

REPUBLICA POPULAR DE MOCAMBIQUE
MINISTERIO DOS TRANSPORTES E COMUNICACOES
DIRECCAO NACIONAL DOS PORTOS E CAMINHOS DE FERRO
B.M.S. - Brigada de Melhoramentos do Sul

Limpopo Corridor

Progress Report

Maputo

January 1989

LIST OF ABBREVIATIONS

AfDB	African Development Bank
AfDF	African Development Fund
BDDSA	British Development Division of Southern Africa
BEE	Brigadas de Execução de Empreitadas (BMS) [BMS Construction Teams]
BM	Banco de Moçambique
BMS	Brigada de Melhoramentos do Sul
BPD	Banco Popular de Desenvolvimento
CFM(C)	Caminhos de Ferro de Moçambique (Centro)
CFM(N)	Caminhos de Ferro de Moçambique (Norte)
CFM(S)	Caminhos de Ferro de Moçambique (Sul)
CIDA	Canadian International Development Agency
CCM	Companhia de Cimentos de Moçambique
DANIDA	Danish International Development Agency
DNEP	Direcção Nacional de Estradas e Pontes
DNPCF	Direcção Nacional dos Portos e Caminhos de Ferro
EEC	European Economic Community
EdM	Electricidade de Moçambique
FRG	Federal Republic of Germany
IBRD	International Bank for Reconstruction and Development
ICP	Implementação e Controlo de Projectos (BMS) [Project Control and Implementation]
IGM	Implementação e Gestão de Meios (BMS) [Resources Management and Implementation]
LWR	Long Welded Rail
MCA	Ministério de Construção e Aguas - RPM
MD	Ministério da Defesa - RPM
MHAI	Mott, Hay and Anderson International
MTC	Ministério dos Transportes e Comunicações - RPM
NORAD	Norwegian Agency for (International) Development
NRZ	National Railways of Zimbabwe
NGO	Non Governmental Organization
ODA	Overseas Development Agency (UK)
PROSUL	Produtora de Materiais Regional Sul
RPM	República Popular de Moçambique
RITES	Rail India Technical and Economic Services
SADCC	Southern Africa Development Coordination Conference
SATCC	Southern Africa Transport and Communications Commission
SCP	Serviço de Consultoria e Projectos - DNPCF
SIDA	Swedish International Development Agency
TOR	Terms of Reference
TdM	Telecomunicações de Moçambique
UGC	Unidade de Gestão Central (BMS) [Central Management Unit]
UK	United Kingdom
USAID	United States Agency for International Development
ZIMCORD	Zimbabwe Development Coordination Conference

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I - INTRODUCTION

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- The Limpopo Railway is one of the three main lines in the southern region of Mozambique, operated by CFM(S). It is approximately 534 Km long, connecting Maputo and its port with the NRZ at Chicualacuala. The construction of the line was concluded in 1957.

- In the studies undertaken prior to its construction two other alternatives have been considered, e.g. duplication of Beira-Machipanda and a new line to Beitbridge, in the border between Zimbabwe and South Africa.

- The Limpopo Line was selected because: it showed better economical and financial viability; it would provide a better utilization of the traction capacity; and also, the port of Maputo offered very good cargo handling conditions suitable to the traffic pattern and demand.

- The railway line serves directly Zimbabwe and constitutes an economically viable route as well for Botswana, Zambia and also Zaire. In Mozambique, it crosses the Provinces of Gaza and Maputo and, in particular the rich agricultural areas of Limpopo river and Incomati river valleys.

- The rehabilitation of this line has been identified in the SATCC programme with top priority upon Zimbabwe's Independence in 1980. SATCC submitted the Limpopo project to the 1980 SADCC Maputo Conference under SATCC Project Nr.2.5.6.

- The Government of the United Kingdom of Great Britain and Northern Ireland pledged UK £ 10 million at ZIMCORD held in Harare in May 1981. This pledge was specifically directed to the Mozambique routes to the ports of Beira and Maputo with the aim to improve transport conditions and facilitate movement of Zimbabwe overseas traffic.

- After the first studies that were made, the Governments of Mozambique, Zimbabwe and United Kingdom, agreed to concentrate this support in the Limpopo Line and several projects were selected to be financed by that grant.

- More detailed studies and designs were then prepared for the work to be carried out as well as technical specifications for the equipment to be procured.

- The work finally started in 1986. In the course of implementation of these works, additional requirements have been identified which led to the decision of the Government of United Kingdom to increase the aid funds to UK £ 14 million in 1987.

- These initial works were identified as PHASE I.

- In early 1988, a Report was prepared, funded by ODA and CIDA, covering the needs for the Complete Rehabilitation, Operation and Maintenance of the Limpopo Line.

- The project included in this report are referred to as PHASE II, and have been grouped in two programmes:

- Core Programme, for implementation until 1992; and

- Additional Support Programme, for implementation after 1992 and until the year 2000.

- This report was discussed at the Technical Coordination Conference on Limpopo Corridor, held in Maputo on 27/28 July 1988. A Copy of the Record of this Conference is attached as Annex 1.

- Immediately after the Conference, detailed discussions were held with several financiers, and the mechanisms and procedures for the disbursement of the funds were speeded up.

- In view of the positive response from the financiers, and the need for adequate coordination, a follow-up meeting had to be organized on 14th December 1988 in Maputo. The Record of this meeting is attached as Annex 2.

- This Progress Report aims at giving the current state of affairs of the implementation of the several projects included on both the PHASE I and II of the Limpopo Corridor Programme.

## II - BMS'S ORGANIZATION

- BMS - Brigada de Melhoramentos do Sul was set up in 1984 by a decree of at the time Ministry of Ports, Railways and the Merchant Marine, for the purpose of directing, supervising and inspecting the implementation of the port and railway rehabilitation and development projects, of the port of Maputo and the railway network of CFM(S). Although working in close connection with CFM(S), the BMS is an independent organization with its own director reporting to the National Director for Ports and Railways.

- Among the projects under its responsibility, the "Limpopo Corridor" is the one that will absorb the greatest attention and which will force the establishment of functional organized schemes. It is expected that the management activity of BMS (see Annex 3) will be made at three levels:

- Level 1: Central Management, through the "Unidade de Gestão Central" (UGC) - (Central Management Unit).
  - Level 2: Operative Management, through the "Implementação e Gestão de Meios" (IGM) - (Resources Management and Implementation) and the "Brigadas de Execução de Empreitadas" (BEE) - (BMS Construction Teams).
  - Level 3: Project Management, through the "Implementação e Controlo de Projectos" (ICP) - (Project Control and Implementation).
- The top management of BMS will be made through the following members:
- Director of BMS: who directs the BMS in accordance with the statutory documents;
  - Deputy Director: who supports and deputizes the Director of BMS in his absence or when necessary.
  - As a support to BMS, a Legal Adviser will be contracted as and when necessary.
- The UGC will be responsible for the overall management of the projects, and will be headed by a senior engineer as Director's Adviser. He will provide the link with the Director and the Deputy Director of BMS and with the SCP. The Director's Adviser will work with one junior engineer and one technician.

- The UGC will have the following departments:
  - Planning and Informatic Support: Centralizes all physical and global planning activity, planning and programming control, organization and information management and assures the informatic support to the UGC. It will be directed by a planning engineer coadjuvated by a junior engineer, and planning and a informatic operators;
  - Financial and Budgetary Management: Responsible for all activity of accounting and financing control and for the connection with donors and financing entities. It will be staffed by a graduate in finance, one junior graduate in finance and two accountants.
  - Contracting and Procurement: Responsible for all activity concerning the procurement related to services, materials and equipments in accordance with the rules and procedures of the financiers, and the preliminary studies, financiers files, tenders and evaluation of the proposals and contracting. It will be headed by a mechanical engineer, coadjuvated by a junior engineer and a technician;
  - Secretariat and Administrative Services: That assures all the secretariat activity, communications, typewriting, translation, general archive, human resources and patrimony. It will be staffed by an administrative officer, two typists and telex operators, a telephone operator, two cleaners/messengers and a translator;
  - Drawing and Technical Archive: That provides the support as drawing office and keep the technical archive through a team with two draftsmen, one of which is responsible for the Technical Archive;
- The IGM, at an intermediate level, will be responsible for the operational management of several activities, such as: training, production of ballast at the Esteval Quarry, production of concrete sleepers at the Umbeluzi Factory, and rail flash-butt welding and other services provided by the Electro-Mechanic Equipment Depot. The BMS intervention at this intermediate level is temporary. Whenever necessary any above mentioned activity will originate a specific project. When this happens, such a project will be transferred to the Level 3.
- The BEE will be formed to execute any works using the direct labour system.
- The ICP will be responsible for the executive management of all projects. For each project, teams will be contracted as necessary, to supervise and execute the works. Scaling economies can be considered through the establishment of common services to support a group of projects, such as topographical, measurements control and others.

- The implementation of the activities at IGM and ICP levels, will take place gradually, in accordance with the projects, and on a case by case basis.
  
- Such has been already the case of the Concrete Sleeper Factory at Umbeluzi, the Estevel Quarry and the Machava Depot, with British technical assistance, and the project C-RZ, being implemented by NRZ.
  
- It is important that the UGC's structure be reinforced in accordance with the needs of the projects under implementation. Such reinforcements shall be supported by the budgets of each project or group of projects.

### III - SITUATION OF PHASE I

- As mentioned earlier, PHASE I works were identified in a study carried out back in 1982/83, and implementation started in 1986.

- Activities included in this PHASE are:

- (i) Umbeluzi Concrete Sleeper Factory;
- (ii) Estevel Quarry;
- (iii) Machava Depot;
- (iv) Track Renewal, Km 526,5 - Km 471;
- (v) Track Renewal, Km 5 - Km 85;
- (vi) Track Renewal, Maputo port (30 Km); and
- (vii) Telecommunications.

- A brief statement on the current status of these activities is given below. Only foreign currency costs are indicated. Local costs (Mozambique) were globally supported by CFM(S) and have not been discriminated.

#### (i) Umbeluzi Concrete Sleeper Factory

The factory has been completely rehabilitated, to achieve a scheduled production rate of 360 sleepers per day.

Production started in mid October 1988 but to date only approximately 10000 sleepers were produced due to unavailability of cement. This problem has now been solved and production is back to normal.

