATCC's policy agenda under this project). The willingness of the railways to provide their own financing for a SATCC railway expert is also a good indicator that SADC railways are perhaps more willing to tackle some of the difficult coordination problems than they have been in the past.

The General Managers, however, have not taken a very strong role in dealing with the deteriorating railway situation in the region. Very modest progress has been made to date on implementing changes in interchange rules or running through trains.

The SATCC technical unit is probably not the appropriate group to provide secretariat and administrative support to the SADC Railway Administration. The technical unit does not have the capacity to continue providing this support as the functions of the Railway Administration expand. In addition, the time spent by the technical unit limits its ability to address regional transport policy issues or to promote the adoption of an improved transportation framework in regional governments.

From the railways perspective, the status quo option provides very limited autonomy from bureaucratic oversight. Almost all decisions, even on rather basic operational issues, must proceed for approval from the working groups through the sub groups and then to the Committee of Ministers. This delays positive action and inhibits implementation of new programs.

It is very unlikely that important issues such as coordination of empty wagons or management of the rolling stock information system can be successfully handled within the present framework.

The Creation of a New Association of Southern Africa Railways

The creation of an ASAR would provide an ideal mechanism for promoting the integration of regional railways. A number of new activities, such as safety, regional licensing, and joint inspections could be addressed. An opportunity for more railway autonomy over purely operational issues should be built in to the organizational process.

Real integration of the SADC railways will require run-through trains, single rate quotes, wagon control coordination, per diem accounting and other functions common to modern railway systems. In the U.S. the railroads even commonly own of their specialized wagons (individual shippers own most of the rest). These functions cannot be accomplished through the current SADC General Manager Administrations framework.

The creation of an ASAR would free SATCC to concentrate on matters of transport policy and to coordinate political issues involving governments. Under this approach SATCC would maintain a strong tie with the new ASAR. It could, for instance, be a member of the board of directors.

The real issue concerning the creation of a ASAR is not whether, but <u>when</u> to establish one. The SADC Railways Administration is becoming more effective. The most important argument against establishing an ASAR at this time, however, is the missing sense of ownership by a majority of individual railways themselves.

Unless the railways feel "ownership" for the new organization and are prepared to support it, the association is likely to fail.

The Evolutionary Approach

The evolutionary approach - the third option - reflects some of the changes being currently being implemented. For instance, at the April 1993 meeting in Windhoek the General Managers approved recommendations for schedules, deadlines and action plans to be established for each project. The Joint Operations Improvement and the Joint Marketing Effort Working Groups were directed to implement the agreed interventions without further authorization from the General Managers.

The SADC railways have also been requested to provide the SATCC technical unit with monthly statistics on tonnage, utilization rates and other operating statistics.

These steps reflect a change in the focus of the SADC Railway Administrations toward a more commercial orientation and should be encouraged.

The next step perhaps should be to shift much of the administrative function that is currently handled by SATCC back to the railways themselves. This would include the functions of a secretariat, such as scheduling meetings and preparing minutes. The chairmanship could rotate among the railways so that no one railway would have too large a burden. Costs could be shared by the railways as is the current practice.

A separate working group could be established to investigate and plan for the future establishment of an ASAR.

6. Conclusion

The time is coming, but has not yet arrived, for the formation of an Association of Southern Africa Railroads. The creation of an association along with the commercialization of the railways is the only way to ensure the integration of the region's railways into an organization that can provide seamless, efficient railway service. The service integration that becomes possible from common operational practices will allow railways to compete more effectively with the trucking sector and provide better service to shippers.

Privatization or commercialization of railway services deals mostly with changing internal railway operations and practices.

Regional integration of railway services, through the creation of an ASAR, deals with the problems of inter-railway activities. Efficient railway service in the region is not possible unless both issues are dealt with.

The railways of Southern Africa are quite small by world standards, carrying about 500,000 tons to 12,000,000 tons, and also quite interdependent. Despite heavy new investment in infrastructure and rolling stock over the last decade most of them remain in precarious financial condition. The focus has now turned to improving internal railroad efficiency. This is certainly a positive development and indeed projects such as the RSIS will provide the railroads with some appropriate tools. In the end, however, these measures will only provide partial relief. Unless all the railways can integrate their operations and eliminate interchange constraints there will still be weak links in the system. Southern African railways are simply are too dependent on traffic that interchanges with other railways to operate alone.

Most of the measures the railways must adopt are purely operational in nature. They must ultimately agreeing on uniform standards for equipment, coordinate wagon control, provide a clearing function for wagon hire charges, etc. These can be most efficiently handled directly by railway representatives working together through an association with out direct political direction or oversight. In fact, the experience of technical cooperation among the railways suggests that this will not be difficult.

Other railway issues such as changing interchange rules may involve an element of political interaction. Even here, however, the railway has the primary interest and should be allowed to develop an arrangement through an association of railways with subsequent approval provided by the individual governments.

In conclusion, although it may be necessary, in the short run, to adopt an evolutionary approach to the creation of an ASAR, the railways themselves should begin now the process of developing the framework for such an association. The ASAR is an integral element for improving railway efficiency, relieving SATCC of inappropriate operational functions, and promoting the commercial integration of SADC region railways.

While the ASAR is not a project component per se, it will be supported through selected USAID assistance.

The Rail Car Management Inc. Rolling Stock Information System

The Rail Car Management RS/4000 system is a real time rolling stock information system with the required functionality to run sophisticated regional railroads in the U.S. which have more traffic and more complex operations than even the largest railways in the SADC region.

The system is especially user friendly with a "point shoot" methodology. Many older mainframe systems have very cryptic screen input requirements and are difficult to learn and use. The major characteristics of the RS/4000 system, the data abases the system operates from, and the basic functionality of RS/4000 are described below. Data entry is accomplished in a real-time environment. The data bases are stored and transferred electronically. All movement history, wagon waybills, and train history is cross referenced. For example, waybills for a movement can be accessed directly from the train and individual car movement records. Car movements and other input into the system is accomplished using a continuously updated track inventory. Operators use menu selections to perform functions.

RS/4000 Characteristics

(a) The data base contains all trains and car movement history records and display full location, status, and waybill information for trains, individual wagons, locomotives, and containers. This information is maintained and presented in a manner to provide managers with a powerful aid in managing freight operations.

(b) Operating reports and work orders are generated from work input into the system. Train calling, work orders, and wagon ordering are input into the system and that information is then immediately available to all users of the system. When work orders are completed or trains are arrived, wagon locations are then automatically updated.

(c) RS/4000 does not require the entry of wagon numbers, but instead uses a methodology where by the operator selects the wagons from display screens. This eliminates errors in transposing numbers, while providing a fast and efficient work scheme. Trains can be built and called by selecting individual cars, blocks of cars, or entire tracts. Waybill templates are coded using Repetitive Waybill Codes (RWCs) to quickly fill in repetitive billing and movement information.

(d) The RS/4000 system can break down operations either by function or by geographic regions. The regions can then be further subdivided into stations, zones, and locations. So, for example, individual yard movements can be performed within specific areas of

responsibility while train movements, billing, wagon distribution, etc. can optionally be performed from a central location. Information access and input into the system can be restricted on the basis of geographic locations, or by functionality.

(e)

Wagon spot, pull & release	F
Operating waybill	F
Train Call	P
Wagon, locomotive & crew outbound consist	F
Train Departure	F
Train passing at intermediate yard	F
Train arrival	F
Worked performed	P
Wagon repair track place & release	F
Wagon hold status place & release	F
Locomotive depot in, out of service	P
Service Request (work orders)	F
Service requests compliance	P
Yard master shunting instructions	F
Compliance with shunting instructions	P
Other wagon movements within yard	F
Mechanical inspection of trains	?
Updates to Track-Tag cross reference table	P
Helpers locomotive movements	F
Reasons for train delays	P
Shipper wagon orders	D
Empty wagon distribution instructions	P
Updates to train schedules	D
Updates to tagging tables	D

F=full functionality available
P=partial functionality available, easily adapted
D=developing functionality can be structured into the system
N=no functionality is currently provided

Notes to the desired reported transactions to the RSIS

(f) The operating waybill is entered by using RWC templates, supplemental information specific to the individual movement can then be added. All necessary waybill information for domestic and international movements, including hazardous materials, containers and

intermodal interchanges is provided for. This waybill information then travels electronically along with the movement information for the wagon. If so desired, paper copies can then be generated from multiple sections of the system at any time, but are not necessary since all information will be carried and transferred electronically. Files for both current waybills and waybills from prior movements are stored.

(g) Train calling is performed by entering crew and schedule information and then selecting the operating equipment and wagons. The train is then maintained in a pending status until the yard operator or other train manager departs the train.

(h) Reports can be produced showing all train movements, set-outs and pickups, and placement and release movements showing the work performed.

(i) Service requests or shunting instructions can be entered for individual wagons or copied for groups of wagons from preset codes. These then print on switching (shunting)reports and train reports indicating work to be performed.

(j) A version of wagon tagging is accomplished through RS/4000 destination patron codes. These codes can carry and automatically apply shunting instructions, blocking instructions, service orders, and destinations for wagons. Destination codes are not currently used for car ordering, car scheduling, or yard classification.

(k) Train scheduling is currently not accomplished in RS/4000.

On Line Data Base Files

(a) Wagon data, physical characteristics, location, status, and waybill information is fully available.

(b) Locomotive data partially available. At this time, status, location, and destination information are displayed.

(c) Container data is fully captured, showing location, status, waybill information, physical characteristics, and conveying car.

(d) Yard data gives full information on capacity, tagging patron, type, and inventory.

(e) Train data is partially available. Origin and Destination, consist, operating equipment, history, operating commentary, and crew information is displayed at the present time.

(f) Minor areas of responsibility can be easily set up to attach locations to their classification yards, train set-out locations, and other location and yard information.

(g) Operating waybill data is fully captured and available from most RS/4000 screens. Waybills are entered, modified, stored, and transferred electronically in a totally paperless environment. Waybills are easily verified and extracted for revenue accounting and freight billing.

(h) Wagon schedule data is not available.

(i) Equipment Register files (UMLER) are fully entered into the system automatically.

(j) Off-line batch interface can be fully captured and extracted using any of the many RS/400 data bases.

RSIS Functionality

(i) Monitoring train performance is not possible without developing train scheduling information.

(ii) Individual wagon schedules are not available.

(iii) Empty wagon distribution is not fully provided for. Wagon ordering would be required to provide this functionality.

(iv) On line control of yard classification inventories is easily accomplished in RS/4000. The exact location and status, including the waybill and movement history information is available from the yard manager and track inventory screens.

(v) The blocking and classification of wagons and tracks can be quickly updated to reflect changes in operations.

(vi) Locomotive maintenance records and schedules are not available.

(vii) Operating equipment availability and assignment are available on a system wide basis or through individual classification yards. Managers can quickly review pending train data and yard inventories to determine locomotive assignments and distribution.

FUNCTIONAL OVERVIEW OF THE RAILCAR MANAGEMENT RS/4000

TRAIN CONTROL:

The RS/4000 train control function is used to assign and keep track of wagons moving in trains. Schedules can be maintained, and operators can tell at a quick glance the number of active trains moving over the system.

Using the Yard Management screens, field personnel can assign individual wagons or entire outbound yard tracks to a called train. Locomotives, crews, and duty times are then assigned to the train record.

Trains can be moved from station to station and a record of each transaction is automatically recorded in the train history file. Setouts or pickups can be made for the train as it moves along its scheduled route. The train consist at any point in time can be printed or reviewed.

WAGON CONTROL:

RS/4000 provides multiple functions which can be used to manage wagons on an operation. The current location for any wagon can be traced from almost any RS/4000 option. A complete movement history and the associated waybill is also only one keystroke away from most screens.

Reports can be quickly printed to determine how many wagons are destined for a particular station, customer or train. Wagon distribution personnel have management tools available which can quickly locate empty cars of a certain type, cars that have been sitting idle, or equipment of a certain type moving in trains.

Information contained in the Equipment Register file such as wagon type, physical characteristics, and car hire rates are automatically matched with each wagon. This information is then used by managers to review train lengths, equipment suitability for loading and special handling characteristics.

Special instructions or service request can be quickly applied to wagons in IRCS. Reverse routing of empty wagons is also handled automatically in the system.

MOVEMENT HISTORY

As wagons or trains are moved, a record of each movement is automatically written to the movement history file. The waybill associated with the movement is also stored, so a complete record of each trip is always maintained. This movement history can be used to produce a wide variety of management tools and reports.

BILLING WAGONS

As wagons are loaded, RS/4000 provides a quick and easy means of recording billing information provided by the customer. Using Repetitive Waybill Codes (templates), operators can bill and assign cars to destinations or trains with a minimal number of keystrokes.

Multiple car movements of agriculture or mineral movements can be quickly and easily generated with just a few keystrokes. This information is then maintained with the car as it moves over the operation.

INTERMODAL

Container or flatcar traffic is fully handled in RS/4000. Billing information for containers can be quickly and easily entered in Rs/4000. Containers moving on flatcars can be traced and moved as a unit. Containers can be traced in the same manner as wagons from most RS/4000 screens.

EDI

RS/4000 supports the use of EDI transactions sets to electronically transmit train consists and waybill information between railroads, shippers and steamship lines. This feature results in improved accuracy and greater productivity by doing away with duplicated data entry.

GENERIC TERMS OF REFERENCE FOR RSIS DESIGN, INSTALLATION, TRAINING, AND MANAGEMENT

A -- RSIS Characteristics

1. The offered Rolling Stock Information System (RSIS) must be in full operation on at least one railway which carries 10 million or more tons of freight per year. The offered RSIS system must be an interactive on line system which is actively used by transportation management to monitor and control freight operations. More specifically, it must have the following characteristics:

(a) The data base should have sufficient accurate information on the location, status and demand for wagons, locomotives, containers and trains so that transportation personnel at all levels can use the system with confidence in managing freight operations. Key transportation decisions should not have to depend on reports and telephone calls outside of or independent from the RSIS.

(b) Detailed transportation decisions should be communicated to the wagon, locomotive and train via the RSIS. In most instances, the RSIS data base should be updated simply as a by product of these communications.

(c) The requirement for field personnel to input individual wagon numbers should be kept at an absolute minimum. For example, the input of the outbound consist should only require the yard office to specify the appropriate outbound yard track(s) and the beginning and ending wagon numbers rather than require the input of all the individual wagon numbers in the consist. Similarly, the system should provide operating waybill templates so that few key strokes are required to enter repetitive waybills.

(d) Application programs should be designed to permit maximum flexibility for transportation management to consolidate geographical regions and to centralize selected transportation decision making if railway management so wishes. Examples of the latter are the possible centralization of detailed empty wagon distribution and locomotive power balancing functions.

(e) The desired types of transactions reported to the system include:

- o Wagon spot, pull & release
- o Operating waybill (a)
- o Train call (b)
- o Wagon, locomotive & crew outbound consist

- o Train departure
- o Train passing at intermediate yards
- o Train arrival
- o Worked performed (c)
- o Wagon repair track place & release
- o Wagon hold status place & release
- o Locomotive depot in, out & service
- o Service requests (d)
- o Service requests compliance (d)
- o Yard master shunting instructions
- o Compliance with shunting instructions
- o Other wagon movements within yard
- o Mechanical inspection of trains
- o Updates to Track - Tag Cross Reference Table (e)
- o Helper locomotive movements
- o Reasons for train delays
- o Shipper wagon orders (f)
- o Empty wagon distribution instructions (g)
- o Updates to train schedules (h)
- o Updates to Tagging Tables (e)

Notes to the desired reported transactions to the RSIS:

(f) The operating waybill contains all the required information to transport the wagon from the shipper to the consignee, including: shipper and consignee names and addresses, commodity, priority, routing and the like. Thus, RSIS now has sufficient data to construct a "dock-to-dock" schedule for the wagon, and no paper waybill is required to accompany the wagon unless it is required because of export regulations or the like.