Total cost of rehabilitation was approx. UK £ 800x10<sup>3</sup>.

#### (ii) Estevel Quarry

A new crushing plant has been installed at a total cost of UK £ 1250x10<sup>3</sup>. Production not yet started due to several delays in civil works and power supply. Ballast production is however due to start in February 1989.

#### (iii) Machava Depot

Some repairs have been made to the rail flash-butt welding plant. Production of LWR has been affected by the non existence of facilities to store the welded bars, which have to be loaded directly in railway platforms.

(iv) Track Renewal, Km 526,5 - Km 471

Work undertaken by NRZ under contract with BMS, completed in August 1988. Total costs of materials and renewal operations were approx. UK £ 2000x10<sup>3</sup> (materials ex-UK) and Zim \$ 9000x10<sup>3</sup> (NRZ costs) of which payment of approx. Zim \$ 5000x10<sup>3</sup> still outstanding, awaiting UK Government decision.

(v) Track Renewal, Km 5 - Km 85

Track renewal works started in November. Progress was affected by irregular supply of concrete sleepers and ballast, and only 5 Km were renewed in the first two months. It is anticipated, however, that the foreseen rate of 8 Km per month will be achieved, as from February 1989.

Meanwhile critical maintenance, including earthworks associated with embankments and cuttings, has been carried out on the same section of the line.

(vi) Track Renewal, Maputo port (30 Km)

Renewal of 63 turnouts complete, and 10 Km of track relaying has already been done.

(vii) Telecommunications

Civil works (foundations) are being carried out by BMS work force. Supply of equipment will be completed first quarter 1989 and installation of new railway telecommunications system completed by the end of 1989.

Approximately UK £ 1100x10<sup>3</sup> were spent with this activity.

IV - SITUATION OF PHASE II

- This phase covers two programmes: The Core Programme and the Additional Support Programme.

(i) "CORE PROGRAMME"

- Its objective is to allow the opening the line to normal traffic, both domestic and international in the shortest possible time. This programme has been confirmed as being the technically preferred option as well as the most favorable in terms of economic return. The Programme, valued at USD 135.982 million, consists of two subprograms:

- A- Track Rehabilitation - USD 55.241 million;
- B- Essential Support - USD 80.741 million.

(ii) "ADDITIONAL SUPPORT PROGRAMME"

- The Additional Support Programme consists of those items necessary to ensure the sustained operations of the Limpopo Line through the year 1991 and its value is USD 90.697 million.

- The following projects have been identified:

A- "CORE PROGRAMME" - Track Rehabilitation

- C-QO - Estevel Quarry Operations: Provision of new equipment, maintenance of the crusher and production of ballast.
- C-SF - Umbeluzi Sleeper Factory: Provision of new equipment and production of concrete sleepers.
- C-MD - Machava Depot: Provision of new equipment.
- C-TM - Track Materials: Provision of second hand steel sleepers, new rail and new turnouts.
- C-TE - Provision of Track Maintenance Equipment: Provision of track maintenance equipment including spare parts.
- C-TU - Track Upgrading (Critical Maintenance) and Bridge Repair: Replacing approximately every fourth existing sleeper with steel sleeper and placing minimal amounts of ballast. Replacement of 6 bridges, strengthening of 8 bridges and major repair in 2 bridges.

- C-RM - Track Renewal by BMS (127 Km): Renewal operations between Km 85 and Km 212. The renewal of track between Km 5 and Km 85 is part of PHASE I works.
- C-RZ - Track Renewal by NRZ (259 Km): Provision of concrete sleepers, ballast and track renewal operations, by NRZ, under contract with BMS.

B- "CORE PROGRAMME" - Essential Support

- C-OM - Workshops Organization and Methods Study: Study of the workshops organization.
- C-LO - Workshops Improvements - Locomotives: Provision of spare parts and materials, new tools and equipment and building repairs. It includes also technical assistance and training and accommodation for technical assistance.
- C-WA - Workshops Improvements - Wagons: Provision of spare parts and materials, equipment repair and replacement, building repairs, for wagon rehabilitation. It includes as well technical assistance and training and accommodation for technical assistance.
- C-ST - New Signal System Between Maputo and Machava: Train control study and system design, including the system implementation.
- C-BR - Buildings and Services Repairs and Upgrading: Rehabilitation and repairs in station buildings and services, of first priority, including rehabilitation of permanent water supply and power generation facilities.
- C-RD - Road Maputo-Chokwe-Chicualacuala: Rehabilitation and/or construction of a road to support the rehabilitation works and operations of the Limpopo Line.
- C-TA - General Technical Assistance: Management and technical assistance to BMS and CFM(S), and accommodation for technical assistance.
- C-SC - Stores and Inventory Control Package: Equipment purchase and technical assistance for implementation.
- C-FC - Technical Assistance for Financial Control: Technical assistance during four years period, for the study and implementation of a financial control.

## G- "ADDITIONAL SUPPORT PROGRAMME"

- A-LO - Additional Workshops Improvements - Locomotives: Spare parts and materials, technical assistance and training and accommodation for technical assistance.
- A-WA - Additional Workshops Improvements - Wagons: Spare parts and materials, technical assistance and training and accommodation for technical assistance.
- A-BR - Additional Building and Services Repairs and Upgrading: Repair and renovation of railway housing, station buildings and other buildings.

NOTE: Annex 4 shows a table with all projects, and their financing status. In Annex 5, projects are described with more detail.



**ANNEX 1**

**RECORD OF THE TECHNICAL  
COORDINATION CONFERENCE  
ON THE REHABILITATION OF  
THE LIMPOPO RAILWAY LINE  
(July 27/28, 1988)**

RECORD OF THE TECHNICAL COORDINATION  
CONFERENCE ON THE REHABILITATION  
OF THE LIMPOPO RAILWAY LINE

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MAPUTO, 27-28 JULY, 1988

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1. Preliminaries

The Conference was opened by the Honourable A.E.Guebuza, Minister of Transport and Communications of the People's Republic of Mozambique, Chairman of the Committee of Ministers of SATCC. His opening statement is attached as Annex 1.

On behalf of the participants Mr.Graham Stegman, Head of the British Development Division of Southern Africa, thanked the Honourable Minister and the Government of the People's Republic of Mozambique for the arrangements for the Conference. His statement is attached as Annex 2.

The meeting was chaired by Mr.M.Matolo, Chairman of the Coordinating Committee of SATCC:

A list of the participants is attached as Annex 3.

2. Agenda

The adopted agenda and programme are attached as Annex 4.

3. Limpopo Railway Project (Phase I)

A paper on the Limpopo Railway Project (Phase I) was presented by Mr. P. Figueiredo, Director of the Brigada de Melhoramentos do Sul (BMS). The document is attached as Annex 5.

A two fold approach has been applied to the track rehabilitation during Phase I. The rehabilitation works have been concentrated on the worst sections of the line and at the same time rehabilitation of the production capacity, namely production of ballast and sleepers and rehabilitation of the rail welding plant, has been carried out. The sleeper production will start in September and the quarry rehabilitation will be completed in October, 1988.

Clarification sought on:

- availability of right type of cement for sleeper production;
- contract between BMS and the National Railways of Zimbabwe (NRZ);
- administration of BMS; and
- traffic and tariff agreement between the Mozambique Railways and NRZ for the Limpopo Line in the same manner as for the Beira-Zimbabwe line.

On behalf of the BMS and Mozambique Railways it was explained that:

- (i) Production of cement meeting the requirements related to sleeper production is still a problem. It is expected however, that a solution will be found in the near future;
- (ii) Arrangements between BMS and NRZ have been and are flexible. The basic agreement is explained in the paper on the Limpopo Railway Project (Annex 5). Additional agreements have been and are being made as the need arises;
- (iii) Following the example and the experience gained in the implementation of the Nacala and Beira Corridor projects, BMS has been established within the Mozambique Ports and Railways Administration to manage the implementation of the projects related to CFM - Southern System. Thus the management of the project implementation has been separated from the daily operations of ports and railways. At the moment BMS is managing two projects, namely the rehabilitation of the Limpopo line and that of the Coastal Terminal in the port. Funded by the United Kingdom 14 expatriate engineers and technicians are working for the Limpopo project implementation unit supporting Mozambican engineers and staff;
- (iv) It was noted that there is an operating agreement in force between CFM and NRZ. Reference was made to the special agreement on traffic and tariffs between CFM and the Malawi Railways for the traffic on the Nacala route and between CFM and NRZ for the Beira route. It was concluded that a corresponding agreement is needed between CFM and NRZ for the operation of the Limpopo line.

#### 4. Report on Rehabilitation, Operation and Maintenance of Limpopo Line

The report of the study for the Total Rehabilitation, Operation and Maintenance of the Limpopo Railway Line was presented by the Consultants.

The points raised in the discussion included the following:

- traffic forecast
- adequacy of locomotives and rolling stock
- rails stored in Maputo
- operations
- guarantees on minimum traffic and tariffs
- cost/benefit analyses
- contingency planning

During the discussion the following points were made:

- (i) In principle the traffic forecast used by the Consultants is based on the data included in the ongoing exercise to update the SATCC Traffic Forecast of 1983. Some changes have been made to those data, i.e. a more conservative approach has been adopted by the Consultants. It was noted that the basic data for the SATCC Traffic Forecast have already been approved by the Committee of Ministers of SATCC to provide the basis for any future studies for SATCC purposes. The SATCC Traffic Forecast is being finalized and will be made available in September, 1988;

- (ii) The conclusions of the Consultant that the present fleet of locomotives and rolling stock is adequate, once rehabilitated, to handle the forecasted traffic were not accepted by DNPCF, Mozambique. Comments of DNPCF/CFM on the Study for the total rehabilitation, Operation and Maintenance of the Limpopo Railway Line, are attached as Annex 6.

It was also pointed out that the CFM systems, North, Central and South, should be considered as a whole taking into account the needs for the rehabilitation works and for the commercial traffic. Therefore further investigations in this respect are needed at the same time when the proposed improvements to the locomotive and rolling stock fleet are carried out. The recommended actions should be considered as minimum requirements;

- (iii) The rails stored in Maputo are intended for the rehabilitation of the Dondo-Sena and Maputo-Goba lines and will not be available for the Limpopo line. A part of the existing stock has already been shipped to Beira;
- (iv) The Consultants have assumed that 24 hour operations can be maintained. If 12 hour operations are foreseen, that will reduce the capacity by 50 per cent. On the other hand it was noted that it would be possible to operate trains of 2000 gross tonnes on the Limpopo Line. Even one pair of trains could thus provide capacity to handle the anticipated traffic to begin with.

Assurance was given by Zimbabwe that once the Limpopo line is operational, the traffic presently directed to Durban would be rerouted via the Limpopo Line.

It was also pointed out that there is need to improve shipping services to and from Maputo to provide a better competitive basis compared with the South African ports;

- (v) The financiers felt that there is need to have an agreement between CFM and NRZ on traffic and tariffs;
- (vi) It was noted that the cost/benefit analyses by the Consultants were made from SADCC point of view. Such analyses has not been made from Mozambique's point of view only;
- (vii) It was noted that the capacities of the Ports of Dar-es-Salaam and Beira are adequate to handle only about half of the overseas trade of the SADCC countries. Therefore it is vital from the contingency point of view to get the Nacala and Maputo routes reopened for international traffic as soon as possible. The capacity of the Port of Maputo is more than adequate to handle any additional traffic from the SADCC Member States.

Appreciation was expressed concerning the Consultant's work. The report provides a good basis for further action.

## 5. Road Maputo-Chokwe-Chicualacuala

SATCC Technical Unit introduced the item by presenting a paper (attached as Annex 7) which outlined the proposed service road project.

In the discussions clarification was sought concerning the benefits from the road to the railway in view of the implementation period, and concern expressed over the impact of the cost of the road project on the economic viability of the railway project.

It was concluded that the road was important in supporting the rehabilitation, maintenance, operation and security of the railway line. In pursuing the project, more analytical work needs to be done and the project incorporated more clearly in the railway project package.

## 6. Cooperating Partner's Statements

The Chairman noted that the first phase of the rehabilitation project was ongoing, and that the main attention should now be focused on the Core Programme of the following phase.

Statements were made by the following delegations:

- Canada
- United States of America
- Federal Republic of Germany
- United Kingdom
- African Development Bank
- Austria
- Denmark (also on behalf of the Nordic Countries)
- EEC
- Portugal
- Zimbabwe

The statements are briefly summarized below.

### CANADA

Canada reiterated its commitment made at the Commonwealth Heads of Government meeting of up to Cdn \$ 20 million for the Limpopo Line, and its willingness to use local capabilities in its support. Up to Cdn \$ 10 million could be used for purchase of rails, turnouts, inputs for sleeper manufacture and other materials such as maintenance equipment and tools to be acquired in Canada. Further, up to Cdn \$ 10 million can be allocated to procurement of materials within the SADCC Region, including ballast, concrete sleepers, etc.

Canada stressed the importance of definite commitment by SADCC Member States regarding goods traffic allocation and tariffs, as well as adequate security. Canada further underlined the training requirements and indicated preparedness to assist in this area, e.g. in manpower review studies.

### UNITED STATES OF AMERICA

USAID have indicated that USD 80 million have been up to now allocated to rail transport in the regional corridors, and proposes to continue the support by making available another USD 48.8 million for the SATCC Transport Programme. This support will benefit Swaziland and Malawi railways, CFM(C) and now also CFM(S).

The planned total for Mozambique is USD 34.5 million, of which USD 13 million should be committed in 1988 and the remainder in early 1989.

The planned US contribution will go to two areas of the Core Programme:

- Locomotive maintenance and rehabilitation, project C-L0 to be covered entirely
- Financial management and accounting, project C-TA.

#### FEDERAL REPUBLIC OF GERMANY

FRG will provide DM 25 million assistance to transport and communications sector over and above bilateral assistance, as announced at the Arusha SADCC Conference.

The KFW delegation will advise the Federal Government on the allocation of this support, and sees two specific areas in the Limpopo line project as potential beneficiaries:

- Track renewal by NRZ, project C-RZ
- New Signal System Maputo-Infulene, project A-ST.

#### UNITED KINGDOM

UK has committed UK £ 14 million to the project, and continues to support the full rehabilitation of the Limpopo line.

UK stresses the importance of donor coordination, and proposes therefore regular coordination meetings to be arranged in Maputo.

#### AFRICAN DEVELOPMENT BANK

ADB is interested in regional projects of the kind of Limpopo railway. Of particular interest to ADB are workshops improvements, technical assistance and training. The detailed financing packages are to be discussed with the Mozambique Government according to the Bank rules.

#### AUSTRIA

Austria is positively interested in supporting the project, in view of its experience in the TAZARA and Beira corridors, as well as the geopolitical nature of the Limpopo railway project.

The substance and targeting of this interest will be subject to a detailed study of the Conference documentation and further consultations with the parties concerned.

The Austria delegation will recommend to the Government as particular areas the support to the track rehabilitation by NRZ and support to track maintenance.

## DENMARK

Denmark, on behalf of the Nordic countries, stressed the importance of the Limpopo line, and noted the coordination among the Nordic countries of their assistance to regional projects.

Specifically as concerns Denmark, the delegation pledged to finance the wagon rehabilitation programme of the Limpopo project based on the philosophy of deriving benefits from experiences gained from the Beira Corridor project. Further, Denmark expressed interest in participating in the Workshop Organization and Methods Study (C-OM-1).

## EEC

EEC noted that the Limpopo railway project was not included in the list of projects discussed of the time of negotiating the Memorandum of Understanding SADCC-EEC, the implementation of which is now halfway.

EEC recognizes the importance of the Limpopo line and indicated preparedness, subject to additional resources being made available within the SADCC-EEC regional cooperation, to consider participating in the following projects:

- C-TM-1, 2 and 3
- C-SF-1 and 2
- C-QO-1 and
- C-LO-3

The funding is proposed to be a mixture of SADCC and national allocations. EEC is looking forward to the publication of the SATCC Traffic Forecast.

## PORTUGAL

Portugal supports the Limpopo line project, and is considering participation in the project C-TA-1, technical assistance to BMS.

## ZIMBABWE

Zimbabwe reiterated its strong commitment to the rehabilitation project, as evidenced by the participation of NRZ in the project and the protection support provided by the Zimbabwe Armed Forces.

Zimbabwe further expressed its commitment to reroute its traffic presently going via South Africa to the Limpopo line upon its reopening, and appealed to the international community to support the continuation of the NRZ participation in the work, as well as to provide appropriate assistance to the security of the line.

7. Any Other Business

No other business was raised.

## 8. Closing

In the closing statement the Chairman concluded that progress has been made in the rehabilitation of the Limpopo Line. Basic planning for the rehabilitation has been completed. Now it is important that the implementation of this plans will be carried out without any interruptions.

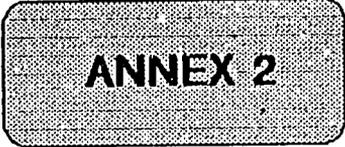
Regular coordination meetings with the Cooperating Partners to that effect, as agreed during the discussions, will have to be organized.

The Limpopo route is one of the main transport corridors of SADCC. The attendance of the Cooperating Partners at this Conference is a sign of their confidence that once the rehabilitation works have been completed, the line will serve the SADCC Member States as one of their main international trade routes.

The Chairman thanked the participants for their attendance noting that this Conference has been a continuation of the well established cooperation between the SADCC Member States and their Cooperating Partners.

On behalf of the Cooperating Partners Mr.S.G.Gibbons, Senior Country Programme Manager, CIDA, expressed their appreciation concerning the organisation of the Conference. His closing statement is attached as Annex 8.

On behalf of the Government of Botswana Mr.C.M.Lekaukau, Permanent Secretary of the Ministry of Works, Transport and Communications, assured the Conference that the project is fully supported by the Government of Botswana. His closing statement is attached as Annex 9.



**ANNEX 2**

**RECORD OF THE MEETING  
ON LIMPOPO CORRIDOR  
(December 14, 1988)**

## MEETING ON LIMPOPO CORRIDOR

MAPUTO 14. 12. 1988

## MEETING RECORD

1. PRELIMINARIES

The meeting was opened by Mr. P. Figueiredo, Director of the Brigada de Melhoramentos do Sul (BMS), who welcomed the participants and outlined the purpose of the meeting as being review and updating of the status of the projects in the Limpopo Corridor Programme and coordination of actions of the parties involved.

The meeting was chaired by Mr. P. Figueiredo. The agenda and programme proposed for the meeting were adopted, and are attached as Annex 1.

The list of participants is attached as Annex 2.

2. PROGRESS REPORT

The Draft Progress Report of the Limpopo Corridor was distributed to the participants and presented by BMS. It was noted that the report will be reviewed and updated after the meeting for presentation to the Working Group on Transport and Communications in connection with SADCC Annual Consultive Conference in Luanda on 1-2.2.1989.

It was noted that the consolidation of the organizational structure of BMS is underway on lines set out in the report.

Concerning the Phase I of the Limpopo Corridor Programme, the implementation is in progress, and the remaining works are scheduled to be substantively completed by July/August 1989.

In the presentation of the situation of the Phase II of the Limpopo Corridor Programme, reference was made to the need to revise the contents of certain projects, particularly:

- introduction of transition curves in the track upgrading works;
- elevation of bridges platforms, particularly in Magude area and beyond, to limit effects of floods;
- extension of the Machava Rail Depot in order to allow storage of long-welded rails.

The necessary work for these revisions will be carried out by BMS.

It was further noted that the road Maputo-Chokwe-Chicualacuala was now included in the Core Programme as project C-RD-1, in accordance with the recommendation of the Technical Coordination Conference in July 1988. The more thorough analytical work on the road project still remains to be done, however.

The list of projects of the Draft Progress Report was reviewed by the meeting to update the information given as regards the status of commitments and interest of the cooperating partners in the various projects. The list will be included in the revised report to be distributed at the SADCC Conference in Luanda.