(g) Train call is entered to RSIS by the origin yard when it has sufficient traffic on hand to run the train. As a result of this message, RSIS outputs requests for the yard to input wagon, locomotive and crew consists for the train.

(h) Work performed is a report to RSIS of all unscheduled pick ups and set outs of wagons that have occurred between reporting stations or yards. Its purpose is to transfer responsibility for the affected wagons from the appropriate minor area responsibility file to the train responsibility file and then, if the wagon is detached from the train, to the reporting yard responsibility file.

(i) Service Requests are instructions to a specific yard to perform an identified service. Examples include INSPECT THE LOADED WAGON, WEIGH THE

WAGON, and the like. The Service Request appears as a comment line on the inbound consist for the yard that is required to perform the service. The RSIS monitors to be sure that compliance with Service Requests are reported in a timely manner.

(j) The system marshalling plan is implemented in RSIS through a set of Tagging Tables which are established for each yard on the railway. These tagging tables establish the marshalling responsibilities of each yard by developing a Tag Code for each wagon in the yard or on an inbound train to the yard. The Tag Code is based on parameters such as wagon destination, load-empty status, "sick" status, commodity, outstanding service requests, etc. and groups wagons by the work that is to be performed by the yard. Examples include assigning the wagon to: a departure train, the industry zone where the wagon is to be spotted, the repair track for "sick" wagons, the hold track to await Empty Wagon Distributor instructions, etc. Since the Tagging Tables represent the overall marshalling plan for the railway, they are relatively static. Conversely, the Tag - Track Cross Reference Table is maintained by the local yard master and is often changed several times during the day. It is the primary tool yard management uses to control classification track assignments in the yard.

(k) The RSIS either should capture detailed wagon orders or have the local agent summarize all the customer orders for his agency and enter an daily agency order for a specified number of wagons by types. If the offered RSIS captures detailed wagon orders, major customers should be permitted to have terminals to monitor their shipments and to enter wagon orders themselves.

(l) When the wagon is reported as released empty, it should immediately receives a destination from RSIS based on stored empty wagon distributor instructions. The RSIS generated destination might be to send the wagon (i) to another yard for subsequent assignment to a wagon order, (ii) direct to a specific shipper in response to a wagon order or because the wagon has been assigned to a shipper pool, (iii) to the cleaning track, (iv) to the shop or repair track, (v) to a local hold track, and the like.

(m) Train schedules should be maintained in the RSIS data base for all regular trains in terms of routings, train stopping points and enroute times.

B -- RSIS Data Base Contents

2. The on line data base should contain the following types of data:

Unit record data:

(a) Wagon data contains a record for each wagon owned plus foreign owned wagons that are on line. The fields of the record include the wagon's physical characteristics, its present location and destination, its contents, and its present status.

(b) Locomotive data contains a record for each locomotive owned. The fields of the record include the locomotive's physical characteristics, its present status, its location and its preventative maintenance schedule.

(c) Container data contains a record for every container that is on a train. The fields of the record include the container's physical characteristics, its contents and its present location.

Responsibility data:

(d) Yard data should exist for each yard and contain records for each wagon, locomotive and container in the yard.

(e) Train data should exist for each train and contain the wagon and locomotive consist as well as the routing and schedule for the train.

(f) Minor area responsibility data should exist for each link between yards and contain a record for each wagon that has been set out in the minor area.

Miscellaneous data:

(g) Operating waybill data should exist for each loaded wagon and each empty wagon that is moving on a special empty waybill. These records should permit the movement of the wagon in a "paperless" environment and are used to prepare freight bills and revenue accounting in the off-line system.

(h) Wagon schedule data should contain a detailed schedule for every loaded and empty wagon that is in transit in terms of arrival and departure dates and times on specific trains, origin, intermediate and destination yards, industry spots or interchange delivery. This file should form the basis for issuing detailed work orders to all yards and for monitoring dock-to-dock schedule commitments to shippers.

(i) Equipment Register file should contain a record for every existing wagon that might at some time come to the railway in interchange. The records should contain the wagon's ownership initial and serial number, the wagon type including a description of its physical characteristics and the applicable wagon

hire per diem and mileage rates.

(j) Off-line batch processing interface files contain journal records of each wagon and locomotive event or transaction that is reported to the on line RSIS. These records are used by the off-line system to develop operating statistics, support wagon hire accounting and perform operating studies.

C -- RSIS Functionality

3. The offered on line system should be able to perform the following types of functions:

(i) monitoring train performance based on stored train schedules for each regularly operated train;

(ii) developing, executing and monitoring dock-to-dock schedules for each wagon so as to offer highly predictable transit times to the shipper, even if the transit involves more than one railway;

(iii) performing empty wagon distribution based on stored wagon distributor instructions which are applied as soon as the empty wagon is received in interchange or is reported released by the consignee so as to reduce substantially the requirement to place empty wagons on hold tracks and, thus, to make significant improvements to wagon turn around times;

(iv) providing on line control of yard classification activities by yard management through the monitoring of the exact location and status of all wagons in the yard and the issuance of shunting instructions to shunting engine crews via the RSIS system so as to reduce the amount of time individual wagons are in yards;

(v) permitting dynamic adjustment by system transportation management of classification work to be done by each marshalling yard and train blocking plans so as to reduce the number of times individual wagons are "yarded", i.e., handled by a marshalling yard;

(vi) monitoring locomotive preventative maintenance schedules and lube oil test results so as to permit, for example, the assignment of a single through locomotive safely to long distance unit trains that crosses into the neighboring railway; and

(vii) supporting the ability for centrally located transportation management to

assign all individual road haul locomotives to all through trains so as to better control horsepower per ton for each train, improve locomotive power balancing across the railway, and, as a result, significantly improve locomotive utilization.

D – RSIS Implementation

4. The implementation project is in two phases lasting a total of five years. In Phase 1 the RSIS will be implemented on the Railways of Botswana, Swaziland, Zambia and Zimbabwe Railways. In Phase 2 the implementation will be extended to the Railways of Mozambique and TAZARA.

Planning Steps:

5. Develop and present to the Steering Committee for approval detailed implementation plans and project schedules for the following steps:

(a) Make arrangements and prepare schedules for hands-on training of the initial core staff of the Project Team.[1]

(b) Conduct a detailed technical survey of existing train and yard operations and public and railway telecommunication capabilities on the Botswana, Zambia and Zimbabwe Railways which would:

(i) Identify specific field reporting locations and other locations requiring access to transportation control centers, operating management, key customers, etc.;

(ii) Prepare a list of required computer terminals, printers, controllers, standby power units, MODEMS and other telecommunications equipment for each of these locations;

(iii) Select the best telecommunications approach that will provide acceptable communications links between base and field reporting and inquiry locations;

(iv) Develop a list of required telecommunications equipment and communica-

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[1]The "hands-on" training program on Spoornet should consist of 2 weeks formal class room training and 4 weeks hands-on experience in the operation of the SPRINT System in the field.

tion links; and

(v) Develop detailed projections for the acquisition cost of required computer terminal and telecommunications equipment and for the lease costs for the required communications facilities.

(c) Prepare technical specifications and arrange for the issuance of tenders for the required computer terminal and telecommunications equipment.

(d) Develop and arrange for a practical and cost effective program for maintaining this computer terminal and telecommunications equipment once installed.[2]

(e) Identify required changes to coding systems, e.g., train identification numbers, and recommend practical approaches to resolving these types of problems.

(f) Develop practical approaches for down loading (i) the daily train movement file, (ii) the daily wagon position snap shot, (iii) and the monthly wagon movement history file.

(g) Formulate plans for integrating the down loading of off line data to the individual railways for use in the development of their MIS systems.

(h) Develop procedures for the following regional functions:

(i) Wagon hire accounting reconciliation functions at the end of the month;

(ii) Compiling Equipment Register changes from the individual railways and producing the new monthly version.

(iii) Compiling geographical changes in the individual railways and producing the new monthly version.

(i) Develop detailed plans and schedules for training the trainers and for geographically phased field cutover.[3]

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[2]The maintenance of the computer terminal and telecommunications equipment on Spoornet and Namibia Railways is performed by Datavia which is an independent cost center of TRANSNET.

[3]In general, physical installation of equipment should begin at the southern borders of the Botswana and Zimbabwe Railways and end with the Copper Belt on the Zambia Railway. The training and

(j) Develop functional specifications for any changes that are required in the SPRINT application programs. (Few, if any, required changes are anticipated.)

(k) Decide which sets of SPRINT application modules will be included in the initial cutover and develop strategies and schedules for the introduction of the balance of the SPRINT modules at a later date.

(l) Adapt as necessary and publish the SPRINT Operating Manuals and other training aids.

Implementation Steps:

6. Make contracting arrangements for acquisition of equipment and for leasing of communications facilities.

7. Monitor SPRINT software modifications, if any.

8. Conduct training programs for the Implementation Teams.

9. Schedule and monitor the physical installation of computer terminal and telecommunications equipment on a geographically phased basis.

10. Conduct training for field forces and institute SPRINT cutover of reporting locations on a geographically phased basis.

11. After the basic SPRINT application modules are operating satisfactorily in most of the reporting yards for any of the initial three railways, begin the introduction of the other SPRINT applications modules and train transportation management in the use of the system to better control wagons, locomotives and trains.

Future Phase Planning Steps:

12. After the ability to implement and effectively use the SPRINT System has been demonstrated, develop plans, schedules and budgets for the installation of additional SPRINT-based computer service centers.[4]

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cutover of reporting locations to the SPRINT system should follow the same pattern with a four to six week lag.

[4]Within a two to three year period, it is likely that it will be feasible to implement SPRINT on relatively inexpensive RISC-based work stations for small railways such as BR, NRZ and ZR.

13. Modify the SPRINT application programs to exchange the following data among the independent SPRINT-based systems:

DESCRIPTION	FREQUENCY	RECIPIENT
Advance consists for trains destined to interchange yards	Real time	Connecting carrier
Interchange delivery lists for all wagons	Real time	Connecting carrier
Interchange lists of foreign owned wagons	Daily batch	Wagon owning railway
Operating waybill, i.e., truck label, data for wagons destined off line	Real time	Connecting carrier
New and revised wagon schedules for wagons destined off line[5]	Real time	Connecting carrier
Locomotive preventative maintenance dates and results for locomotives that go off line in run-through trains.	Real time	Connecting carrier
Changes or updates to the Equipment register	Updated Equipment Register at end of month	All railways
Changes or updates to the railways geographical profile	Updated Equipment Register at end of month	All railways

E -- Proposal Elements

14. The proposal should contain the following elements:

(a) The level-of-effort and projected man month unit costs and total costs for providing personnel to the RSIS Regional Pilot Project to undertake project

[5]This data exchange capability would only be possible after the RSIS systems of the individual railways were capable of producing and maintaining wagon schedules for all loaded moves.

management, technical assistance and training in Botswana, Zambia and Zimbabwe for the (i) planning, (ii) detailed field survey and (iii) field implementation tasks[6];

(b) The cost, if any, and the scope for the license of the SPRINT Application Software[7];

(c) The cost, if any, for providing formal instruction and hands-on training on the system to members of the Project Team's core field implementation staff from each railway[8];

(d) The basis for apportioning on-going costs and the projected total magnitude of these costs for (i) computer processing, (ii) inter-railway telecommunications links, (iii) software maintenance and the like[9];

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[6]Spoornet management has stated that the cost for these functions would be based on recovery of the individual's salary plus out-of-pocket travel and away-from-home living expenses.

[7]spoornet management has stated that there would be no license fee charged to the railways of Southern Africa for the use of the SPRINT Software, but that title to this software would remain with Spoornet, i.e., Spoornet is not be willing to give other Southern Africa Railways the right to sell or otherwise transfer the software outside the region. It should also be made clear whether the no cost license includes new application software now under development but not yet implemented by Spoornet such as the empty wagon distribution and wagon scheduling modules.

[8] Spoornet management has stated that Spoornet would not charge for hands-on training on Spoornet, but Spoornet may charge for their out-of-pocket cost in providing class room training. However, Spoornet would not pay for the travel and away-from-home living expenses of the trainees.

[9]At present, the total SPRINT on-going costs including telecommunications and the leasing and maintaining of all computer terminals and printers in the field approximates $15 million US per year. These costs are apportioned to Spoornet's operating regions and to the Namibia Railway on the basis of the SPRINT computer usage as measured by the number of computer tasks performed. For example, the Namibia Railway accounts for approximately 1.5% of total volume of computer tasks and, thus, is charged $225,000 US per year for SPRINT.

(e) The unit costs for providing software system analysts and programmers to make special modifications to existing software or to develop new software for the other railways of the region. (Note: no specific software modifications or additions have been identified as yet, but, based on past experience of the transfer or expansion of the types of systems to other railways, it is likely that at least some minor modifications or additions will be required.)

SPRINT TERMS OF REFERENCE FOR RSIS DESIGN, INSTALLATION, TRAINING, AND MANGEMENT

Background

The Terms of Reference presented below outline the proposed approach to implementing a regional pilot project to install and evaluate a SPRINT-based regional RSIS on the Botswana, Zambia and Zimbabwe Railways[1] through use of the SPRINT Computer Processing Center in Johannesburg. Steps 1 and 2 would be undertaken by representatives of USAID. The balance of the Steps would be the responsibility of the proposed SPRINT-based regional RSIS Pilot Project Team and its Steering Committee.

Once the applicability and effectiveness of the basic SPRINT application programs have been demonstrated, the scope of the application programs should be expanded and a project should be undertaken to determine how and where one or more additional SPRINT Computer Processing Centers should be installed in the region of Southern Africa.

Planning Steps:

1. Obtain agreement from the management of the Botswana, Zambia and Zimbabwe Railways to enter into the proposed SPRINT-based regional RSIS Pilot Project and to support the required implementation and evaluation efforts in terms of the following:

(a) Commit to making sufficient staff available to perform detailed planning for and implementation of SPRINT in the field. The required staffing levels from each participating railway include:

(i) A core implementation staff of approximately five individuals from each railway to receive detailed hands-on training in SPRINT field procedures on Spoornet. This core staff would become full time members of the RSIS Pilot Project Team and would be responsible for (a) participating in detailed field implementation planning on its railway as outlined under Step 3 below, (b) adapting the SPRINT Field Procedures Manual for its railway, (c) training the balance of the SPRINT field implementation team, and (d) providing direct supervision of the implementation team during the cutover of SPRINT. The composition of this initial staff should be a mixture of competent individuals, some of whom have experience in trans-

[1]The RSIS pilot project might also include the implementation of SPRINT on the Swaziland Railways.

portation and field operations and others, in data processing.

(ii) An initial full time telecommunications staff of two or more engineers who would become members of the RSIS Pilot Project Team and who would: (a) participate in the field implementation planning on their railway as outlined under Step 3 (b) below; (b) supervise the implementation of the required telecommunications network, MODEMS, computer terminal equipment, air conditioning equipment and the like at the yards and other reporting locations on their railway; (c) supervise the installation of other telecommunications equipment, e.g., multiplexers on their railway, which is necessary to hook up the dedicated circuits with the SPRINT Computer Processing Center in Johannesburg; (d) assist in arranging with the public telecommunications networks of their respective countries; and (e) develop an effective organization to maintain the "grass roots" telecommunications network equipment and computer terminals in the field.