In addition to the information given in the list of projects, the following additional comments and clarifications were made:

- (i) BMS had received information that Austria (not present at the meeting) would most likely confirm their interest in supporting the track rehabilitation by NRZ (project C-RZ) and track maintenance (project A-TE-1) at the SADCC Conference in Luanda;
- (ii) The cost incurred by NRZ for works on the line up to November 1988 stood at Zim \$ 30.153.000. A speedy settlement of the outstanding reimbursements to NRZ is vital. For this, retroactive payments by donors involved will be necessary. A meeting between BMS, NRZ and the donors concerned should be arranged as soon as possible to review the situation of the works, costs and payments. Concerning the sleepers pledged by Botswana, it was noted that the problem of fastenings could likely be solved by producing fastenings (of the fist type) in Zimbabwe;
- (iii) Wagon workshop improvements, projects C-WA: It was noted that several donors including Denmark, Italy, ADB and Japan, would potentially be involved in supporting these projects, and effective coordination between those involved was therefore necessary. The meeting concluded that a coordination meeting between the parties involved should be arranged. BMS stated that the wagon requirements of CFM(S) should be looked at as a whole, covering not only the Limpopo line but also the Goba and Ressano Garcia lines, and a global programme worked out on that basis. While this work had not yet been completed, there would be ample role for each interested donor (see also statements/information by donors below);
- (iv) Clarification was sought concerning the need for new locomotives for the Limpopo line, as the programme of the Limpopo Corridor included only locomotive rehabilitation and maintenance. BMS confirmed the urgent need for new locomotives and informed that locomotive requirements were being considered globally for the whole CFM, including also CFM(C) and CFM(N) as well as CFM(S). Negotiations were in progress with several donors concerning acquisition of new locomotives under this global programme; and therefore there was no need for the acquisition of new locomotives to be specifically included in the Limpopo Corridor programme;
- (v) Statements/information by cooperating partners:

#### Denmark

Denmark confirmed its interest in financing the wagon workshop improvement projects C-WA-1/2/3/4/5. Prior to its engagement in the implementation, DANIDA will carry out an appraisal of the projects, in which the personnel inputs are likely to be reduced as compared to those outlined in the study for the Limpopo line rehabilitation of June 1988. DANIDA also stressed the importance of coordination with other donors involved in the projects.

Denmark also confirmed their interest in financing the workshop Organization and Methods Study, project C-OM-1. The TOR for the study would however have to be slightly modified, i.e. to take account of the need to appraise the related wagon workshop projects.

### Italy

Italy informed the meeting that the first phase of its support included a training programme implemented by a NGO which led to the rehabilitation of 130 wagons of CFM(S), basically to be used for transport of limestone for the cement factory. A second phase is being negotiated, and will include also rehabilitation of coaches in addition to other goods and wagons.

### Japan

Japan stated that their government is presently considering making available untied funds of up to 200 million yen for the procurement of equipment necessary for the Limpopo railway rehabilitation. Japan will therefore hold discussions with the competent authorities of Mozambique in order to concretely identify the specific parts of the Core Programme where the Japanese support can most usefully contribute.

### ADB

ADB reaffirmed its commitment to support Mozambique in the Limpopo Corridor rehabilitation, and expressed willingness to consider any projects which might be identified in the course of reviewing and reassessing the Limpopo Corridor programme and which would be suitable for ADB financing under the Bank's rules and procedures.

Concerning the approaches previously made, ADB noted that they will be considered by the competent organs of the Bank, but pointed out the following:

- Project C-WA-5 and C-TA-4, Accommodation for Technical Assistance:

It would be difficult to justify ADB support for such small sub-components in the technical assistance packages. In ADB's view it would be more appropriate that each donor involved in funding technical assistance would include the required accommodation in its support.

- Projects C-BR-1 and A-BR-1/2/3/4, Buildings and Services:

ADB noted the rather long implementation periods of this projects, which might make loan financing from ADB less interesting and justifiable. Furthermore, with the ongoing discussions with CIDA concerning projects A-BR-4/5, the remaining funding gap would be small for ADB funding. Therefore, it might be preferable to look for grant funding from other donors.

EEC

EEC informed the meeting that a tentative allocation of ECU 8 to 10 million could be available for the Limpopo Corridor programme. However, the identification of concrete projects to be supported by EEC will be made in follow-up discussions with BMS.

3. FOLLOW-UP ACTIONS

BMS presented a paper outlining required follow-up actions which had been identified so far. It was noted that additional actions had been identified during the discussions on the Progress Report.

The follow up actions to be undertaken were specified as follows:

## (i) Progress Report

- Draft Progress Report presented under Agenda item 2 will be revised on the basis of the conclusions of the meeting and distributed at the SADCC Annual Consultive Conference in Luanda, early February 1989. The report will also serve the presentation of the Limpopo Corridor at the meeting of the Working Group on Transport and Communications to be held in connection of the Conference.
- BMS will in future issue quarterly reports, the first of which is planned to be out in April 1989, covering the first quarter of 1989.

## (ii) Consolidation of BMS Organization

- In progress, required technical assistance is expected to be fully in place by end of January 1989.

## (iii) Agreements to be concluded, expected timing:

- NRZ, within a few days
- CIDA, 20 December 1988
- ODA, by the end of 1988
- Botswana; within a few weeks
- FRG, firm commitment expected at the SADCC Conference in Luanda, agreement thereafter
- IBRD (Jointly with Portugal), during 1989, as IBRD funding required for 1990, for Project C-TA-1.

## (iv) Further discussions/follow-up concerning donor support

- Meeting BMS/NRZ with donors involved in the project C-RZ to be held in Luanda in connection of the SADCC Conference. Meanwhile, bilateral contacts shall be kept to sort out more urgent issues with donors as required, i.e. with CIDA.
- Preliminary meeting between BMS and donors involved in the project C-WA (Denmark, Italy, Japan, ADB) to be held immediately after the meeting on Limpopo Corridor on 14.12.1988.

- Discussions concerning the use of the pledged support from Austria, Japan, ADB and EEC to be held between BMS and the individual donors as soon as possible.
- Conclusion of the arrangements to fulfill the obligations of Mozambique in relation to USAID support: The housing site for technical assistance personnel and the conclusion of agreement with Kuwait Fund for the continuation of the services of RITES.

(v) Future donor coordination

- Coordination arrangements should be discussed at the meeting of the Working Group on Transport and Communications to be held in Luanda in connection of the forthcoming SADCC Conference, including the need and timing of further follow-up meetings, and the possibility to establish a coordination board for the Limpopo Corridor with the participation of a few selected donors.

4. ANY OTHER BUSINESS

No other matters were raised.

5. CLOSING OF THE MEETING

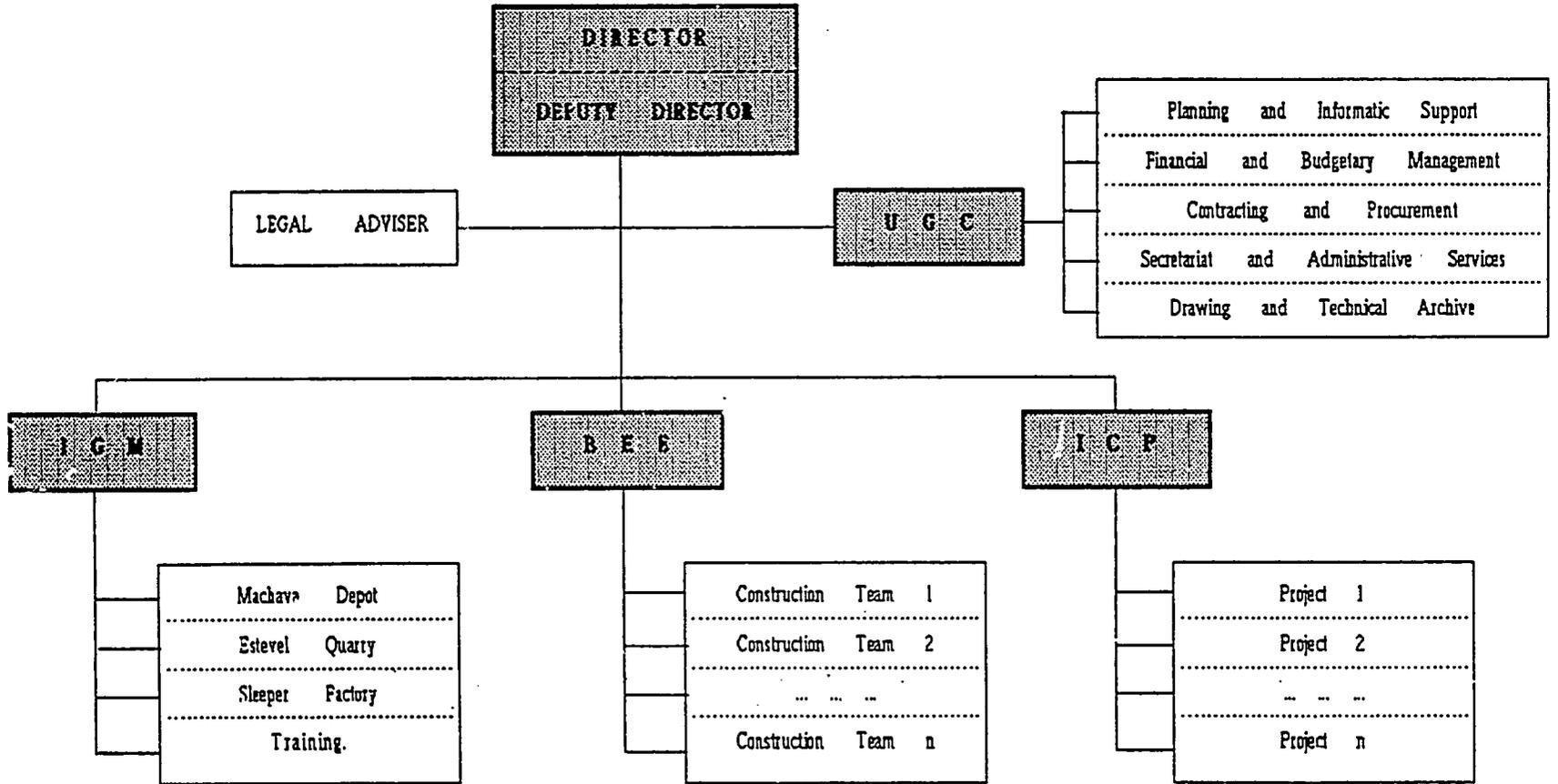
The meeting was closed by the Chairman, who expressed a profound appreciation to the Government of Zimbabwe, the National Railways of Zimbabwe and the CFM(S) for their commitment to the Limpopo Corridor rehabilitation. Further words of appreciation were directed at the Consultants working with BMS for their excellent work, for the Government of the United Kingdom for their invaluable contribution which has been instrumental in securing support also from other donors, and for all other donors involved. The Chairman concluded by reaffirming the commitment of the Mozambique Government and BMS to the Limpopo Corridor programme, and expressed to the participants his warm Greetings of the Season.