(iii) A project staff of 20 to 25 individuals from each railway who have experience in field operations. This staff would be selected from each railway approximately two months prior to the start of the geographically phased field cutover, would receive intensive training from the initial core staff and would remain with the project until field cutover is completed on their railway.

(iv) Individuals from each railway as required on an ad hoc basis to install the necessary telecommunications and computer terminal equipment in the field.

(b) Commit to assigning one or two members of senior management from each railway to serve on the RSIS Pilot Project Steering Committee. This Steering Committee should meet at least monthly during planning and field cutover periods. The functions of the Steering Committee and its members would include: (a) approving the detailed implementation plans and schedules developed by the RSIS Pilot Project Team; (b) acting as top management liaisons with their railway to help ensure intra-railway coordination (e.g., eliminating any internal "road blocks"); and (c) monitoring progress of the RSIS Pilot Project against approved plans and schedules.

2. Enter into an agreement with Spoornet for the implementation and operation of the SPRINT-based, Regional RSIS Pilot Project using the SPRINT Computer Processing Center in located Johannesburg. This agreement should specify the following elements:

(a) The level-of-effort and projected man month unit costs and total costs for providing Spoornet personnel to the RSIS Regional Pilot Project to undertake project management, technical assistance and training in Botswana, Zambia and Zimbabwe for the (i) planning, (ii) deailed field survey and (iii) field implementation tasks[2];

(b) The cost, if any, and the scope for the license of the SPRINT Application Software[3];

(c) The cost, if any, for providing formal instruction and hands-on training on Spoornet to members of the Project Team's core field implementation staff from each railway[4];

(d) The basis for apportioning on-going costs and the projected total magnitude of these costs for (i) computer processing, (ii) inter-railway telecommunications links, (iii) software maintenance and the like[5];

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[2]Spoornet management has stated that the cost for these functions would be based on recovery of the individual's salary plus out-of-pocket travel and away-from-home living expenses.

[3]spoornet management has stated that there would be no license fee charged to the railways of Southern Africa for the use of the SPRINT Software, but that title to this software would remain with Spoornet, i.e., Spoornet is not be willing to give other Southern Affica Railways the right to sell or otherwise transfer the software outside the region. It should also be made clear whether the no cost license includes new application software now under development but not yet implemented by Spoornet such as the empty wagon distribution and wagon scheduling modules.

[4] [4]Spoornet management has stated that Spoornet would not charge for hands-on training on Spoornet, but Spoornet may charge for their out-of-pocket cost in providing class room training. However, Spoornet would not pay for the travel and away-from-home living expenses of the trainees.

[5]At present, the total SPRINT on-going costs including telecommunications and the leasing and maintaining of all computer terminals and printers in the field approximates $15 million US per year. These costs are apportioned to Spoornet's operating regions and to the Namibia Railway on the basis of the SPRINT computer usage as measured by the number of computer tasks performed. For

(e) The unit costs for providing Spoornet software system analysts and programmers to make special modifications to existing SPRINT software or to develop new software for the other railways of the region[6]; (Note: no specific software modifications or additions have been identified as yet, but, based on past experience of the transfer or expansion of the types of systems to other railways, it is likely that at least some minor modifications or additions will be required.)

3. Develop and present to the Steering Committee for approval detailed implementation plans and project schedules for the following steps:

(a) Make arrangements and prepare schedules for hands-on training of the initial core staff of the Project Team.[7]

(b) Conduct a detailed technical survey of existing train and yard operations and public and railway telecommunication capabilities on the Botswana, Zambia and Zimbabwe Railways which would:

(i) Identify specific field reporting locations and other locations requiring access to SPRINT, e.g., transportation control centers, operating management, key customers, etc.;

(ii) Prepare a list of required computer terminals, printers, controllers, standby power units, MODEMS and other telecommunications equipment for each of these locations;

(iii) Select the best telecommunications approach that will provide acceptable communications links between Johannesburg and field reporting and inquiry locations during the pilot implementation of SPRINT;

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example, the Namibia Railway accounts for approximately 1.5% of total volume of computer tasks and, thus, is charged $225,000 US per year for SPRINT.

[6]Spoornet management has stated that they would provide Spoornet system analysts and programmers at the rate of 100 Rand (approximately $30 US) per hour.

[7]The "hands-on" training program on Spoornet should consist of 2 weeks formal class room training and 4 weeks hands-on experience in the operation of the SPRINT System in the field.

(iv) Develop a list of required telecommunications equipment and communication links; and

(v) Develop detailed projections for the acquisition cost of required computer terminal and telecommunications equipment and for the lease costs for the required communications facilities.

(c) Prepare technical specifications and arrange for the issuance of tenders for the required computer terminal and telecommunications equipment.

(d) Develop and arrange for a practical and cost effective program for maintaining this computer terminal and telecommunications equipment once installed.[8]

(e) Identify required changes to coding systems, e.g., train identification numbers, and recommend practical approaches to resolving these types of problems.

(f) Develop practical approaches for down loading (i) the daily train movement file, (ii) the daily wagon position snap shot, (iii) and the monthly wagon movement history file.

(g) Formulate plans for integrating the down loading of SPRINT off line data to the individual railways for use in the development of their MIS systems.

(h) Develop procedures for the following regional functions:

(i) Wagon hire accounting reconciliation functions at the end of the month; (This function is now being performed by Spoornet.)

(ii) Compiling Equipment Register changes from the individual railways and producing the new monthly version.

(iii) Compiling geographical changes in the individual railways and producing the new monthly version.

(i) Develop detailed plans and schedules for training the trainers and for

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[8]The maintenance of the computer terminal and telecommunications equipment on Spoornet and Namibia Railways is performed by Datavia which is an independent cost center of TRANSNET.

geographically phased field cutover of the SPRINT system.[9]

(j) Develop functional specifications for any changes that are required in the SPRINT application programs. (Few, if any, required changes are anticipated.)

(k) Decide which sets of SPRINT application modules will be included in the initial cutover and develop strategies and schedules for the introduction of the balance of the SPRINT modules at a later date.

(l) Adapt as necessary and publish the SPRINT Operating Manuals and other training aids.

Implementation Steps:

4. Make contracting arrangements for acquisition of equipment and for leasing of communications facilities.

5. Monitor SPRINT software modifications, if any.

6. Conduct training programs for the Implementation Teams.

7. Schedule and monitor the physical installation of computer terminal and telecommunications equipment on a geographically phased basis.

8. Conduct training for field forces and institute SPRINT cutover of reporting locations on a geographically phased basis.

9. After the basic SPRINT application modules are operating satisfactorily in most of the reporting yards for any of the initial three railways, begin the introduction of the other SPRINT applications modules and train transportation management in the use of the system to better control wagons, locomotives and trains.

Future Phase Planning Steps:

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[9]In general, physical installation of equipment should begin at the southern borders of the Botswana and Zimbabwe Railways and end with the Copper Belt on the Zambia Railway. The training and cutover of reporting locations to the SPRINT system should follow the same pattern with a four to six week lag.

10. After the ability to implement and effectively use the SPRINT System has been demonstrated, develop plans, schedules and budgets for the installation of additional SPRINT-based computer service centers.[10]

11. Modify the SPRINT application programs to exchange the following data among the independent SPRINT-based systems:

DESCRIPTION	FREQUENCY	RECIPIENT
Advance consists for trains destined to interchange yards	Real time	Connecting carrier
Interchange delivery lists for all wagons	Real time	Connecting carrier
Interchange lists of foreign owned wagons	Daily batch	Wagon owning railway
Operating waybill, i.e., truck label, data for wagons destined off line	Real time	Connecting carrier
New and revised wagon schedules for wagons destined off line[11]	Real time	Connecting carrier
Locomotive preventative maintenance dates and results for locomotives that go off line in run-through trains.	Real time	Connecting carrier
Changes or updates to the Equipment register	Updated Equipment Register at end of month	All railways

[10]Within a two to three year period, it is likely that it will be feasible to implement SPRINT on relatively inexpensive RISC-based work stations for small railways such as BR, NRZ and ZR.

[11]This data exchange capability would only be possible after the RSIS systems of the individual railways were capable of producing and maintaining wagon schedules for all loaded moves.

Changes or updates to the railways geographical profile	Updated Equipment Register at end of month	All railways

RSIS EXPERIENCE: LESSONS LEARNED

1. The introduction of a modern computer based, rolling stock information system (RSIS) is an important component of a railway's overall management information system (MIS). The RSIS has become an essential tool in the successful management of freight oriented railways in North America and else where.

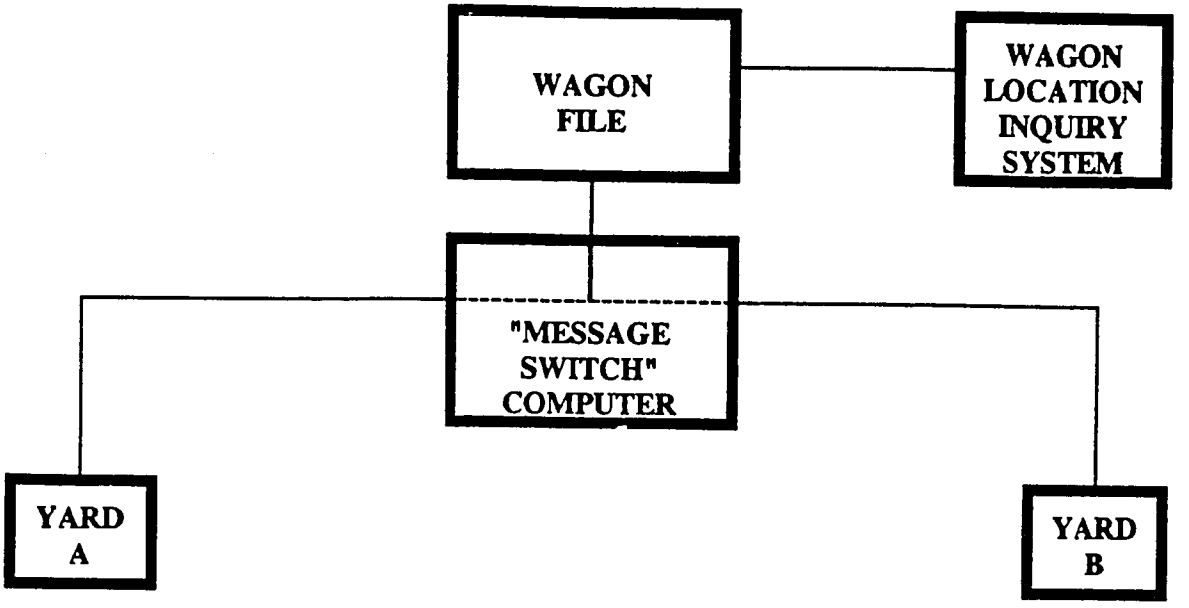
A - History of RSIS Development In North America

1950s and Earlier:

2. Prior to 1960 transportation management information systems were based on teletype systems. Major marshalling yards teletype advanced train consists to the next "train breakup" yard so that the yard master had the opportunity to plan the required classification work prior to the arrival of the train. Also, each freight station would teletype to the division office the number of loads and unloads that occurred during the last 24 hours. This data would then be compiled and teletype to the transportation management at railway headquarters. Finally, the train dispatchers would teletype to railway headquarters critical information about train operations such as derailments, train delays for key trains and the like. Transportation management would use this information to monitor freight operations, but most specific transportation decisions were made by the local forces, e.g., assignment of destinations to individual empty wagons, assignment of locomotives to each train, whether or not to run an extra train, etc. For the most part, there was no means to inform the shipper as to the location of his wagon.

1960s:

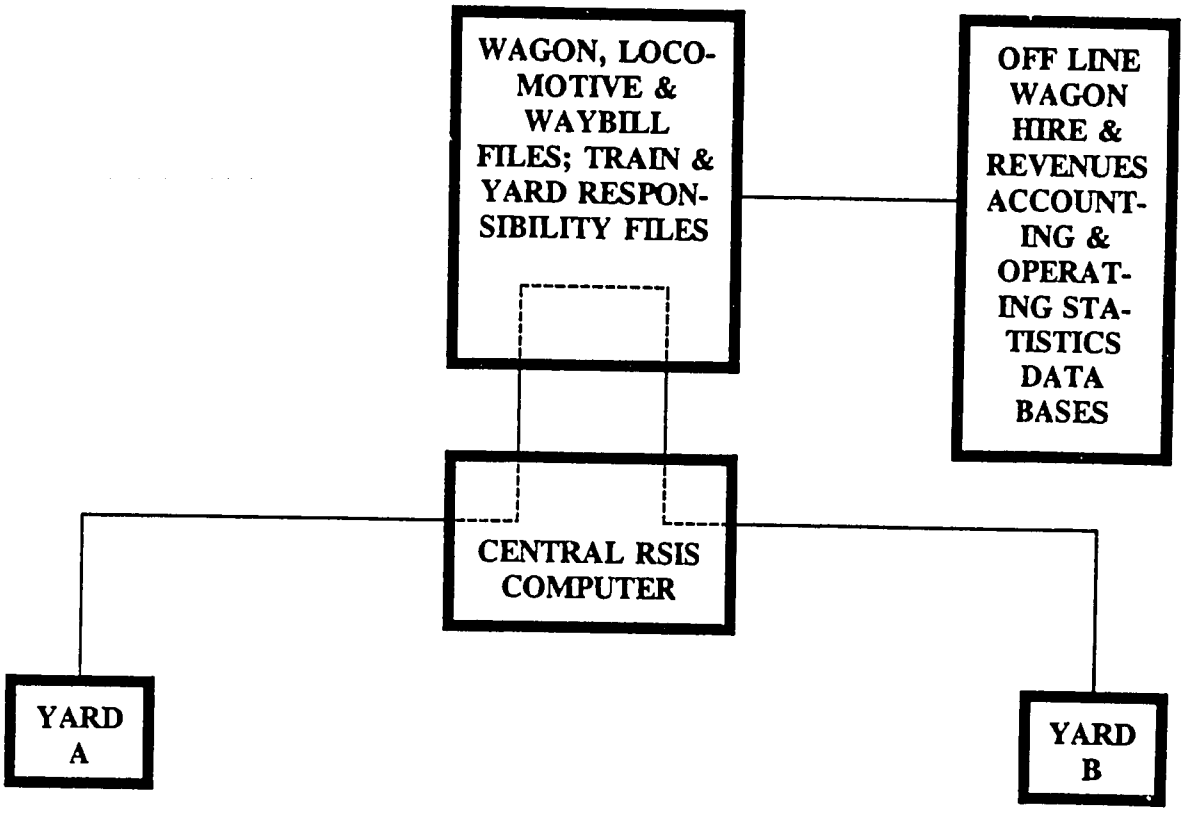
3. In the 1960's several of the major railroads began to install computers which would capture the advance train consist data between the major yards plus wagon interchange reports from interchange stations and record this information in a wagon file.



4. Since these early systems contained no online, interactive logical edits prior to the advance train consist and interchange reports accepted by the system, the data base soon became so inaccurate that transportation personnel would not use it for making decisions. Essentially, the sole use of these systems was (i) to respond to shipper inquiries as to the probable location of an individual wagon and (ii) to collect interchange and mileage data to support wagon hire accounting and the preparation of operating statistics. Thus, the systems produced few operating benefits in terms of increased wagon and locomotive utilization and improved customer service through being able to do a better job of supplying empty wagons and to improve the reliability of transit times.

1970s:

5. In the late sixties and early seventies Southern Pacific Railway in a joint project with IBM developed the first comprehensive RSIS called "TOPS", which finally produced tangible operating benefits.



6. The RSIS data base was sufficiently accurate and complete to support transportation decision making because the system included:

(a) extensive logical edits;

(b) the real time capture of all significant transactions for wagons locomotives and trains; and

(c) the development of useful inquiry reports and decision tools for assigning destinations to individual empty wagons and locomotives to trains and the like.

During the seventies TOPS was transferred from the Southern Pacific to British Rail, Burlington Northern, Canadian National and Union Pacific. In addition, Missouri Pacific and South African Railways adopted many of the design philosophies of TOPS, but wrote their own RSIS systems. Also during the seventies, the Association of American Railroads (AAR) introduced a message switch service whereby each railroad would transmit all interchange records in six or eight hour batches to the AAR computer. The AAR would use these reports to update its central data base as to the inter-railroad location of all North American wagons and to report all the interchange wagon activities to the railroad which owned the wagon.

7. The primary short coming of the original TOPS-based systems was the fact that the central TOPS data base had no knowledge of the exact location of a wagon when it was in a yard. Initially, yard information systems (YIS) were based on the use of punch cards. Each wagon was represented by a single punch card which was received on an IBM 1050 terminal at the same time that the advance consist was received. These punch cards were then stored in racks, i.e., pigeon holes" in track sequence -- each pigeon hole represented a track in the yard. When the yard master wanted to issue shunting instructions to the shunting crew, he would run the stack of cards for a track in an IBM 402 or IBM 407 card punch reader and manually mark on the printed list of wagons the numbers of the classification track into which he wished each wagon to be shunted. After the shunting crew confirmed that the shunting instructions were carried out, perhaps with some exceptions, the yard master's clerk would place the punch cards in the pigeon hole of the new track. Eventually, when the wagons were moved to the departure yard to make up a train, the cards were used to enter the advance consist into the system.

8. This semi-manual YIS worked reasonably well for small and medium sized yards, but it did not serve the needs of the larger marshalling yards. Thus, in the sixties and seventies, various mini-computer based, YIS systems were developed and installed in these larger yards. Some railways who had not yet installed a TOPS-like central RSIS system also tried to install mini-computer based YIS systems. The rationale was that most wagon delays occurred in yards rather than on trains; thus, the installation of the YIS should make the greatest improvements in wagon utilization.

9. Some of these mini- computer based YIS systems were installed on railways that did not already have a comprehensive, interactive RSIS in operation. Many of these systems never were able to produce the projected operating benefits -- primarily because it is difficult clerically to enter all the wagon operating waybill data required for planning shunts in a timely manner when the wagons arrive on a train[1]. As a result, the original manual systems for controlling the yard remained in place and the YIS merely became a passive data acquisition system that recorded intra yard wagon movements after the fact. For those railways that already had a comprehensive RSIS in place, this required operating waybill data was entered at the origin point for the loaded wagon, and the YIS only had to report the arrival of the train for the data to be down loaded from the RSIS to the YIS.

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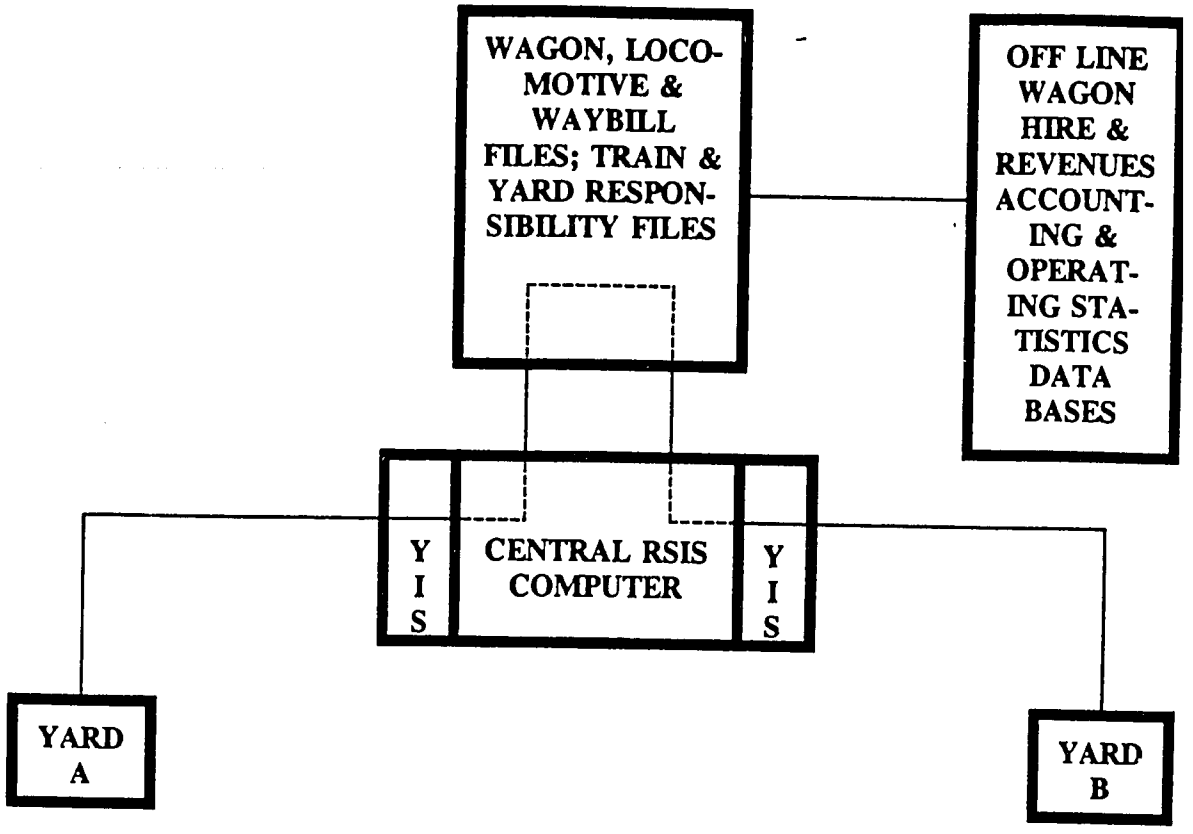
[1]In the mid seventies the Ferrocarriles Nacionales de Mexico (FNdeM) installed a central message switch, passive data acquisition system that primarily recorded train consist data. In addition, FNdeM began installing mini-computer based, YIS systems at their major marshalling yards, e.g., Valle de Mexico. In spite of substantial investments in training and technical assistance, these systems never became sufficiently current or accurate to produce operating benefits. Thus, FNdeM is now replacing these systems with a modern RSIS from Union Pacific.

1980s:

10. In the 1980's the major North American railways began installing YIS systems not only in the major marshalling yards, but also in the smaller reporting yards. Initially some of these YIS systems in local or regional based mini-computers, e.g., the Canadian National and the Missouri Pacific Railways. Other railways, such as the Southern Pacific and British Rail, performed all of the YIS processing centrally in a system next to the central RSIS system, as illustrated below. Today all of the railways either have or are in the process of centralizing YIS processing. The railways have found that marginal increase in communications cost as a result of this centralization is more than off set by savings in computer equipment and operator costs. More importantly, these railways have found that (i) it is far easier to implement the periodic, but constant application program upgrades if there is only one set of YIS application programs residing in a centrally located computer and (ii) it is far easier to ensure the required 99 percent plus system up time if the computer operators and central located operating system programmers work as team.



1990s:

11. The principal advance in North American RSIS systems in at least the early nineties is the agreement among the railways to implement inter railway dock-to-dock wagon scheduling. The capability to develop and maintain detailed wagon schedules for all traffic was developed by the Missouri Pacific in the late seventies. This capability was extended to the Union Pacific when these railways merged. More recently, the Sante Fe and the CSX Railways have developed wagon scheduling for their internal systems. However, all of the principal railways have now agreed to implement this wagon schedules capability and to interchange this data by 1994 or 1995 so that all traffic in North America will be moving on "seamless" wagon schedules regardless of how many railways are involved in the route.

B - Key RSIS Guidelines

12. In summary, North American freight oriented railroads who have successfully installed a RSIS have found that there are several important guidelines in designing the RSIS structure, such as:

(a) The data base should have sufficient accurate information on the location, status and demand for wagons, locomotives, containers and trains so that transportation personnel at all levels can use the system with confidence in managing freight operations. Key transportation decisions should not have to depend on reports and telephone calls outside of or independent from the RSIS.

(b) Detailed transportation decisions should be communicated to the wagon, locomotive and train via the RSIS. In most instances, the RSIS data base should be updated simply as a by product of these communications. In other words, RSIS users have found that the system data base not only must be online and updated in real time, but also must be in-line for the communication of transportation instructions. They have learned that passive data collection RSIS's have generally been ineffective in producing tangible operating benefits.

(c) The requirement for field personnel to input individual wagon numbers should be kept at an absolute minimum. For example, the input of the outbound consist should only require the yard office to specify the appropriate outbound yard track(s) and the beginning and ending wagon numbers rather than require the input of all the individual wagon numbers in the consist. Similarly, the system should provide waybill templates so that few key strokes are required to enter repetitive waybills.

(d) Application programs should be designed to permit maximum flexibility for transportation management to consolidate geographical regions and to centralize selected transportation decision making if railway management so wishes. Examples of the latter are the possible centralization of detailed empty wagon distribution and locomotive power balancing functions.

C. RSIS Data Base Architecture

13. This section outlines the individual data files that are part of a comprehensive RSIS. In general they can be grouped into three broader categories; unit record files, responsibility files, and other miscellaneous files. In the first group of files each wagon, locomotive and container is represented by a record in its unit record file.

(a) Wagon file contains a record for each wagon owned plus foreign owned wagons that are online. The fields of the record include the wagon's physical characteristics, its present location and destination, its contents, and its present status.

(b) Locomotive file contains a record for each locomotive owned. The fields of the record include the locomotive's physical characteristics, its present status, its location and its preventative maintenance schedule.

(c) Container file contains a record for every container that is in a container yard or on a train. The fields of the record include the container's physical characteristics, its contents and its present location.

The second group of logical files are called responsibility files and represent the current geographical location of each wagon, locomotive and container.

(d) Yard responsibility files exist for each yard and contain records for each wagon, locomotive and container in the yard.

(e) Train responsibility files exist for each train and contain the wagon and locomotive consist as well as the routing and schedule for the train.

(f) Minor area responsibility files exist for each link between yards and contain a record for each wagon that has been set out in the minor area.

The third group of logical files are miscellaneous files which serve special functions.

(g) Operating waybill file contains a record of waybill data for each loaded wagon and each empty wagon that is moving on a special empty waybill. These records permit the movement of the wagon in a "paperless" environment and are used to prepare freight bills and revenue accounting in the off-line system.

(h) Wagon schedule file contains a detailed schedule for every loaded and empty wagon that is in transit in terms of arrival and departure dates and times on specific trains, origin, intermediate and destination yards, industry spots or interchange delivery. This file forms the basis for issuing detailed work orders to all yards and for monitoring dock-to-dock schedule commitments to shippers.

(i) Equipment Register file contains a record for every existing wagon that might at some time come to the railway in interchange. The records contain the wagon's ownership initial and serial number, the wagon type including a description of its physical characteristics and the applicable wagon hire per diem and mileage rates.

(j) Off-line batch processing interface files contain journal records of each wagon and locomotive event or transaction that is reported to the online RSIS. These records are used by the off-line system to develop operating statistics, support wagon hire accounting and perform operating studies.

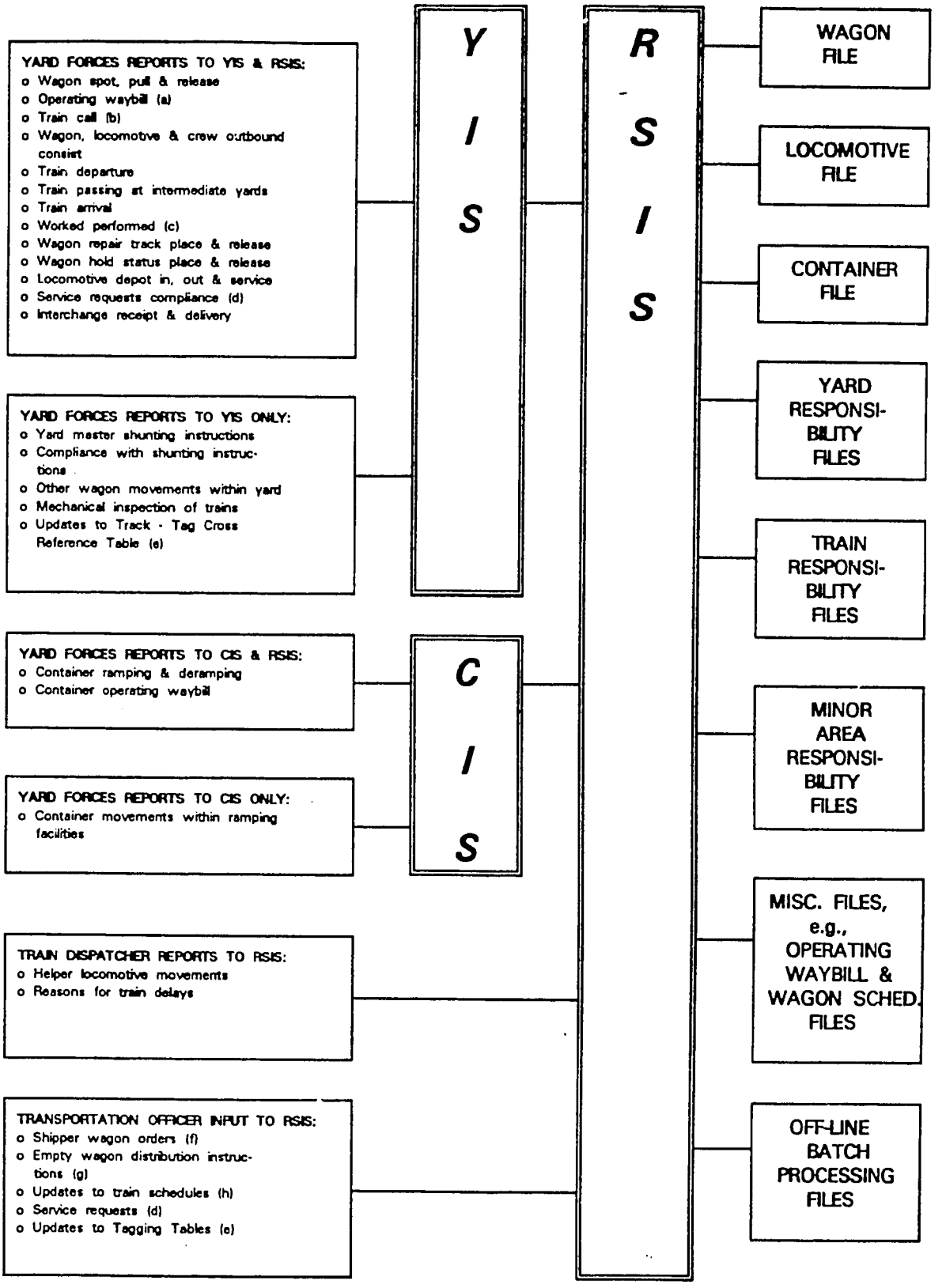
14. Normally, there are at least two subsystems to the central RSIS, a yard information

system (YIS) and a container yard information system (CIS) for each yard and container ramp facility, respectively[2]. Although the functions of these subsystems are to support the operations of individual yards and container ramp facilities, most railways have found that it is cost effective and easier to maintain these systems if they are housed as an integral part of the central system, i.e., the added communication costs are more than off set by the savings in computer hardware and software maintenance costs.