**ANNEX 3**

**STRUCTURE OF B.M.S.**

# B. M. S.

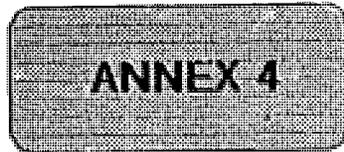


**ICP** Implementação e Controlo de Projectos  
Project Control and Implementation

**BEE** Brigadas Execução Empreitadas  
BMS Construction Teams

**IGM** Implementação Gestão de Meios  
Resources Management and Implementation

**UGC** Unidade de Gestão Central  
Central Management Unit



## **LIST OF PROJECTS**

=====

Project Costs have been kept the same as those indicated in the Report on Total Rehabilitation, Operation and Maintenance of the Limpopo Line, of June 1988.

Financing amounts are indicated in the currencies of the respective financiers and/or agreements.

Differences between these values result from negotiations already held with some financiers, which led to more accurate and comprehensive cost estimates. This will be adjusted in forthcoming progress reports.

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LIST OF PROJECTS

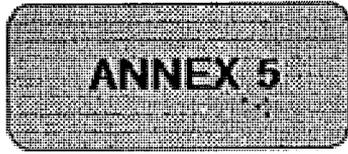
( Values in 10<sup>3</sup> )

| PROJECT DESIGNATION                                    | ( USD ) |       |        | OBSERVATIONS                                                               |
|--------------------------------------------------------|---------|-------|--------|----------------------------------------------------------------------------|
|                                                        | FOREX   | LOCAL | TOTAL  |                                                                            |
| <b>"CORE PROGRAMME" - PART A: TRACK REHABILITATION</b> |         |       |        |                                                                            |
| C-00 ESTEVAL QUARRY OPERATIONS                         | 1 169   | 921   | 2 090  | ODA ( UK £1300 )                                                           |
| C-00-1 Provision of New Equipment                      | 721     | 0     | 721    | Technical Assistance included in C-TA-2                                    |
| C-00-2 Supply of Ballast for Track Upgrading           | 82      | 170   | 252    |                                                                            |
| C-00-3 Supply of Ballast for Track Renewal             | 366     | 751   | 1 117  |                                                                            |
| C-SF UMBELUZI SLEEPER FACTORY                          | 1 372   | 6 541 | 7 913  | ODA ( UK £2130 )                                                           |
| C-SF-1 Provision of New Equipment                      | 225     | 0     | 225    | Technical Assistance included in C-TA-2                                    |
| C-SF-2 Supply of Sleepers for Track Renewal            | 1 147   | 6 541 | 7 688  |                                                                            |
| C-MD MACHAVA DEPOT                                     | 285     | 0     | 285    | ODA ( UK £170 ) CIDA ( Cdn \$270 )                                         |
| C-MD-1 Machava Depot                                   | 285     | 0     | 285    | Technical Assistance included in C-TA-2                                    |
| C-TM TRACK MATERIALS                                   | 5 420   | 0     | 5 420  | CIDA ( Cdn \$7130 )                                                        |
| C-TM-1 Provision of Steel Sleepers                     | 1 260   | 0     | 1 260  |                                                                            |
| C-TM-2 Provision of New Rail                           | 3 780   | 0     | 3 780  |                                                                            |
| C-TM-3 Provision of New Turnouts                       | 380     | 0     | 380    |                                                                            |
| C-TE PROVISION OF TRACK MAINTENANCE EQUIPMENT          | 543     | 0     | 543    | CIDA, AUSTRIA and EEC                                                      |
| C-TE-1 Provision of Track Maintenance Equipment        | 543     | 0     | 543    | ( Amounts to be defined )                                                  |
| C-TU TRACK UPGRADING AND BRIDGE REPAIR                 | 2 170   | 473   | 2 643  | ODA ( UK £1750 )                                                           |
| C-TU-1 Upgrading Operations                            | 195     | 49    | 243    | Technical Assistance included in C-TA-2                                    |
| C-TU-2 Bridge Works                                    | 1 975   | 425   | 2 400  |                                                                            |
| C-FM TRACK RENEWAL BY BWS                              | 4 805   | 1 841 | 6 646  | ODA ( UK £2000 ) CIDA ( Cdn \$750 ) for C-FM-1                             |
| C-FM-1 Renewal Operations                              | 1 605   | 1 841 | 3 446  | EEC ( ECU 2650 ) for C-FM-2                                                |
| C-FM-2 Ballast Wagons                                  | 3 200   | 0     | 3 200  | Technical Assistance included in C-TA-2                                    |
| C-RZ TRACK RENEWAL BY NRZ                              | 29 701  | 0     | 29 701 | ODA ( UK £2000 ) FRG ( DM 13500 ) for C-RZ-1/2/3                           |
| C-RZ-1 Provision of Concrete Sleepers                  | 10 032  | 0     | 10 032 | SIDA ( US \$1500 ) AUSTRIA (to define) for C-RZ-1/2/3                      |
| C-RZ-2 Supply of Ballast                               | 4 293   | 0     | 4 293  | CIDA ( Cdn \$11250 ) for C-RZ-1/2                                          |
| C-RZ-3 Renewal Operation                               | 15 376  | 0     | 15 376 | BOTSWANA ( Pula 5000 ) for C-RZ-1<br>T.A. (supervision) included in C-TA-2 |
| <b>"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT</b>    |         |       |        |                                                                            |
| C-OM WORKSHOPS ORGANIZATION AND METHODS STUDY          | 600     | 0     | 600    | DAVIDA ( US \$600 )                                                        |
| C-OM-1 Workshops Organization and Methods Study        | 600     | 0     | 600    |                                                                            |
| C-LO WORKSHOPS IMPROVEMENTS - LOCOMOTIVES              | 21 125  | 522   | 21 647 | USAID ( US \$25000 )                                                       |
| C-LO-1 Provision of Spare Parts and Materials          | 8 050   | 0     | 8 050  | Including funds for C-SC and C-FC                                          |
| C-LO-2 Repairs to Tools and Equipment                  | 750     | 0     | 750    |                                                                            |
| C-LO-3 New Tools and Equipment                         | 2 500   | 0     | 2 500  |                                                                            |
| C-LO-4 Building Repairs                                | 1 525   | 222   | 1 747  |                                                                            |
| C-LO-5 Technical Assistance and Training               | 4 000   | 0     | 4 000  |                                                                            |
| C-LO-6 Accomodation for Technical Assistance           | 2 700   | 300   | 3 000  |                                                                            |
| C-WA WORKSHOPS IMPROVEMENTS - WAGONS                   | 10 103  | 599   | 10 612 | Implementation depends on study C-OM-1                                     |
| C-WA-1 Provision of Spare Parts and Materials          | 750     | 0     | 750    | Interested financiers are:                                                 |
| C-WA-2 Equipment Repair and Replacement                | 500     | 0     | 500    | DAVIDA ( amount to be defined )                                            |
| C-WA-3 Building Repairs                                | 1 353   | 209   | 1 562  | CIDA ( amount to be defined )                                              |
| C-WA-4 Technical Assistance and Training               | 4 000   | 0     | 4 000  | JAPAN ( amount to be defined )                                             |
| C-WA-5 Accomodation for Technical Assistance           | 2 700   | 300   | 3 000  | ITALY (in addition to ongoing project)                                     |

## LIST OF PROJECTS

( Values in 10<sup>3</sup> )

| PROJECT DESIGNATION                   | ( USD )                                         |         |        | OBSERVATIONS |                                                        |
|---------------------------------------|-------------------------------------------------|---------|--------|--------------|--------------------------------------------------------|
|                                       | FOREX                                           | LOCAL   | TOTAL  |              |                                                        |
| C-ST                                  | ENI SIGNAL SYSTEM BETWEEN MAPUTO AND MACHAVA    | 4 475   | 525    | 5 000        | FRG ( DM 8500 )                                        |
| C-ST-1                                | Train Control Study and System Design           | 475     | 25     | 500          |                                                        |
| C-ST-2                                | System Implementation                           | 4 000   | 500    | 4 500        |                                                        |
| C-BR                                  | BUILDINGS AND SERVICES (REPAIRS AND UPGRADING   | 3 385   | 276    | 3 661        | Possibility of CIDA financing C-BR-2/3 being discussed |
| C-BR-1                                | Building and Services                           | 715     | 108    | 823          |                                                        |
| C-BR-2                                | Rehabilitation of Permanent Water Supplies      | 1 670   | 122    | 1 792        |                                                        |
| C-BR-3                                | Rehabilitation of Power Generation Facilities   | 1 000   | 46     | 1 046        |                                                        |
| C-RD                                  | ROAD MAPUTO-CHOKWE-CHICUALACUALA                | 17 480  | 7 490  | 24 970       |                                                        |
| C-RD-1                                | Road Maputo-Chokwe-Chicualacuala                | 17 480  | 7 490  | 24 970       |                                                        |
| C-TA                                  | GENERAL TECHNICAL ASSISTANCE                    | 11 588  | 111    | 11 619       | FORUSAL ( US \$790 ) for C-TA-1 and 4                  |
| C-TA-1                                | Management Assistance to GMS                    | 2 395   | 11     | 2 406        | IBRD ( US \$1450 ) for C-TA-1 and 4                    |
| C-TA-2                                | T.A. for Track Rehabilitation Programme         | 6 460   | 0      | 6 460        | ODA ( UK £3200 ) for C-TA-2 and 4                      |
| C-TA-3                                | Management and T.A. to CPN(S)                   | 1 753   | 0      | 1 753        | USAID for C-TA-3 ( included in C-LO-5 )                |
| C-TA-4                                | Accommodation for Technical Assistance          | 900     | 100    | 1 000        |                                                        |
| C-SC                                  | STORES AND INVENTORY CONTROL PACKAGE            | 1 501   | 6      | 1 507        | USAID ( included in C-LO-5 )                           |
| C-SC-1                                | Equipment Purchase                              | 941     | 0      | 941          |                                                        |
| C-SC-2                                | Implementation                                  | 560     | 6      | 566          |                                                        |
| C-FC                                  | TECHNICAL ASSISTANCE FOR FINANCIAL CONTROL      | 1 125   | 0      | 1 125        | USAID ( included in C-LO-5 )                           |
| C-FC-1                                | Technical Assistance for Financial Control      | 1 125   | 0      | 1 125        |                                                        |
| "ADDITIONAL SUPPORT PROGRAMME"        |                                                 |         |        |              |                                                        |
| A-LO                                  | ADDITIONAL WORKSHOPS IMPROVEMENTS - LOCOMOTIVES | 55 550  | 200    | 55 750       |                                                        |
| A-LO-1                                | Spare Parts and Materials                       | 26 550  | 0      | 26 550       |                                                        |
| A-LO-2                                | Technical Assistance and Training               | 27 200  | 0      | 27 200       |                                                        |
| A-LO-3                                | Accommodation for Technical Assistance          | 1 800   | 200    | 2 000        |                                                        |
| A-WA                                  | ADDITIONAL WORKSHOPS IMPROVEMENTS - WAGONS      | 31 250  | 200    | 31 450       |                                                        |
| A-WA-1                                | Spare Parts and Materials                       | 2 250   | 0      | 2 250        |                                                        |
| A-WA-2                                | Technical Assistance and Training               | 27 200  | 0      | 27 200       |                                                        |
| A-WA-3                                | Accommodation for Technical Assistance          | 1 800   | 200    | 2 000        |                                                        |
| A-BR                                  | ADDITIONAL BUILDINGS REPAIRS AND UPGRADING      | 3 050   | 447    | 3 497        |                                                        |
| A-BR-1                                | Railway Housing                                 | 645     | 93     | 738          |                                                        |
| A-BR-2                                | Station Buildings                               | 800     | 120    | 920          |                                                        |
| A-BR-3                                | Other Buildings                                 | 1 605   | 234    | 1 839        |                                                        |
| TOTAL OF PART A: TRACK REHABILITATION |                                                 | 45 465  | 9 776  | 55 241       |                                                        |
| TOTAL OF PART B: ESSENTIAL SUPPORT    |                                                 | 71 302  | 9 439  | 80 741       |                                                        |
| TOTAL OF "CORE PROGRAMME"             |                                                 | 116 767 | 19 215 | 135 982      |                                                        |
| TOTAL OF ADDITIONAL SUPPORT PROGRAMME |                                                 | 89 850  | 847    | 90 697       |                                                        |
| GRAND TOTAL                           |                                                 | 206 617 | 20 062 | 226 679      |                                                        |