The following table illustrates the relationship among these systems and files and lists the typical events that are reported into the RSIS.

[2]Many North American railway's RSIS also schedule all train and switch engine crews as well as monitor wagon placement at shipper's sidings as the basis for assessing demurrage charges. Since these subsystems probably do not have direct application for the Railway of Southern Africa, these systems are not described in his annex.

TYPICAL TRANSACTION REPORTS TO A RSIS



NOTES TO THE RSIS TYPICAL REPORTS SCHEMATIC:

(a) The operating waybill contains all the required information to transport the wagon from the shipper to the consignee, including: shipper and consignee names and addresses, commodity, priority, routing and the like. Thus, RSIS now has sufficient data to construct a "dock-to-dock" schedule for the wagon, and no paper waybill is required to accompany the wagon unless it is required because of export regulations or the like.

(b) Train call is entered to RSIS by the origin yard when it has sufficient traffic on hand to run the train. As a result of this message, RSIS outputs requests for the yard to input wagon, locomotive and crew consists for the train.

(c) Work performed is a report to RSIS of all unscheduled pick ups and set outs of wagons that have occurred between reporting stations or yards. Its purpose is to transfer responsibility for the affected wagons from the appropriate minor area responsibility file to the train responsibility file and then, if the wagon is detached from the train, to the reporting yard responsibility file.

(d) Service Requests are instructions to a specific yard to perform an identified service. Examples include INSPECT THE LOADED WAGON, WEIGH THE WAGON, and the like. The Service Request appears as a comment line on the inbound consist for the yard that is required to perform the service. The RSIS monitors to be sure that compliance with Service Requests are reported in a timely manner.

(e) The system marshalling plan is implemented in RSIS through a set of Tagging Tables which are established for each yard on the railway. These tagging tables establish the marshalling responsibilities of each yard by developing a Tag Code for each wagon in the yard or on an inbound train to the yard. The Tag Code is based on parameters such as wagon destination, load-empty status, "sick" status, commodity, outstanding service requests, etc. and groups wagons by the work that is to be performed by the yard. Examples include assigning the wagon to: a departure train, the industry zone where the wagon is to be spotted, the repair track for "sick" wagons, the hold track to await Empty Wagon Distributor instructions, etc. Since the Tagging Tables represent the overall marshalling plan for the railway, they are relatively static. Conversely, the Tag - Track Cross Reference Table resides in the YIS and is often changed several times during the day. It is the primary tool yard management uses to control classification track assignments in the yard.

(f) Some railways do not enter detailed wagon orders, but rather have the local agent summarize all the customer orders for his agency and enter an daily agency order for a specified number of wagons by types. For those railways that enter detailed wagon orders some permit their major customers to have terminals to monitor their shipments and to enter wagon orders themselves.

(g) When the wagon is reported as released empty, it immediately receives a destination from RSIS based on stored empty wagon distributor instructions. RSIS's ability to automatically and immediately assign the proper destination to the empty wagon as soon as it is reported released is the single most important feature of a comprehensive RSIS in terms of improving rolling stock utilization. The RSIS generated destination might be to send the wagon (i) to another yard for subsequent assignment to a wagon order, (ii) direct to a specific shipper in response to a wagon order or because the wagon has been assigned to a shipper pool, (iii) to the cleaning track, (iv) to the shop or repair track, (v) to a local hold track, and the like.

(h) Train schedules are maintained in the Train Responsibility Files for all regular trains in terms of routings, train stopping points and enroute times.

D. Other Projected Benefits of Implementing RSIS

1.The major quantifiable benefits from installing Rolling Stock Information Systems (RSIS) on the railways of Southern Africa comprise:

(a)reduced wagon hire payments and wagon investment requirements through the reduction of wagon turn around times;

(b)increased business by being able to offer predictable dock-to-dock transit times to shippers; and

(c)reduced diesel locomotive investment by (i)increasing the monitoring of preventative maintenance schedules and lube oil testing and (ii)improving locomotive utilization by being able to monitor and control the movement of locomotives and trains over longer distances.

2.The required RSIS investment in computer hardware, software development, training and telecommunications equipment can and should be justified on the solely on the basis of these quantifiable benefits. However, the experience of railways such as British Rail (BR), Burlington Northern (BN), Canadian National (CN), Southern Pacific (SP), Union Pacific (UP) and others who have installed comprehensive Rolling Stock Information Systems and associated telecommunication networks illustrate that these systems have had a major impact not only on management structure and labor productivity but also on the basic financial viability of these railways. These railways originally justified the required RSIS and telecommunications investment by projecting a modest increase in wagon turn around time and equating the savings in wagon investment with the cost of the systems. Today, however, the management of Railways state that in hind sight, the primary benefits of a RSIS has not been simply improved turn around times. Rather, they state that their RSIS has provided a critical link in a process to make fundamental changes in the policies and structure of their Railway.

A. British Rails's Experience

3.For example, British Rail has made a formal post audit analysis of the benefits of installing a RSIS which was originally adapted from Southern Pacific's TOPS system and implemented during the period of 1972 through 1975. BR claims the following benefits from their RSIS and related systems:

(a)Staff reductions: (i)in empty wagon distribution staff from 600 to 18 and (ii)in freight revenue accountants from 1,000 to 25.

(b)Average freight revenue accounts receivable: from 90 days to 20 days.

(c)Wagon turn around time reduction: from 15 days to 2.6 days resulting in wagon fleet reduction of 80 percent while net ton kilometers increased by 4 percent.

(d)Train crew utilization improvement: by 8 percent.

(e)Increase rolling stock availability: by 2 percent of the rolling stock fleet.

(f)Reduced operating expenses: by $140 million (US) per year.

(g)Reduced maintenance costs: by $ 40 million (US) per year -- a 9 percent reduction.

(h)Significant improvement in customer relations: thus, able to retain steel and automobile traffic.

(i)Improved safety: by better control of the placement of hazardous commodity wagons in the train.

4.Naturally, the implementation of the BR's RSIS by itself did not produce these benefits in British Rail during the last 20 years. Other software systems have been developed to compliment TOPS such as the "RACERS" rolling stock maintenance system. The move to larger wagon sizes had a major impact on wagon fleet reduction. Nevertheless, British Rail management states that it would have been impossible to achieve most of the above improvements without the implementation and exploitation of a well designed, comprehensive RSIS.

B. Canadian National's Experience

5.Canadian National has also made a post audit analysis of the impact of implementing their RSIS called TRACS which also was originally adapted from Southern Pacific's TOPS system and implemented during the period of 1972 through 1975. Although TRACS was not the sole cause, Canadian National management states that their RSIS was and continues to be the "enabler" which permitted substantial improvements in rolling stock utilization and labor productivity. The following conclusions can be drawn from selected Canadian National statistics contained in the attached Table

(a)The average wagons on line decreased by 20 percent between 1960 and 1981 and has continued to decrease during the eighties. During this same period net ton kilometers increased by 243 percent between 1960 and 1981 and an additional 7 percent between 1981 and 1991. More specifically, average wagon turn around time reduced from approximately 18 days prior to 1975 (pre-TRACS) to 11.5 days in 1977 (post-TRACS).

(b)There has also been a significant improvement in locomotive utilization during the eighties. With no significant change in locomotive horsepower per unit during this period, the road haul locomotive fleet was reduced by 19 percent while at the same time gross ton kilometers increased by 16 percent.

(c)The most dramatic change has been in staff productivity which, in terms of millions of converted ton kilometers per employee, has increased from 0.6 in 1960 to 2.5 in 1980, to 4.9 in 1991 -- an eight-fold increase.

* * *

6.In sum, the managements of both British Rail and Canadian National found that the operating improvements that were made possible as a result of implementing a comprehensive RSIS far exceeded original expectations. They also found that benefits continue to accrue many years after the original implementation as system refinements and enhancements are made and as operating management becomes more skilled in exploiting the capabilities of the system. The realization of benefits on Railways of Southern Africa will also most likely be greater than originally projected but will take many years to realize fully. However, these Railways have the advantage of studying how BR, CN and the other railways who have installed a comprehensive RSIS have organized themselves to better exploit the full potential of these systems. Thus, the management of the Railways of Southern Africa may be able to truncate the learning process on their Railways.

Selected Canadian National Railway Statistics

	1960	1981	1991
Net Ton Kilometers (millions)	55,648	135,413	145,248
Passenger Kilometers (millions)	1,933	3,058	10,058
Number of Wagons Online	115,000	92,000	66,000
Road Haul Locomotives Owned	1,902	2,150	1,750
Gross Ton Kilometers (millions)	113,000	241,000	279,000
Converted Ton Kilometers (millions)	57,581	138,471	155,306
Total Staff	104,000	55,000	32,000

OVERVIEW OF SPRINT SYSTEM

* General Information

SPRINT is a central, 24 hour real time, wagon information and control system. It has proved itself successfully over the past three years, as a pro-active system, with an extremely high availability of a least 98% and an average response time of approximately 3 seconds, processing 5 million transaction per month.

SPOORNET is the owner of the SPRINT system that is based on the American Missouri Pacific Rail system, now part of Union Pacific.
Various TRANSNET subsidiaries, which can be regarded as "clients" of the SPRINT system, utilize and link into the system in some or other form. These "clients" are:

PORTNET (Harbour) ROLLMAT (Asset Owners)
SENTRARAND (A Siemens based (Yard Control) system, utilizing axle counters for tracking and interfacing into SPRINT
SPOORNET (Hire Account) (The monitoring of wagons in foreign countries - Botswana, Zimbabwe, Mozambique, etc. - for accounting purpose).

* Application development team

A System Design and Computer Control department within Spoornet have been involved since 1988 with the design and implementation of SPRINT. Hundred and twenty man years have been invested into developing, perfecting and streamlining the system which contains approximately 2000 programs. This group of resources is competent (on average 10 years) to provide a comprehensive turnkey user support and training service.

The development team consists of 30 resources headed by J.A. Botes.

Managers	2
Project leaders/Systems analysts	7
Senior programmers	10
Programmers	10

Application support

The SPRINT system is supported on a 24 hour basis, seven days a week. A help desk exists and problems are identified and escalated with immediate effect, to the responsible department or person. After hours all support personnel have access to the system via dialup modems. The User Support Group consists of highly qualified personnel in the field of rail transport and computer systems design.

* **Limitations**

There are no limitations within the SPRINT system with respect to memory size, number of concurrent activities, number of terminals, records and files.

* **Documentation**

All user documentation regarding the application software resides on the Mainframe and is accessible to all authorized personnel.

* **Platform transportability**

Integration, compatibility and data transfer mechanisms are available and possible depending on the specific need and standard SNA/VTAM protocols.

* **Licensing**

Since the system was developed in-house, there are no restrictions regarding licensing for usage/enhancement/
maintenance of software. Application by parties other than Transnet can be negotiated.

B. TECHNICAL STATISTICS:

* **Mainframe operating environment and Data sources**

DATABASE	The DB2 database is organized into more than 300 tables containing information about 160 000 trucks, 4000 locomotives (local and foreign).
SYSTEM COMPONENTS	Operating System MVS. TP Monitor IMS. Network communication VTAM/NCP Screen Handler MFS. Program Language COBOL/NATURAL Number of programs 1731
HARDWARE PLATFORMS	The hardware platform consists of an IBM ES9000 partitioned mainframe (utilised capacity being 38 MIPS and 4.5 Gigabytes of storage) connected to numerous 3270-type Siemens terminals. Sprint is gradually moving towards a distribution of data to Local Area Networks and currently provides information to Spoornet Area Management, Portnet and PX (container shipping) for further data manipulation and IS purposes.
USAGE	Three thousand users, extended over 37 areas and 2500 stations (excluding 5000 private sidings) Five million real-time transactions are generated per month (18 million in the background) utilising over 1500 terminals with a guaranteed response time of 4 seconds and an uptime of 98%+ over a 24 hour period.
LOADING UNLOADING TIME	
SECURITY	Security is assured by means of a user-written application. Access is controlled from user level down to transaction level. Standard security is applied via MVS, DB2 and RACF. Each user is unique and secure.
DATA INTEGRITY	Data Integrity is programmatically attained. This guarantees that all SQL operations are either successfully processed and committed, or if unsuccessfully, are withdrawn and processing rolled back.

* **Logical System description**

Composition of SPRINT and its sub systems

BASE SYSTEM	**Tracking** Sprint consists of an integrated system for the control tracking of wagons, trains, mainline passenger coaches and locomotives for which a continuous record of events is maintained and from which all suitable information as an aid to management is gleaned. **Comprehensive detail** Wide ranging information from detailed operational information of clients, comprehensive detail on all locations on the network to detail of rolling stock frequenting the rail network is kept and maintained. **Real time** All wagon, train and locomotive movements are captured in real time on a terminal network country wide in order to provide tracking and flow information vital to decision making. **Operational inquiries** Variable inquiry into the positions and flows of traffic is available on request and forms the basis of ongoing operational management. Parameter driven inquiry affords the facility to provide for all requirements that may arise. **History** On line information of the current and previous month's movements is available. Earlier information is provided on an hourly basis.
ASSET REGISTER	An inventory of Rolling Stock and containers reflecting depreciation and book values.
SENTRARAND	Automatic shunting of trucks and the make-up of trains in Sentrarand.
LOCOMOTIVE CONTROL	Controlling, scheduling and tracking, enhanced by the facility to declare and monitor failures, repairs and services of locomotives. Various inquiries and reports are available regarding the utilisation of locomotives.

LOCOMOTIVE COALS	Statistics regarding coal ordered and delivered at locomotive depots as well as the payments made to the relevant mines.
ASSET REGISTER	An inventory of Rolling Stock and containers reflecting depreciation and book values.
WORKSHOP CONTROL	Gathering of information regarding work done, demolishes, and type of service of rolling stock in workshops.
HIRE ACCOUNTS	Management of hire accounts of rolling stock for movements across country borders is provided by a further module with inputs of over border movements gleaned from the base system. (Implemented using Natural/DB2)
HARBOUR HIRE	Calculation of truck hire charges between Spoornet and Portnet and it's Shipping agents. Various inquiries and reports are available regarding the utilisation and delays of wagons.
YARD CONTROL	Integrated into the base system, by which exact location of vehicles in marshalling yards is maintained with consequent advantages of tracking and control. An inventory of vehicles in marshalling yards reflecting exact location of vehicles can be maintained with the minimum capture effort by use of the optional Yard Control system. Tracking in yards, often of great dimensions, and efficient marshalling through use of cut lists to yard staff made up by a planning office are amongst the many advantages.
TRAFFIC FLOW	Provision of Management information to head and regional offices to facilitate effective control over wagons and hauling power.
YARD REGISTER	Releasing information of delay times and supplying statistics regarding Yard performance.
TRUCK HISTORY	On-line history for 5 years, regarding truck loads and movements, is available on an hourly basis using Optical Disk technology.
TRUCK STATISTICS	Provision of information concerning kilometers, axles and mass of movements over Spoornet's sections.