## **PROJECTS BRIEFS**

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: ESTEVEL QUARRY OPERATIONS (C-QO)  
 -----

1.- The Estevel quarry operations package provides for additional equipment at the quarry and for the production of ballast for use by the BMS construction during both track upgrading and renewal. The package is estimated to cost USD 2.1 million of which USD 1.2 is in forex. The components included in the package are described as follows:

1.1.- Provision of New Equipment (C-QO-1):

Deficiencies in equipment at the quarry will hamper the production of ballast material. This component provides for the purchase of a drill rig (4 in. bit), a compressor two rubber tyre wheel loaders, one 10 cubic meter dump truck and one lubricating truck. Provision for adequate spares for all of the above equipment has also been included.

1.2.- Supply of Ballast for Track Upgrading (C-QO-2):

Estimated to cost USD 252,000 of which USD 82,000 is forex. The forex portion is for the operation and maintenance of the crusher. Foreign technical support at the quarry is included under component C-TA-2.

1.3.- Supply of Ballast for Track Renewal (C-QO-3):

Estimated to cost USD 1.1 million of which USD 366,000 is forex. This component provides all ballast required by the BMS operation during the renewal work.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-QO-1  | 721        | 0   | 721   | 721  |     |      |     |      |     |
| C-QO-2  | 82         | 170 | 252   | 70   | 145 | 12   | 25  |      |     |
| C-QO-3  | 366        | 751 | 1117  | 150  | 308 | 150  | 308 | 66   | 135 |
| Total   | 1169       | 921 | 2090  | 941  | 453 | 162  | 333 | 66   | 135 |

(b) FINANCING STATUS:  
 -----

ODA will make available UK £ 1.3 million in April 1989 to pay for both forex and local costs.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: UMBELUZI SLEEPER FACTORY (C-SF)  
 -----

1.- The Umbeluzi Sleeper Factory package provides for additional equipment at the factory for moving and stacking sleepers and for the production of concrete sleepers for the BMS portion of track renewal. The package is estimated to cost approximately USD 7.9 million of which USD 1.4 million is in forex. The components included in the package are described as follows:

1.1.- Provision of New Equipment (C-SF-1):

An amount of USD 225,000 is included for the purchase of a rubber tyre wheel loader with an adequate supply of spares. Purchase is scheduled for the first year of the Programme.

1.2.- Supply of Sleepers for Track Renewal (C-SF-2):

This component covers the full cost of sleeper production for the BMS portion of track upgrading. An estimated cost of USD 7.7 million is included of which USD 1.5 million is in forex.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |      |       | 1989 |      | 1990 |      | 1991 |      |
|---------|------------|------|-------|------|------|------|------|------|------|
|         | FOR        | LOC  | TOTAL | FOR  | LOC  | FOR  | LOC  | FOR  | LOC  |
| C-SF-1  | 225        | 0    | 225   | 225  |      |      |      |      |      |
| C-SF-2  | 1147       | 6541 | 7688  | 471  | 2683 | 471  | 2683 | 206  | 1174 |
| Total   | 1372       | 6541 | 7913  | 696  | 2683 | 471  | 2683 | 206  | 1174 |

(b) FINANCING STATUS:  
 -----

ODA will make available UK £ 2.13 million in April 1989 to pay for both forex and local costs.

**"CORE PROGRAMME" - PART A: TRACK REHABILITATION**  
 =====

(a) **PROJECT PACKAGE: MACHAVA DEPOT (C-MD)**  
 -----

1.- The Machava Depot package provides for detection equipment for testing rail welding, rail handling equipment, a circular saw for rail cutting and the construction of a building for sawing operations and the extension of the installations to allow the storage of welded rails. The package is estimated to cost approximately USD 285,000, all of which is in forex. Expenditure is scheduled for the first year of the Programme.

2.- Costs and proposed expenditure programme:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-MD-1  | 285        | 0   | 285   | 285  | 0   |      |     |      |     |
| Total   | 285        | 0   | 285   | 285  | 0   |      |     |      |     |

These Costs do not include those for detection equipment for testing rail welding and extension of the installations, and additional equipment. Total cost of this package will probably raise to USD 1.5 million.

(b) **FINANCING STATUS:**  
 -----

ODA will make available UK £ 170x10<sup>3</sup>, and CIDA Cdn \$ 290x10<sup>3</sup>, in principle for some additional requirements indicated above.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: TRACK MATERIALS (C-TM)  
 -----

1.- In addition to the ballast and concrete sleepers covered in packages C-QO and C-SF, additional materials are required for both the upgrading and renewal operations. This includes second hand steel sleepers, new rail and new turnouts. The estimated cost of this package is USD 5.4 million, all of which is forex. The components included in the package are described as follows:

1.1.- Provision of Steel Sleepers (C-TM-1):

During track upgrading (critical maintenance) approximately 126,000 steel sleepers are required to permit the line to hold gauge for sustained service while track renewal is underway. The sleepers will be supplied by NRZ at an estimated total cost of USD 1.26 million.

1.2.- Provision of New Rail (C-TM-2):

It is estimated that about 70 track Km of new rail will be required during track renewal. This includes 50 track Km for a continuous section along the southern portion of the line plus 5 % of line length to cover cropping and unusable rail throughout the remainder of the line. It is estimated that the cost of the rail will be USD 3.8 million, all of which is forex.

1.3.- Provision of New Turnouts (C-TM-3):

A total of 40 new turnouts have been deemed as needed throughout the line. The estimated cost is USD 380,000, all of which is forex. Installation will be done during track renewal operations (see components C-RM-1 and C-RZ-3).

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-TM-1  | 1260       | 0   | 1260  | 1000 |     | 260  |     |      |     |
| C-TM-2  | 3780       | 0   | 3780  | 3780 |     |      |     |      |     |
| C-TM-3  | 380        | 0   | 380   | 380  |     |      |     |      |     |
| Total   | 5420       | 0   | 5420  | 5160 | 0   | 260  | 0   |      |     |

(b) FINANCING STATUS:  
 -----

CIDA will make available Cdn \$ 7.13 million for provision of new rails and turnouts.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: PROVISION OF TRACK MAINTENANCE EQUIPMENT (C-TE)  
 -----

1.- A shortage of track maintenance equipment after the reopening of the Limpopo line has been projected for CFM(S). To rectify this situation, provision has been made for the acquisition of selected equipment such as a rubber tyre loader, frog and switch point grinders, hydraulic rail tensors, rail profile grinding machines and other items. A provision for adequate spares has also been made. The estimated cost of the additional equipment is USD 543,000, all of which is forex. The equipment should be purchased in the first year of the Programme.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-TE-1  | 543        | 0   | 543   | 543  | 0   |      |     |      |     |
| Total   | 543        | 0   | 543   | 543  | 0   |      |     |      |     |

(b) FINANCING STATUS:  
 -----

CIDA, AUSTRIA and EEC have indicated interest in financing this project package. A comprehensive maintenance plan including equipment requirements is being prepared to be submitted for consideration of these financiers.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: TRACK UPGRADING (Critical Maintenance)  
 -----  
 AND BRIDGE REPAIR (C-TU)  
 -----

1.- Track upgrading will last for over one year, and bridge works to take two years. The component is estimated to cost USD 2.6 million, exclusive of the provision of ballast and sleepers (which are covered in components C-QO-2 and C-TM-1), of which USD 2.2 million is in foreign exchange. The aim of the package is to open the Limpopo Line in the shortest possible time by replacing approximately every fourth existing sleeper with steel sleepers obtained from Zimbabwe and placing minimal amounts of ballast. The technical objective is to maintain the gauge of the line to enable sustained service. In addition bridge repairs will also be completed considering the necessary elevation of platform level in order to avoid flood consequences. The components included in the package are described as follows:

1.1.- Upgrading Operations (C-TU-1):

Upgrading operations include the removal of old sleepers and replacement with steel sleepers, at the rate of one out of four, and the placement of same additional ballast to hold the new sleepers. This component provides for all operations costs associated with the above. It thus includes labor, the use of work trains and the accommodation and supply of the work force (note that the provision of steel sleepers is included in C-TM-1). The component is estimated to cost USD 243,000, of which USD 195,000 is forex.

1.2.- Bridge Works (C-TU-2):

Inspection of the mainline bridges indicated that a total of 16 bridges require significant work. The work is divided as follows: 6 bridges need replacement; 8 additional bridges require strengthening to permit the carriage of ballast trains and 2 bridges need major repair. The total cost of the work has been estimated at USD 2.4 million, of which USD 2.0 million is in forex. Work will take two years to complete although traffic will be able to pass before this time.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-TU-1  | 195        | 48  | 243   | 155  | 38  | 40   | 10  |      |     |
| C-TU-2  | 1975       | 425 | 2400  | 988  | 213 | 988  | 213 |      |     |
| Total   | 2170       | 473 | 2643  | 1143 | 251 | 1028 | 223 |      |     |

NOTE: Costs for the elevation of platform level are not included.

(b) FINANCING STATUS:  
 -----

ODA will make available UK £ 1.75 million in April to pay for both forex and local costs.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: TRACK RENEWAL BY BMS (C-RM)  
 -----

1.- Track renewal operations by BMS will last for two and one-half years, with the rate of completion at an average of about 80 Km per year. Renewal will consist of reballasting to the prescribed depth, replacing all sleepers with new concrete sleepers made at Umbeluzi, continuous welding of the rail throughout, turnouts included, extending and upgrading selected crossing loops and installing new turnouts. Previously to all these works, transition curves shall be introduced where circular curves exist and elevation of platform where required. The BMS portion of renewal is estimated to cost USD 4.4 million, of which USD 2.6 million is in foreign exchange.

1.1.- Renewal Operations (C-RM-1):

Under renewal operations are included all costs associated with the renewal programme with the exception of major materials (see above) and technical assistance. Provision has been made for the labor force, including accommodation and supplies, work trains and equipment usage. The estimated cost is USD 3.45 million, of which USD 1.6 million is in forex.

1.2.- Ballast Wagons (C-RM-2):

40 new ballast wagons are required, in addition to the 20 already allocated for these renewal works. The estimated costs of the wagons is USD 3.2 million in forex.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |      |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|------|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC  | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-RM-1  | 1605       | 1841 | 3446  | 709  | 803 | 617  | 718 | 279  | 320 |
| C-RM-2  | 3200       | 0    | 3200  | 0    | 0   | 3200 | 0   | 0    | 0   |
| Total   | 4805       | 1841 | 6646  | 709  | 803 | 3817 | 718 | 279  | 320 |

NOTE: Costs for transition curves and elevation of platform are not included.

(b) FINANCING STATUS:  
 -----

ODA will make available UK £ 2 million for the renewal operations (C-RM-1) and CIDA Cdn 750x10<sup>3</sup> mainly for the bush clearance operations. REC will in principle finance the supply of ballast wagons.

"CORE PROGRAMME" - PART A: TRACK REHABILITATION  
 =====

(a) PROJECT PACKAGE: TRACK RENEWAL BY NATIONAL RAILWAYS ZIMBABWE (C-RZ)  
 -----

1.- Track renewal operations by NRZ will also last for more than two years, though with the rate of work programmed at 120 Km per year during the first two years and 30 Km in the third year. Renewal will be as described in track renewal by BMS above, though it is assumed that the requisite ballast and sleepers will be supplied through NRZ. The total NRZ portion of renewal is estimated to cost USD 29.7 million, all of which will be payable in foreign exchange.

1.1.- Provision of Concrete Sleepers (C-RZ-1):

Botswana will supply some 140000 concrete sleepers. It is assumed that NRZ will supply remaining concrete sleepers required for the work. Total cost is estimated at USD 10.0 million.

1.2.- Supply of Ballast (C-RZ-2):

It is assumed that NRZ will supply all of their ballast requirements. This is estimated to cost USD 4.3 million.

1.3.- Renewal Operation (C-RZ-3):

As for BMS renewal, under renewal operations are included all costs associated with the programme with the exception of materials, which are considered separately. The cost of NRZ renewal operations is USD 15.4 million.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989  |     | 1990  |     | 1991 |     |
|---------|------------|-----|-------|-------|-----|-------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR   | LOC | FOR   | LOC | FOR  | LOC |
| C-RZ-1  | 10032      | 0   | 10032 | 4461  | 0   | 4461  | 0   | 1111 | 0   |
| C-RZ-2  | 4293       | 0   | 4293  | 1909  | 0   | 1909  | 0   | 475  | 0   |
| C-RZ-3  | 15376      | 0   | 15376 | 6834  | 0   | 6834  | 0   | 1708 | 0   |
| Total   | 29701      | 0   | 29701 | 13204 | 0   | 13204 | 0   | 3294 | 0   |

(b) FINANCING STATUS:  
 -----

Following financiers have committed funds for this project package:

- ODA - UK £ 2 million
- CIDA - Cdn \$ 11.25 million
- FRG - DM 13.5 million
- SIDA - US \$ 1.5 million
- BOTSWANA - Pula 5 million

Austria also indicated willingness on providing funds although no figures were mentioned yet.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
 =====

(a) PROJECT PACKAGE: WORKSHOPS ORGANIZATION AND METHODS STUDY (C-OM)  
 -----

1.- This Study is needed because of the complexity of the workshop operations, the apparent great need for both manpower and material support and the difficulty in precisely defining the needs of the workshops without a broad study such as this. The proposed study is planned to last for a period of six months during which a detailed improvement plan will be reduced including the sizing of the technical assistance requirements. The Study is estimated to cost USD 600,000.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-OM-1  | 600        | 0   | 600   | 600  | 0   |      |     |      |     |
| Total   | 600        | 0   | 600   | 600  | 0   |      |     |      |     |

(b) FINANCING STATUS:  
 -----

DANIDA will finance a study covering not only what is described above, but also, and more in particular, all other aspects related with the wagon rehabilitation requirements.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
=====

(a) PROJECT PACKAGE: WORKSHOPS IMPROVEMENTS - LOCOMOTIVES (C-LO)  
-----

- 1.- Improvements to the locomotive repair capability in both the main workshops and running sheds is proposed by providing spare parts and materials, tools and equipment, repairs to buildings and expatriate technical assistance. Based on preliminary assessments it is estimated that locomotive availability can be maintained at through this effort (see Chapter 13). The total cost of the package is USD 21.6 million, nearly all of which is foreign exchange. The components included in the package are described as follows:
  - 1.1.- Provision of Spare Parts and Materials (C-LO-1):  
Spare parts and materials, amounting to nearly USD 3 million per year, for locomotive repairs is provided up to the year 1991. The estimated total cost is USD 8.85 million, all of which is forex.
  - 1.2.- Repairs to Tools and Equipment (C-LO-2):  
There exists a considerable stock of tools and equipment within the main workshops and running sheds which are unserviceable because of lack of maintenance and need for repair. This component, valued at USD 750,000 and phased for the first year of the package, is aimed at bringing this equipment back to a usable stage.
  - 1.3.- New Tools and Equipment (C-LO-3):  
Even with the repairs noted in LO-2 it will still be necessary to obtain additional major workshop equipment and facilities. The items recommended include a wheel press for locomotive wheel sets, the provision of a dust free room for the maintenance of electrical equipment, ultrasonic flaw detection equipment for axle testing and facilities for maintaining axle bearings. It is estimated that the new equipment will cost USD 2.5 million.
  - 1.4.- Building Repairs (C-LO-4):  
The poor state of workshop buildings as been highlighted in other reports and confirmed through this Study. It is proposed that major structural repairs and building service refurbishment be carried out at both the locomotive repair workshops and the diesel running sheds. This is scheduled for the first two years of the programme and is estimated to cost USD 1.75 million, of which USD 1.53 million is forex.
  - 1.5.- Technical Assistance and Training (C-LO-5):  
Broad estimates of skill deficiencies at the locomotive workshops indicated a need to bring in up to 30 support personnel - from skilled tradesmen to maintenance supervisors and managers. In addition to assisting in repair and maintenance activities this personnel will be expected to train Mozambique staff to take over the respective positions. It is envisaged that the support should extend at full strength until 1995, after which a gradual tapering off will be possible. However this component of the "Core Programme" only provides for this personnel to the year

1991 (see component A-LO-2). The estimated cost of this support is USD 4.8 million, phased over a 2 year period. It is noted that the precise level of support could not be accurately assessed through this Study thus the final requirements must await the results of the C and M Study (component C-OM-1).

1.6.- Accommodation for Technical Assistance (C-LO-6):

This component, valued at USD 3 million, will provide for the construction of 30 housing units for the technical assistance staff covered in C-LO-5.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-LO-1  | 8850       | 0   | 8850  | 2950 | 0   | 2950 | 0   | 2950 |     |
| C-LO-2  | 750        | 0   | 750   | 750  | 0   | 0    | 0   | 0    |     |
| C-LO-3  | 2500       | 0   | 2500  | 2500 | 0   | 0    | 0   | 0    |     |
| C-LO-4  | 1525       | 222 | 1747  | 762  | 111 | 762  | 111 | 0    |     |
| C-LO-5  | 4800       | 0   | 4800  | 0    | 0   | 2400 | 0   | 2400 |     |
| C-LO-6  | 2700       | 300 | 3000  | 2700 | 300 | 0    | 0   | 0    |     |
| Total   | 21125      | 522 | 21647 | 9662 | 411 | 6112 | 111 | 5350 | 0   |

(b) FINANCING STATUS:

-----

USAID will make available US \$ 34.5 million for locomotive rehabilitation requirements in both CFM(S) and CFM(C) of which US \$ 28.5 million is estimated will be allocated to the southern railway network. This amount covers not only this project package but also the equipment and technical assistance required to implement the relevant parts of projects C-SC and C-FC.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
=====

(a) PROJECT PACKAGE: WORKSHOPS IMPROVEMENTS - WAGONS (C-WA)

1.- Improvements to the wagons repair shops and the wagon and coach running maintenance depots are also proposed by providing spare parts and materials, repairing tools and equipment, repairing buildings and providing expatriate technical assistance. Based on preliminary assessments it is estimated that wagon availability can be maintained at approximately 80 % as a result of this effort. The total cost of the package is USD 10.6 million, nearly all of which is foreign exchange. The components included in the package are described as follows:

1.1.- Provision of Spare Parts and Materials (C-WA-1):

Spare parts and materials, amounting to USD 250,000 per year, for wagon repairs is provided up to the year 1991. The estimated total cost is USD 750,000, all of which is forex.