LOCOMOTIVE HIRE CHARGES	Locomotive hire charges are calculated daily and monthly based on the availability of locomotives within each area.
LOCOMOTIVE HISTORY	History for 5 years regarding locomotive movements and service detail.
LOCOMOTIVE STATISTICS	Provision of information regarding productive and unproductive times of locomotives as well as scheduled and unscheduled services.
AUTOMATIC SCHEDULING	Wagon scheduling by which trip plans for all loaded wagons will be calculated automatically is planned for completion during 1993. Included will be monitoring of movements to ensure on time arrival through necessary action like rescheduling, notification to higher authority or both.
CLIENT LIAISON	A concept of distributed Client Service Centres is fully supported during which one-stop-service is provided to clients in order to assure a high level of quality. Areas of focus are client operational information, wagon orders, automation of manual functions and the provision of works orders to marshalling yard and train staff. Staffs in Client Service Centers are provided with all the necessary tools for efficient telephonic client interaction ranging from the answering of movement inquiries, acceptance of wagon orders and special instructions. **Dial-in facilities** Information regarding the movement of a client's consignment can be provided on an event driven basis especially with a view to greater client satisfaction through regular updates. Facilities are also available for inquiries by clients directly from Sprint by way of dial-in procedures
TRUCK ORDERS	Type, quantity and additional details are supplied by clients enabling the yards to plan ahead and deliver on time, specific trucks classified per order.
TRUCK BOOK	Income protection is insured by automatically recording the movement of trucks, departing and arriving at their final destinations.
DEMURRAGE	Truck delay charges are calculated based on the handling capacity of individual siding owners as defined in the Client Liaison System.

AREA MANAGER	Download management information regarding truck status changes, orders and newly issued permits to the various LAN environments per Area Manager.
EMPTY WAGON DISTRIBUTION	Distribution of empty wagons and integration with the accounting system are planned for completion during 1993.
TRUCK ORDERS	Type, quantity and additional details are supplied by clients enabling the yards to plan ahead and deliver on time, specific trucks classified per order.
WORKS ORDERS	Supply works order information to shunting-and train personnel in terms of trucks to be placed, cleared and left behind into and from sidings.
MARSHALLING FUNCTIONS	Management of Marshalling functions. A pro-active enhancement of the Yard Control module is planned for 1994. The record keeping function is upgraded to include movement instructions to yard personnel in order to maintain the required level of throughput regardless of the experience level of the staff employed.

* **Future developments**

In spite of excellent support by real time information provided by a passive system, human decisions may not always be the best decisions, especially if it is viewed in the global context of the whole network. For this reason and to compensate for the level of experience that might decrease in the future, a philosophy of pro-active support by the computer system will ensure decisions of a consistently high level with the maximum advantage of the railway.

This philosophy is realised by the development of the following modules:

EMPTY TRUCK DISTRIBUTION	Automatically assign a destination to empty wagons to satisfy existing needs most effectively.
WAGON SCHEDULING	Calculate and monitor a trip plan for all loaded wagons to ensure guaranteed throughput time.
MARSHALLING FUNCTION MANAGEMENT	Ensure high efficiency of movements through marshalling yards and to play a supportive role to the scheduling sub-system.

* **Conclusion**

The existence of a central computerised wagon information and control system provides all levels of management the decision support needed in order to maintain a transport system that complies with the clients' satisfaction. Withdrawing mundane manual tasks requiring tremendous effort from staff has released personnel to be better utilised and more productive. Provision of management information through data residing in the system supports decision making at all levels to the greatest advantage to the Company.

ESTIMATED RSIS PROJECT COSTS -- RAIL CAR MANAGEMENT SCENARIO
(Costs in US$)

KEY ASSUMPTIONS:

Phase 1

a RSIS is implemented on the Railways of Botswana, Swaziland, Zambia and Zimbabwe using Rail Car Management software and IBM AS400 Computers located at each of the Railways.

b Phase 1 lasts three years; Year 1, preparation; Year 2, implementation; Year 3, completion of implementation.

c Cost Phasing:

	Year 1	Year 2	Year 3
o TA & Training	60%	30%	10%
o Hardware investment	0%	80%	20%
o Recuring costs	0%	50%	100%

d Communications capacity will be rented from the public networks except for the rail-based links between: (i) Harare and Mutare, (ii) Harare and Dubuka, and (iii) Livinston and Ndola.

e A small AS400 is located on one of the railways to handle message switch functions among the railways.

f The terminal equipment in the field is purchased

g Extensive additions to the application software to increase the funtionality of the system to the level of Spoornet and UP.

h All prices are duty free.

Phase 2

a Mozambique and TAZARA Railways will install the Rail Car Management system in Year 4.

b The internal telecommunication systems of the railways will have been upgraded.

c RSIS systems are implemented on the railways of Mozambique and Tazarra.

Cost Phasing:	Year 4	Year 5
o TA & Training	80%	20%
o Hardware investment	100%	0%
o Recuring costs	70%	100%

SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
TA & Training	1,585,440	792,720	264,240	481,760	120,440	3,244,600
H/W & S/W Invest.	0	2,099,520	524,880	1,286,700	0	3,911,100
Recuring costs	0	79,330	158,660	150,301	214,715	603,006
20% contingency	317,088	594,314	189,556	383,752	67,031	1,551,741
Total	1,902,528	3,565,884	1,137,336	2,302,513	402,186	9,310,447

ESTIMATED RSIS PROJECT COSTS -- RAIL CAR MANAGEMENT SCENARIO
(Costs in US$)

	PHASE 1	PHASE 2
TECHNICAL ASSISTANCE & TRAINING		
1 -- RAIL CAR MANAGEMENT PROJECT TEAM:		
People	6	1
Man months per individual	18	24
Cost per man month	20,800	20,800
	2,246,400	499,200
Additional Costs – Travel, Accomodation & Other	200,000	
2 -- TRAINING OF CORE IMPLEMENTATION TEAM		
Number of students	20	10
Formal instruction		
Period per Student (weeks)	4	4
Student living cost per week	1,050	1,050
Instructor costs	10,000	10,000
Subtotal	94,000	52,000
Hands-on training		
Period per Student (weeks)	2	2
Student living cost per week	1,050	1,050
Subtotal	42,000	21,000
Student travel		
Students	20	10
Cost per Student	3,000	3,000
Subtotal	60,000	30,000
Total	196,000	103,000
TOTAL TECHNICAL ASSISTANCE & TRAINING	2,642,400	602,200

ESTIMATED RSIS PROJECT COSTS -- RAIL CAR MANAGEMENT SCENARIO
(Costs in US$)

HARDWARE AND SOFTWARE INVESTMENT				PHASE 1	PHASE 2
1 -- HARDWARE INVESTMENT					
Computer Center Hardware					
Fault tolerant IBM AS400	Model F60		578,000		
Stand by unit	Model F45		153,000		
	Cost per GigaByte of DASDI		5,000		
	Model	DASDI (GB)	Phase		
Botswana	F45	2	1	163,000	
Mozambique	F60	3	2		593,000
Swaziland	F45	3	1	168,000	
TASARA	F45	1	2		158,000
Zambia	F45	3	1	168,000	
Zimbabwe	F60	4	1	598,000	
Regional Msg Sw.	F45	2	1	163,000	
Subtotal				1,260,000	751,000
2 -- MISCELLANEOUS TELECOMMUNICATIONS EQUIPMENT				100,000	50,000
3 -- SOFTWARE LICENSE FEES @ $200,000 PER RAILWAY				800,000	400,000
4 -- SOFTWARE MODIFICATIONS					
Mandays				400	20
Cost per manday				600	600
	Subtotal			240,000	12,000

5 -- FIELD EQUIPMENT PURCHASE COST

CONFIGURATION	Terminals	Printers	Modems	Line Adaptors & Controlers	Total Purchase Costs
Unit cost	500	600	2,000	3,500	
Large Yard	8	4	1	1	11,900
Other Yard	3	1	1	1	7,600

NUMBER OF YARDS	Large	Other	Total	Phase 1 Costs	Phase 2 Costs
Botswana	2	4	6	54,200	
Mozambique	2	3	5		46,600
Swaziland	1	3	4	34,700	
TASARA	1	2	3		27,100
Zambia	2	4	6	54,200	
Zimbabwe	3	6	9	81,300	
Subtotal	11	22	33	224,400	73,700

TOTAL HARDWARE AND SOFTWARE INVESTMENT	2,624,400	1,286,700

ESTIMATED RSIS PROJECT COSTS -- RAIL CAR MANAGEMENT SCENARIO
(Costs in US$)

RECURRING COSTS	PHASE 1	PHASE 2
1 -- PROJECTED FIELD MAINTENANCE COSTS (15% of Purchase Price)	33,660	44,715
2 -- SOFTWARE MAINTENANCE BY RAILCAR @ 15% OF LICENSE FEES	120,000	180,000
3 -- PROJECTED ANNUAL COMMUNICATION TRUNK COSTS	125,000	50,000
TOTAL RECURRING COSTS	158,660	214,715

ESTIMATED RSIS PROJECT COSTS -- SPRINT SCENARIO
(Costs in US$)

KEY ASSUMPTIONS:

Phase 1

a RSIS is implemented on the Railways of Botswana, Swaziland, Zambia and Zimbabwe using the SPRINT Computer Center in Johannesburg

b Phase 1 lasts three years; Year 1, preparation; Year 2, implementation; Year 3, completion of implementation.

c Cost Phasing:

	Year 1	Year 2	Year 3
o TA & Training	60%	30%	10%
o Hardware investment	0%	80%	20%
o Recuring costs	0%	50%	100%

d Communications capacity will be rented from the public networks except for the rail-based links between: (i) Harare and Mutare, (ii) Harare and Dubuka, and (iii) Livinston and Ndola.

e Field computer equipment is obtained under a maintenance lease with Datavia.

Phase 2

a RSIS systems for Botswana, Zambia, and Zimbabwe Railways are transferred from the Johannesburg Center to Centers in each of the Railways.

b Swaziland will continue to use the Johannesburg Center.

c Mozambique and TAZARA Railways will install the RSIS.

d It will be possible technically by Year 3 to operate the RSIS Systems on UNIX-based Work Stations located in each of the individual Railways' Computer Centers. (See note on fall back on the bottom of page 3.)

e RSIS systems are implemented on the railways of Mozambique and Tazarra.

Cost Phasing:

	Year 4	Year 5
o TA & Training	80%	20%
o Hardware investment	100%	0%
o Recuring costs	70%	100%

f Regional message switch functions among the the Railway Computer Centers will be performed in the Johannesburg Center.

g The internal telecommunication systems of the railways will have been upgraded.

SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Tota
TA & Training	276,240	138,120	46,040	58,160	14,540	533,10C
H/W & S/W Invest.	0	100,645	25,161	675,968	0	801,774
Recuring costs	0	924,968	1,849,935	350,615	500,879	3,626,397
20% contingency	55,248	232,747	384,227	216,949	103,084	992,254
Total	331,488	1,396,479	2,305,364	1,301,692	618,503	5,953,525

ESTIMATED RSIS PROJECT COSTS -- SPRINT SCENARIO
(Costs in US$)

	PHASE 1	PHASE 2
TECHNICAL ASSISTANCE & TRAINING		
1 -- SPOORNET PROJECT TEAM:		
People	6	1
Man months per individual	18	24
Cost per man month	2,000	2,000
	216,000	48,000
Additional Costs -- Travel, Accomodation & Other	200,000	
2 -- TRAINING OF CORE IMPLEMENTATION TEAM		
Number of students	20	10
Formal instruction		
Period per Student (weeks)	2	2
Student living cost per wTotal	245	245
Instructor costs	5,000	5,000
Subtotal	14,800	9,900
Hands-on training		
Period per Student (weeks)	4	4
Student living cost per week	245	245
Subtotal	19,600	9,800
Student travel		
Students	20	10
Cost per Student	500	500
Subtotal	10,000	5,000
Total	44,400	24,700
TOTAL TECHNICAL ASSISTANCE & TRAINING	460,400	72,700

ESTIMATED RSIS PROJECT COSTS -- SPRINT SCENARIO
(Costs in US$)

HARDWARE AND SOFTWARE INVESTMENT			PHASE 1	PHASE 2
1 -- HARDWARE INVESTMENT				
Computer Center Hardware				
Unit cost of IBM Work Station	Medium			100,000
	Small			50,000
Unit cost per Gigabyte of DASDI				5,000
Phase 2 coliguration	CPU Size	Storage (GB)		
Botswana	Small	3		65,000
Mozambique	Medium	5		125,000
Swasiland	NA			
TAZARA	Small	2		60,000
Zambia	Small	3		65,000
Zimbabwe	Medium	6		130,000
	Subtotal		0	445,000
2 -- MISCELLANEOUS TELECOMMUNICATIONS EQUIPMENT			100,000	200,000
3 -- SOFTWARE LICENSE FEE			0	0
4 -- SOFTWARE MODIFICATIONS				
Mandays			100	120
Cost per manday			258	258
	Subtotal		25,806	30,968
TOTAL HARDWARE AND SOFTWARE INVESTMENT			125,806	675,968

Note: In the event that it proves not possible to down size SPRINT to operate on UNIX Work Stations by the end of Year 3, it would be possible to run SPRINT for the SADC Railways on an IBM ES9000 sieries mainframe. The current cost of a 5 MIPS model with 4 Giga Bytes of DASDI is $860,000 US plus about $120,000 (US) per year for system software renatal and hardware maintenance.

ESTIMATED RSIS PROJECT COSTS -- SPRINT SCENARIO
(Costs in US$)

RECURRING COSTS					PHASE 1	PHASE 2
1 -- FIELD EQUIPMENT RENTAL COST					285,879	
CONFIGURATION		Terminals	Printers	Modems	Line Adaptors & Controlers	Total Monthly Costs
Unit Rental Costs per Month		56	43	41	333	
Large Yard		8	4	1	1	995
Other Yard		3	1	1	1	585
NUMBER OF YARDS	Large	Other	Total	Monthly Costs		
Botswana	2	4	6	4,332	51,978	51,978
Mozambique	2	3	5	3,746		44,955
Swaziland	1	3	4	2,751	33,012	33,012
TAZARA	1	2	3	2,166		25,989
Zambia	2	4	6	4,332	51,978	51,978
Zimbabwe	3	6	9	6,497	77,967	77,967
Total	11	22	33	23,823	214,935	285,879
2 -- PROJECTED ANNUAL SHARE OF SPRINT OPERATING COSTS (Based on Namibia's share and its size relative to BR, ZR and NRZ)						
Total annual SPRINT operating costs				15,000,000		
SPRINT communuations costs				45%		
Total annual SPRINT operating costs, excluding communications costs				8,250,000		
Botswana				3%	247,500	
Mozambique				0%	0	
Swaziland				2%	165,000	165,000
TAZARA				0%	0	
Zambia				3%	247,500	
Zimbabwe				10%	825,000	
Subtotal					1,485,000	165,000
3 -- PROJECTED ANNUAL COMMUNICATION TRUNK COSTS					150,000	50,000
TOTAL RECURRING COSTS					1,849,935	500,879

ESTIMATED RSIS PROJECT COSTS -- UNION PACIFIC SCENARIO
(Costs in US$)

KEY ASSUMPTIONS:

Phase 1

a RSIS is implemented on the Railways of Botswana, Swaziland, Zambia and Zimbabwe using Union Pacific in Saint Louis as a service bureau and communicating with them via satellite.

b Phase 1 lasts three years; Year 1, preparation; Year 2, implementation; Year 3, completion of implementation.

c Cost Phasing:

	Year 1	Year 2	Year 3
o TA & Training	60%	30%	10%
o Hardware investment	0%	80%	20%
o Recuring costs	0%	50%	100%

d Communications capacity will be rented from the public networks except for the rail-based links between: (i) Harare and Mutare, (ii) Harare and Dubuka, and (iii) Livinston and Ndola.

e The link to the offline accounting systems will be via air freighted tapes.

f The terminal equipment in the field is purchased

g Some additions are made to the software to be able to handle Southern Africa coding systems, e.g. wagon numbers. and the like.

Phase 2

a Mozambique and TAZARA Railways will install an RSIS in Year 4.

b The Up RSIS will be transferred to a single regional mainframe in Year 4 located in one of the SADC countries. IBM will be able to service a mainframe in these countries by then.

c The internal telecommunication systems of the railways will have been upgraded.

c RSIS systems are implemented on the railways of Mozambique and Tazarra.

Cost Phasing:

	Year 4	Year 5
o TA & Training	80%	20%
o Hardware investment	100%	0%
o Recuring costs	70%	100%

SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
TA & Training	1,585,440	792,720	264,240	481,760	120,440	3,244,600
H/W & S/W Invest.	0	279,520	69,880	2,843,700	0	3,193,100
Recuring costs	0	586,116	1,172,231	136,301	194,715	2,089,363
20% contingency	317,088	331,671	301,270	692,352	63,031	1,705,413
Total	1,902,528	1,990,027	1,807,622	4,154,113	378,186	10,232,475

ESTIMATED RSIS PROJECT COSTS -- UNION PACIFIC SCENARIO
(Costs in US$)

	PHASE 1	PHASE 2
TECHNICAL ASSISTANCE & TRAINING		
1 -- RAIL CAR MANAGEMENT PROJECT TEAM:		
People	6	1
Man months per individual	18	24
Cost per man month	20,800	20,800
	2,246,400	499,200
Additional Costs - Travel, Accomodation & Other	200,000	
2 -- TRAINING OF CORE IMPLEMENTATION TEAM		
Number of students	20	10
Formal instruction		
Period per Student (weeks)	2	2
Student living cost per week	1,050	1,050
Instructor costs	10,000	10,000
Subtotal	52,000	31,000
Hands-on training		
Period per Student (weeks)	4	4
Student living cost per week	1,050	1,050
Subtotal	84,000	42,000
Student travel		
Students	20	10
Cost per Student	3,000	3,000
Subtotal	60,000	30,000
Total	196,000	103,000
TOTAL TECHNICAL ASSISTANCE & TRAINING	2,642,400	602,200

ESTIMATED RSIS PROJECT COSTS -- UNION PACIFIC SCENARIO
(Costs in US$)

HARDWARE AND SOFTWARE INVESTMENT	PHASE 1	PHASE 2
1 -- HARDWARE INVESTMENT		
Computer Center Hardware		
Unit cost of an IBM ES 9000, 5 MIPS and 4 Gigaa Bytes		860,000
Stand by unit		700,000
Subtotal	0	1,560,000
2 -- MISCELLANEOUS TELECOMMUNICATIONS EQUIPMENT	100,000	200,000
3 -- SOFTWARE LICENSE FEE	0	1,000,000
4 -- SOFTWARE MODIFICATIONS		
Mandays	50	20
Cost per manday	500	500
Subtotal	25,000	10,000

5 -- FIELD EQUIPMENT PURCHASE COST

CONFIGURATION	Terminals	Printers	Modems	Line Adaptors & Controlers	Total Purchase Costs
Unit cost	500	600	2,000	3,500	
Large Yard	8	4	1	1	11,900
Other Yard	3	1	1	1	7,600

NUMBER OF YARDS	Large	Other	Total	Phase 1 Costs	Phase 2 Costs
Botswana	2	4	6	54,200	
Mozambique	2	3	5		46,600
Swaziland	1	3	4	34,700	
TASARA	1	2	3		27,100
Zambia	2	4	6	54,200	
Zimbabwe	3	6	9	81,300	
Subtotal	11	22	33	224,400	73,700

TOTAL HARDWARE AND SOFTWARE INVESTMENT	349,400	2,843,700

ESTIMATED RSIS PROJECT COSTS -- UNION PACIFIC SCENARIO
(Costs in US$)

RECURRING COSTS	Tons Per Year (000)	Tons Per Load	Loads per Year	PHASE 1	PHASE 2
1 -- PROJECTED CHARGE FOR PROCESSING @ $1.50 per LOAD					
Botswana	2,200	35	62,857	94,286	0
Mozambique				0	0
Swaziland	4,200	35	120,000	180,000	0
TAZARA				0	0
Zambia	3,500	35	100,000	150,000	0
Zimbabwe	12,000	35	342,857	514,286	0
	Subtotal			938,571	0
2 -- PROJECTED FIELD MAINTENANCE COSTS				33,660	44,715
3 -- SOFTWARE MAINTENANCE BY RAILCAR @ 15% OF LICENSE FEES				0	150,000
3 -- PROJECTED ANNUAL COMMUNICATION TRUNK COSTS				200,000	150,000
TOTAL RECURRING COSTS				1,172,231	194,715

Client Perceptions of the Introduction of a Rolling Stock Information System

1. Introduction

Since the improvements to infrastructure along some transport corridors in the SATCC region, shippers have come to view more favorably the routing of traffic via non-South African ports. Generally for SADC countries, SADC corridors represent the least cost option for the movement of their cargoes.

Notwithstanding these improvements however, shippers still have concerns that relate to the movement of their cargoes, including some specific issues that might not relate directly to rail operations, but nonetheless impact on shipper preference.

Interviews were held with major shippers in Zimbabwe and clearing and forwarding agents in Mozambique and Zimbabwe. The following represents a summary of their views in respect to three main areas:

a) Major operational issues still affecting rail transport;

b) The use of road versus rail transport;

c) Other issues impacting on route choice.

2. Major Operational Issues Still Affecting Rail Transport

Shippers identified four major concerns that they felt still effected optimal rail operations:

a. communications;
b. lack of certain types of wagons (flatbeds, drop-sided and tallow/tanker wagons in particular);
c. lack of sufficient traction power; and
d. timely or reliable service.

Several clients specifically mentioned the benefits that a wagon information system would have on almost all of these concerns. Other maintained that the problems were not so much an information system but rather reliability and predictability in the movement of their cargoes. For them, efficiency questions were more management related and not information issues per se.

The majority of shippers (in tonnage terms) in the region are export oriented and are not very concerned about the time it takes to reach their port of loading. Rather, they require predictability and reliability in rail service in a manner that would allow for accurate planning. In other words, the cargo could cope with ten day transit times, as long as this was always the average time and was never much more (or less) than this average. For these clients, good communications along the line, available locomotives, particularly shunting locos to move cargo from sidings to marshalling yards, were a main concern.

Other shippers, and railway authorities (the Beira Corridor Authority and CFM-Central) noted that with sufficient communication links along the line, a manual system was all they required to control wagon movements. They noted that their traffic was insufficient at this time to justify the introduction of a computerized system. They would prefer investing money in signalling and communications in the short term.

The shippers were questioned whether they believed the railway administrations had sufficient management and human resource capacity to implement such a system. Here, opinion differed considerably between those interviewed in Mozambique and those in Zimbabwe. These opinions probably reflect the general standards of education available in each country.

In Mozambique, the agents questioned two things. First, would CFM management have sufficient capacity, and would they use the output of the information system? The agents observed that information systems are passive, and only become useful, if the information they generate is acted upon. They expressed reservations on CFM management capacity in acting on this information.

Second, there was some skepticism as to whether CFM station masters could be trained to use the system. Problems of educational levels were raised, and retention of trained people also queried.

In Zimbabwe, shippers were more positive. However, they noted that NRZ had a computerized wagon control system which was already experiencing problems. Training and management issues were not mentioned. Problems seem to relate to technical failure of the computer and terminals and power failures which has meant that the system was down much of the time and therefore the output often inaccurate or out of date.[1]

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[1] Apparently along some NRZ branch lines, information is recorded in the yard manually and then sent by the night train to

3. The Use of Road versus Rail Transport

Most shippers expressed a preference for rail over road as the least cost option. Large bulk shippers (minerals, metals, sugar and other bulk cargoes) noted the impracticality of using road given the higher costs and the volumes that they moved. Container customers noted that they would use road for some cargo for two principal reasons: door to door delivery and fast service. They noted that in the first case, rail would be unable to compete anyway. In the second, even with improved information systems, it would be difficult with rail to compete with road. They added that for the quantities they move by road, and the nature of the sale, road would always have a portion of their traffic. They also noted that rail, principally designed for international trade, poorly services intra regional trade. Therefore they would continue to use road for this cargo.

The following table provides a breakdown of the major shippers by mode:

Table 1: ROAD RAIL SPLIT OF INTERVIEWED SHIPPERS

CLIENT	TONNAGE 1992	ROAD %	RAIL %
Tobacco	160,000	15	85
Sugar	30,000	0	100
Cotton	(unknown at this time)	0	100
Ferrochrome	120,000	5	95
Steel	97,000	3	97
Grains	(unknown at this time)	5	95

Clients were then asked if they would use road and under what condition. The results are presented in Table 2.

Table 2: ROAD IN THE FUTURE?

CLIENT	WOULD YOU USE ROAD FOR MORE OF YOUR CARGO IN THE FUTURE	IF YES, WHY?
Tobacco	ONLY FOR REGIONAL CARGO AND SAME % OF EXPORT CARGO	RAIL IS MEETING OUR NEEDS
Sugar	ONLY FOR REGIONAL CARGO	ROAD TOO EXPENSIVE
Cotton	YES	IF THE PRICE IS COMPETITIVE
Ferrochrome	NO	ONLY USE ROAD FOR SHORT SALES TO MEET SHIPPING DEADLINES
Steel	NO	TOO EXPENSIVE
Grains	YES	FOR REGIONAL CARGO

As can be seen from this table, and as confirmed by the clearing and forwarding agents, road will compete for existing rail traffic if the price is right. Very few cargoes however, are sufficiently valuable to carry the additional cost of moving cargo by road, and therefore will continue to principally move by rail.

In summary then, client's with large tonnage would not move to road unless the price was equal to or less than rail. Since part of the higher cost involved in road transport reflect faster transit times, and because much of the available cargo is not time sensitive, road is unlikely to benefit substantially from these rail customers. However, agents did note that importers and those shipping expensive or perishable cargo will be more inclined to use road. In tonnage terms however, the impact would not be significant.

This conclusion is important, because it implies that even with a good railway information

system in place, it is unlikely that this alone will encourage road cargo to move to rail. Conversely, if the system was not introduced, there appears to be enough confidence in the rail network by clients to continue its use.

4. Other Issues Impacting on Route Choice

Clients were quick to point out that many of the concerns were not directly attributable to rail operations. One key concern expressed was over the incidence of pilferage along some routes. This problem is compounded by poor port management where the cargo is often stored for weeks at a time, and therefore subject to further loss.

The port is an interface between rail and ship, and many of the problems encountered today seem to be in the off-loading or loading of cargo at the port area; pilferage, poor shipping opportunities; and lack of a commercial attitude, all contribute to these problems. Particular criticism was pointed at the port of Maputo. Beira was considered to be working much better, and any existing problems due to the large imports of maize that have caused congestion in the port and even at times along the rail line.[2] Dar Es Salaam is also reputed to be performing well.

The issues of port management in Maputo have become so critical that the Zimbabwe Sugar Association will be shipping their entire export crop destined for the EEC via Durban. This is the first time that they have ever used Durban for exports. Even during the war in Mozambique they exclusively used the port of Maputo. Their decision to use Durban is based solely on the problems of pilferage in Maputo. Theft of sugar in 1991 (the last year sugar was exported from Zimbabwe) they lost 17,000 tons, or almost 15 percent of their cargo.

Shippers rightly point out that railways by themselves will not influence the routing or modal split of traffic. For them, reliability is of paramount importance, and they exercise flexibility in routing their cargo to ensure that their clients are satisfied.

Route costings are calculated by adding not only the tariffs involved, but the additional costs of transporting the cargo to its final destination. Efficiency in port management is therefore equally important to rail efficiency.

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[2] For example, the Grain Marketing Board said that from their perspective, investments were now required in the port (handling equipment) rather than at the level of railways.

5. Major Conclusions

The majority of clients interviewed favored the introduction of a computerized RSIS. Some however felt that the manual system was fine given the volumes of traffic currently handled. All without exception highlighted the following aspects:

- The system should be started on a pilot basis to see its effectiveness, its applicability and its acceptance.
- Careful training would have to take place to ensure the implementation of the project.
- Management training would have to go hand in hand with the system to ensure that managers were making use of the output generated.
- Technical assistance at a supervisory level would be needed for a very long period of time (ten years plus).

They cautioned that while the introduction of a RSIS was a necessary factor to better rail efficiency and therefore service, it was insufficient to achieve better regional cooperation and enhanced transport delivery. Nor was it a panacea to improved operations. Because of limited technical support to computers in the region, proper technical back-up would have to be guaranteed.

Project Monitoring and Evaluation Plan - Performance Indicators

PROJECT GOAL/PURPOSE	PERFORMANCE INDICATORS			CRITICAL ASSUMPTIONS
	PROCESS INDICATORS	INTERMEDIATE IMPACT INDICATORS	IMPACT INDICATORS	
PROJECT GOAL: Enhanced enabling environment for increased trade competitiveness and increased private sector investment.				Achievement of stated results critically depends on SADC countries: 1. Pursuing liberal and harmonized trade and investment policies including privatization; 2. Political will and support for restructuring and implementing operational and management efficiency in public institutions continues; 3. Regional cohesiveness receives equal support to national priorities; 4. Political stability is achieved and maintained in the region; and 5. Integrate South Africa into the region.
<u>SPECIFIC RESULTS SOUGHT:</u> 1. Increased private sector investment	1.1 Favorable and harmonized *investment code* enacted and implemented by SADC countries	1.1 Investment as a % of GDP by SADC countries - Gross Domestic Investment - Private Investment	1.1 Total employment by SADC countries	
2. Increased SADC trade	2.1 Liberalized and harmonized *trade policies* adopted by all SADC countries 2.2 Policies that encourage *intra-regional trade and investment* formulated and actively promoted by all SADC countries		2.1 Trade as % of GDP by SADC countries - Total Trade - Exports - Intra-regional trade	
3. Improved terms of trade			3.1 Terms of Trade by SADC countries 3.2 Import and debt service coverage ratio	

PROJECT GOAL/PURPOSE	PERFORMANCE INDICATORS			CRITICAL ASSUMPTIONS
	PROCESS INDICATORS	INTERMEDIATE IMPACT INDICATORS	IMPACT INDICATORS	
PROJECT PURPOSE: Increased efficiency, reliability and competitiveness of SADC surface transport. <u>SPECIFIC RESULTS SOUGHT:</u>				
1. Increased efficiency, reliability and productivity of rail/road transport sector 2. Improved commercial viability/competitiveness of SADC railways	1.1 Clear policies, statues and decrees formulated, ratified and established for: - restructuring and commercializing the railways; - abolishing administrative allocation of freight; - deregulating transport tariffs and giving railways liberty to determine public tariffs and to negotiate contract rates with major customers; - reforming infrastructure cost recovery mechanism for all transport modes; - establishing new personnel management rules and policies. - integration of the region's railways operation	1.1 Restructuring of railways: - # of railways restructured - Value of privatized services - Labor force reduction 1.2 Railways' operational efficiency: - Locomotive & wagon availability - Locomotive & wagon utilization - Turnaround time 1.3 Railways' management efficiency: - Excess rolling stock - Wagon-hire expenses - Locomotive maintenance expenses	1.1 Level of railways' customers satisfaction 1.2 Financial performance of the region's railways: - Working Ratio - LRMC Recovery Ratio - Operating Ratio - Return on Renewable Assets - Revenue per ton-km - Government subsidy as % of Revenue - Leverage Ratio	1. Support for policy, regulatory and institutional reforms by ministers of transport and communications is sustained 2. Cooperations and coordinations by railways continues to be strengthened 3. Transport ministries are willing and able to adopt, implement and enforce policy and regulatory reforms agreed on through SATCC at national levels 4. Shippers and investors have access to RSIS and the transport information systems are shared 5. Strengthening of SATCC process and regional links progresses smoothly
3. Increased inter-modal competition	2.1 Regulations barring road haulers from competing along rail lines eliminated		2.1 Transport traffic (ton-km) - railways - roads 2.2 Transport sector investment - railways	

PROJECT GOAL/PURPOSE	PERFORMANCE INDICATORS			CRITICAL ASSUMPTIONS
	PROCESS INDICATORS	INTERMEDIATE IMPACT INDICATORS	IMPACT INDICATORS	
PROJECT INPUTS / STRATEGY: 1. Enhance/strengthen SATCC's policy formulation and communication capability by establishing a policy analysis unit within SATCC that will collect transport and socio-economic data, conduct policy research and analysis and make policy, regulatory and institutional reform recommendations.	1.1 A policy analysis unit (PAU) funded, staffed and operational 1.2 Increased # of policy issues analyzed, published and communicated to SATCC management and national government officials for discussion and adoption. 1.3 Transport sector and socio-economic database - database up and running - # of subscriber to regular publication of socio-economic and transport sector data			
2. Enhance railway managers' capability to efficiently operate and manage their railways by establishing and implementing rolling stocks information systems.	2.1 RSIS system installed and operational 2.2 Implementation of RSIS: - # of yards connected by railway - # of RSIS users trained - # of subscribers to a regular publication of railways' performance statistics			

Exhibit 7.2 Monitoring and Evaluation Plan - Measuring Indicators

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
PROJECT GOAL: Enhanced enabling environment for increased trade competitiveness and increased private sector investment. <u>SPECIFIC RESULTS SOUGHT:</u>				
1. Increased private sector investment	1.1 Favorable and harmonized investment code enacted and implemented by SADC countries	1.1 Policy draft by SADC countries	1.1 Policy Analysis Unit Quarterly Reports	1.1 Policy reforms pass through several stages starting from need identification, detailed analysis, drafting legislation, debating, refining and adopting legislation, and implementing reforms. The evaluation will identify the critical stages.
	1.2 Investment as a % of GDP by SADC countries - Gross Domestic Investment - Private Investment	1.2 Gross Domestic Investment, Private Investment, and GDP in constant US dollars for each SADC country	1.2 IMF, Central Bank reports	1.2 Year over year increase and distance from target
	1.3 Total Employment by SADC countries	1.3 Total employment by SADC countries	1.3 SADC countries' labor department reports	1.3 " "

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
2. Increased SADC trade	2.1 Liberalized and harmonized trade policies adopted by all SADC countries	2.1 Draft legislation, & enactment stage by SADC countries	2.1 Policy Analysis Unit Quarterly Reports	2.1 Same as 1.1
	2.2 Policies that encourage intra-regional trade and investment formulated and actively promoted by all SADC countries	2.2 Intra-regional trade and investment bilateral draft agreements	2.2 Policy Analysis Unit Quarterly Reports	2.2 Same as 1.1
	2.3 Trade as % of GDP by SADC countries - total trade - intra-regional trade - exports	2.3 Trade (exports + imports) flows statistics and GDP in constant US dollars by SADC countries	2.3 World Bank -World Development Report, COMTRADE (UNSO database)	2.3 Year-over-year % increase and distance from target
3. Improved terms of trade	3.1 Terms of Trade by commodity by SADC countries	3.1 Terms of Trade statistics by SADC countries	3.1 World Bank reports,	3.1 " "
	3.2 Import plus debt service coverage ratio	3.2 Imports, Debt Service, and Exports by SADC countries	3.2 World Bank, IMF, central bank reports	3.2 " "

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
PROJECT PURPOSE: Increased efficiency, reliability and competitiveness of SADC surface transport. <u>SPECIFIC RESULTS SOUGHT:</u>				
1. Increased efficiency, reliability and productivity of rail/road transport sector	1.1 Clear policies, statues and decrees formulated, ratified and established for: - restructuring and commercializing the railways; - abolishing administrative allocation of freight; - deregulating transport tariffs and giving railways liberty to determine public tariffs and to negotiate contract rates with major customers; - reforming infrastructure cost recovery mechanism for all transport modes; - establishing new personnel management rules and policies. - integration of the region's railways operation	1.1 # of SADC countries with ratified railways/road transport restructuring/reform draft legislation	1.1 Policy Analysis Unit Quarterly Reports	1.1 Evaluated in terms of the stage at which the policy draft is.
	1.2 Restructuring of Railways: - # of railways with new management & organizational structure - Value of privatized services - Labor force reduction	1.2 # of railways restructured; types and values of services contracted to or operated by private vendors; employee retrenchment plan/force downsizing	1.2 PAU, Railways & transport ministries	1.2 Evaluated in terms of year-over-year increases and distance from set targets & milestones

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
2. Improved commercial viability/competitiveness of SADC railways	1.3 Railways' operational efficiency: - Locomotive & wagon availability - Locomotive && wagon utilization - Turnaround time	1.3 Rolling stock availability, utilization and turnaround time statistic	1.3 Railways, RSIS	1.3 Evaluated in term of distance from set targets
	1.4 Railways' management efficiency: - Excess rolling stock - Wagon-hire expenses - Locomotive maintenance expenses	1.4 Rolling stock scraped, # of wagons owned, wagons hired, wagon-hire expenses, # of locomotives owned, locomotive maintenance expenses	1.4 " "	1.4 " "
	1.5 Level of railways' customers satisfaction	1.5 Customer Satisfaction Index	1.5 PAU special study/survey	1.5 Evaluated in terms of year-over-year increases in CSI
	1.6 Financial performance of the region's railways: - Working Ratio - LRMC Recovery Ratio - Operating Ratio - Return on Renewable Assets - Revenue per ton-km - Government subsidy as % of Revenue - Leverage Ratio	1.6 Profit & Loss Statements, Balance Sheet of railways, and government railways subsidy statistics	1.6 Railways, transport and finance ministries	1.6 Evaluated in terms of distance from set targets

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
3. Increased inter-modal competition	3.1 Regulations barring road haulers from competing along rail lines eliminated	3.1 Draft legislation abolishing the road permit system and rationalizing transit fees	3.1 SATCC/PAU	3.1 Same as 1.1
	3.2 Transport traffic (ton-km): - railways - roads	3.2 Freight traffic by commodity and by SADC corridor	3.2 SATCC/PAU, ministries of transportation, COMTRADE	3.2 Evaluated in terms of achieving targeted levels
	3.3 Transport sector investment: - railways - roads	3.3 Railways, road, and port investment by SADC corridors	3.3 " "	3.3 " "

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	DATA SETS / MEASUREMENT	DATA SOURCES	PERFORMANCE EVALUATION TECHNIQUES
PROJECT INPUTS / STRATEGY:				
1. Enhance/strengthen SATCC's policy formulation and communication capability by establishing a policy analysis unit within SATCC that will collect transport and socio-economic data, conduct policy research and analysis and make policy, regulatory and institutional reform recommendations.	1.1 A policy analysis unit funded, staffed and operational		1.1 USAID	1.1 Evaluated in terms of YES/NO
	1.2 # of policy issues analyzed, published and communicated to SATCC management and national government officials for discussion and adoption.		1.2 SATCC/PAU	1.2 Evaluated in terms of # of studies completed relative to target policy studies
	1.3 Transport sector and socio-economic database - database up and running - # of subscriber to regular publication of socio-economic and transport sector data		1.3 " "	1.3 Evaluated in terms of YES/NO and increase in # of subscribers
2. Enhance railway managers' capability to efficiently operate and manage their railways by establishing and implementing rolling stocks information systems.	2.1 RSIS system installed and operational		2.1 USAID, RSIS	2.1 Evaluated in terms of YES/NO
	2.2 Implementation of RSIS: - # of yards connected by railway - # of RSIS users trained - # of subscribers to a regular publication of railways' performance statistics		2.2 RSIS	2.2 Evaluated in terms of the implementation schedule and set targets

Exhibit 7.3 Monitoring and Evaluation Plan - Baseline and Performance Target Data

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
PROJECT GOAL: Enhanced enabling environment for increased trade competitiveness and increased private sector investment. SPECIFIC RESULTS SOUGHT: 1. Increased private sector investment	1.1 Favorable and harmonized investment code enacted and implemented by SADC countries 1.2 Investment as a % of GDP by SADC countries (see Table 1) - Gross Domestic Investment - Private Investment 1.3 Total Employment by SADC countries (see Table 2)	 1990 = 1990 = 1990 =						

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
2. Increased SADC trade	2.1 Liberalized and harmonized trade policies adopted by all SADC countries							
	2.2 Policies that encourage intra-regional trade and investment formulated and actively promoted by all SADC countries							
	2.3 Trade as % of GDP by SADC countries (see Table 3) - total trade - intra-regional trade - exports							
3. Improved terms of trade	3.1 Terms of Trade by commodity by SADC countries (see Table 4)							
	3.2 Import plus debt service coverage ratio (see Table 5)							

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
PROJECT PURPOSE: Increased efficiency, reliability and competitiveness of SADC surface transport. <u>SPECIFIC RESULTS SOUGHT:</u> 1. Increased efficiency, reliability and productivity of rail/road transport sector	1.1 Clear policies, statues and decrees formulated, ratified and established for: - restructuring and commercializing the railways; - abolishing administrative allocation of freight; - deregulating transport tariffs and giving railways liberty to determine public tariffs and to negotiate contract rates with major customers; - reforming infrastructure cost recovery mechanism for all transport modes; - establishing new personnel management rules and policies; - integration of the region's railways operation. 1.2 Restructuring of Railways (see Table 6): - # of railways with new management & organizational structure - Value of privatized services - Labor force reduction							

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
2. Improved commercial viability/competitiveness of SADC railways	1.3 Railways' operational efficiency (see Table 7): - Locomotive & wagon availability - Locomotive & wagon utilization - Turnaround time 1.4 Railways' management efficiency (see Table 8): - Excess rolling stock - Wagon-hire expenses - Locomotive maintenance expenses 1.5 Level of railways' customers satisfaction (see Table 9) 1.6 Financial performance of the region's railways (see Table 10): - Working Ratio - LRMC Recovery Ratio - Operating Ratio - Return on Renewable Assets - Revenue per ton-km (see Table 11) - Government subsidy as % of Revenue - Leverage Ratio							

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
3. Increased inter-modal competition	3.1 Regulations barring road haulers from competing along rail lines eliminated 3.2 Transport traffic (ton-km) (see Table 11): - railways - roads 3.3 Transport sector investment (see Table 12): - railways - roads							

PROJECT GOAL / PURPOSE	PERFORMANCE INDICATORS	BASELINE	PERFORMANCE TARGETS					CRITICAL ASSUMPTIONS
			1994	1995	1996	1997	1998	
PROJECT INPUTS / STRATEGY:								
1. Enhance/strengthen SATCC's policy formulation and communication capability by establishing a policy analysis unit within SATCC that will collect transport and socio-economic data, conduct policy research and analysis and make policy, regulatory and institutional reform recommendations.	1.1 A policy analysis unit funded, staffed and operational 1.2 # of policy issues analyzed, published and communicated to SATCC management and national government officials for discussion and adoption. 1.3 Transport sector and socio-economic database - database up and running - # of subscriber to regular publication of socio-economic and transport sector data							
2. Enhance railway managers' capability to efficiently operate and manage their railways by establishing and implementing rolling stocks information systems.	2.1 RSIS system installed and operational 2.2 Implementation of RSIS: - # of yards connected by railway - # of RSIS users trained - # of subscribers to a regular publication of railways' performance statistics							

Persons Interviewed

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Percy Mangoaela	Director
S. Kaombwe	Planning Coordinator
S. Bjork	Planning Officer
Godwin Punungwe	Surface Transport Specialist
O. Nundu	Civil Aviation Expert
M. Tayob	Telecommunications Specialist

NATIONAL RAILWAYS OF ZIMBABWE

A. Mabena	General Manager and Chief Executive
T. F. Masocha	Assistant Senior Planning Officer
A. M. Kamhunga	Assistant General Manager (Operations)
R. S. Wabatagore	Manager Computer Services
Remmy Makumbe	Chief Signal Engineer
Max Dhliwayo	Assistant General Manager (Technical Services)
R. K. Leanders	Traffic Officer, Hire Accounts Headquarters
S. W. Chimhamhiwa	Planning Manager

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John Mvura	Assistant Secretary
B. M. Sambana	Under Secretary for Railways & Airways
R. Tsomondo	Deputy Secretary Traffic & Legislation

SPOORNET

Willem Burger	Senior General Manager
Leo Petkoon	General Manager
Simon Swanich	Manager
Willem Gronum	Senior Manager
Francis Callard	Senior Manager
Ben V. D. Merwe	Chief Engineer
Colin V. L. Roberts	System Technologist
Alf M. E. Schulze	Executive Manager
Andre Heydenrych	Business Manager
Deon van Niekerk	Manager
D. F. Botha	Senior Manager

UNCTAD

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Mr S. Simuyemba	Chief Technical Advisor

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Mr Babe Botana	Chief Traffic Manager

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J. Grover	Rites Financial Adviser, Swaziland Railway
J. Masson	Swaziland Sugar Association
O. Jorge	CFM Representative

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Sam Mintz	Regional Transport Advisor
Stephen Spielman	Deputy Director
Charles Scheibal	Regional Engineer
Peter Argo	Engineer, USAID/Mozambique
Tim Born	USAID/Mozambique

OTHER

Zana	Chief Operations, Grain Marketing Board, Zimbabwe
Jan Hendrikse	General Manager, Manica Beira
F. Sithole	Division Director, Mineral Marketing Corp. Zimbabwe
O. Furusa	Sales Executive, MMCZ
Mark Rule	Marketing Manager, Manica Regional Office
T. de Chassart	Director, Tobacco Trade Association of Zimbabwe
T. Wicks	Marketing and Shipping Manager, Cotton Marketing Board, Zimbabwe
J. Mapuranga	Marketing and Shipping Manager, Cotton Marketing Board, Zimbabwe
Bill Ver Ploegh	General Manager, Manica Mozambique
Richard Roberts	Import-Export Manager, Manica Mozambique
Dirk Dieltiens	General Manager, AMI-Mozambique
Nelish Patel	Coopers & Lybrand Management
Graham Upperton	Business Banker, Barclays Bank PLC

Mike Johnstone	Distribution Manager, National Foods, Bulawayo
Richard U. Cogswell	Staff Engineer, U.S. Department of Transportation
Louis S. Thompson	Railways Adviser, Transport Division, World Bank
Rick Cosino	Consultant

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