1.2.- Equipment Repair and Replacement (C-WA-2):

As in the case of the locomotive workshops, there exists a considerable stock of tools and equipment which are unserviceable because of a lack of maintenance and need for repair. This component, valued at USD 500,000 and phased for the first year of the Programme, is aimed at bringing this equipment back to a usable stage and augmenting the existing and repaired equipment with selected additional items.

1.3.- Building Repairs (C-WA-3):

As for the locomotive workshops it is proposed that major structural repairs and building service refurbishment be carried out at the wagon and coach repair shop and the wagon and coach running sheds. The work is scheduled for the first two years of the programme and is estimated to cost USD 1.56 million, of which USD 1.35 million is forex.

1.4.- Technical Assistance and Training (C-WA-4):

Broad estimates of skill deficiencies at the wagon workshops also indicated a need to bring in 30 support personnel with a similar range of skills as for the locomotive workshops. In addition to assisting in repair and maintenance activities this personnel will train Mozambique staff to take over the respective positions. It is envisaged that the support should extend at full strength until 1995, after which a gradual tapering off will be possible. However this component of the "Core Programme" provides for the assistance only to the year 1991 (see component A-WA-2). The estimated cost of this support is USD 4.8 million to 1991.

1.5.- Accommodation for Technical Assistance (C-WA-5):

This component, valued at USD 3 million, will provide for the construction of 30 housing units for the technical assistance staff covered in C-WA-4.

## 2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-WA-1  | 750        | 0   | 750   | 250  | 0   | 250  | 0   | 250  |     |
| C-WA-2  | 500        | 0   | 500   | 500  | 0   | 0    | 0   | 0    |     |
| C-WA-3  | 1353       | 209 | 1562  | 677  | 104 | 677  | 104 | 0    |     |
| C-WA-4  | 4800       | 0   | 4800  | 0    | 0   | 2400 | 0   | 2400 |     |
| C-WA-5  | 2700       | 300 | 3000  | 2700 | 300 | 0    | 0   | 0    |     |
| Total   | 10103      | 509 | 10612 | 4127 | 404 | 3327 | 104 | 2650 | 0   |

## (b) FINANCING STATUS:

As referred on project C-OM, a study will be carried out, financed by DANIDA. Interested financiers on the implementation of this package includes:

- DANIDA
- CIDA
- JAPAN
- ITALY ( already financing a complementary project ).

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
 =====

(a) PROJECT PACKAGE: NEW SIGNAL SYSTEM BETWEEN MAPUTO AND MACHAVA (C-ST)  
 -----

1.- The section between Maputo and Machava handles all CFM(S) traffic with origins or destinations in Maputo or at Maputo port. The CTC system in place has not functioned for several years and has been replaced by a TPO system as a stop gap. This is considered to be a major contributor to the accidents and derailments which frequently occur along the section. The estimated cost of this package is USD 5.0 million, of which about USD 4.5 million is forex. The implementation of the system is scheduled for the first two years of the Programme. There are two components:

1.1.- Train Control Study and System Design (C-ST-1):

Scheduled to commence as soon as possible is a detailed study of the train control needs of the section, complete with economic evaluation, and the system design. It is estimated that this will cost about USD 500,000, of which USD 475,000 is forex.

1.2.- System Implementation (C-ST-2):

This component provides for hardware and cable procurement and installation. This is broadly estimated to cost about USD 4.5 million, of which USD 4.0 million is forex.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-ST-1  | 475        | 25  | 500   | 475  | 25  | 0    | 0   |      |     |
| C-ST-2  | 4000       | 500 | 4500  | 0    | 0   | 4000 | 500 |      |     |
| Total   | 4475       | 525 | 5000  | 475  | 25  | 4000 | 500 |      |     |

(b) FINANCING STATUS:  
 -----

FRG (approx. DM 8.5 million) has committed funds for this project. TOR have been prepared and are being discussed.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
 =====

(a) PROJECT PACKAGE: BUILDINGS AND SERVICES REPAIRS AND UPGRADING (C-BR)  
 -----

1.- In addition to the rehabilitation and repair works specified at the locomotive workshops (C-LO-4) and the wagon workshops (C-WA-3) essential work at other facilities is required as part of the "Core Programme". In particular, many of the ancillary repair facilities, the water supply and power generation facilities, will require attention in order to permit efficient operations. An amount of USD 3661x10<sup>3</sup> is proposed for "Core Programme" expenditure to the year 1991 (also see components A-BR-1 through A-BR-3). The components included on the package are described as follows:

1.1.- Buildings and Services (C-BR-1):

Rehabilitation and repairs in station buildings and repair facilities. The work is scheduled to commence immediately but only in 1991 most of the works will be carried out. Total cost is USD 823x10<sup>3</sup>.

1.2.- Rehabilitation of Permanent Water Supplies (C-BR-2):

This component covers the locations of Mabalane, Combomune, Mapai and Chicualacuala. The estimated cost is USD 1.79 million, of which USD 1.67 million in forex. Works are scheduled over the period 1990/91.

1.3.- Rehabilitation of Power Generation Facilities (C-BR-3):

This component covers the locations of Mabalane, Combomune, Mapai and Chicualacuala. The estimated cost is USD 1.0 million most of which in forex. Works are scheduled for 1990/91.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-BR-1  | 715        | 108 | 823   | 90   | 15  | 90   | 15  | 535  | 78  |
| C-BR-2  | 1670       | 122 | 1792  | 0    | 0   | 835  | 61  | 835  | 61  |
| C-BR-3  | 1000       | 46  | 1046  | 0    | 0   | 500  | 23  | 500  | 23  |
| Total   | 3385       | 276 | 3661  | 90   | 15  | 1425 | 99  | 1870 | 162 |

(b) FINANCING STATUS:  
 -----

Discussions are being held with CIDA concerning sub-projects C-BR-2 and C-BR-3.

## "CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT

=====

## (a) PROJECT PACKAGE: ROAD MAPUTO-CHOKWE-CHICUALACUALA (C-RD)

-----

- 1.- The main objective of the project, at this stage, is to provide an adequate all-weather service road for the railway rehabilitation, maintenance and operation, including security operations, within the shortest possible time frame. Another secondary objective is to provide an improved road connection to the towns, villages and productive areas in the Limpopo Valley region north - north west of Chokwe in the Gaza Province.

The project includes the construction of a new road between Manhiça and Chokwe (120 Km); rebuilding the bridge between Chokwe and Aldeia da Barragem; construction of culverts between Aldeia da Barragem and Chicualacuala on the existing road (300 Km); Overall paving between Manhiça and Chicualacuala (410 Km) and the renewal or construction of the feeder roads to the towns and villages of the zone (36 Km).

## 2.- Costs and proposed expenditure programmes:

The estimated costs are as follows:

|                                        |            |
|----------------------------------------|------------|
| Limpopo - Chicualacuala (300 Km) ..... | USD 15 900 |
| Manhiça - Chokwe (110 Km) .....        | USD 7 150  |
| Bridge (20 m) Aldeia da Barragem ..... | USD 200    |
| Culverts .....                         | USD 1 000  |
| Feeder roads (36 Km) .....             | USD 720    |
|                                        | -----      |
|                                        | USD 24 970 |

The expenditure schedule is roughly estimated to 2.5 years assuming a construction rate of 10 Km per month. The forex portion of the total cost is estimated to be USD 17 480.

## (b) FINANCING STATUS:

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Financing being sought.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
-----

(a) PROJECT PACKAGE: GENERAL TECHNICAL ASSISTANCE (C-TA)  
-----

1.- In addition to the heavy technical assistance described under the workshop packages, management and technical support to both CFM(S) and BMS is deemed necessary. The total cost of the package is USD 11.6 million, nearly all of which is in forex. The specific components include:

1.1.- Management Assistance to BMS (C-TA-1):

Technical and management support is deemed to be essential, particularly during the implementation of a major capital programme such as the Limpopo Corridor. The UGC will be staffed with senior experts and additional technical staff in management and engineering positions. Four senior experts and three technicians will be expatriates. The estimated costs for a three year period are USD 2.4 million.

1.2.- Technical Assistance to BMS for Track Rehabilitation Programme (C-TA-2):

For the timely implementation and control of the Track Rehabilitation projects in the Core Programme a team of 16 expatriate engineers and technicians will have to be contracted. The team will include:

- Track Construction, Materials and Resources engineers.
- Bridges and Structures engineers and inspectors.
- Mechanical/Electrical Engineer and Depot Manager.
- Concrete Sleeper Factory Production and Maintenance Supervisors.
- Quarry Plant Production and Maintenance Supervisors.
- Permanent Way Inspectors.
- Construction Planning and Financial Controller.

The estimated costs for a 2.5 year period is USD 6.46 million.

1.3.- Management and Technical Assistance to CFM(S) (C-TA-3):

General management support to CFM(S) is also deemed to be essential. Four positions have been identified including an Assistant Director General, a Training Development Officer and two relief managers for railway and port operations. These positions should be initially staffed for periods lasting between six months and three years. The estimated cost is USD 1.25 million, exclusive of accommodation costs for the three positions which last for at least two years (see C-TA-4).

It is recommended that four additional technical assistance positions be staffed for one year to train operators in correct procedures and safe train operations. A total amount of USD 500x10<sup>3</sup> is required for this component.

1.4.- Accommodation for Technical Assistance (C-TA-4):

A provision for the construction of ten housing units in addition to the existing ones for the longer term assistance staff covered under components C-TA-1/2/3 is made through this component. An amount of USD 1.0 million will be required.

## 2.- Costs and proposed expenditure programmes: \*\*\* VERIFICAR \*\*\*

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-TA-1  | 2395       | 11  | 2406  | 1054 | 5   | 894  | 4   | 447  | 2   |
| C-TA-2  | 6460       | 0   | 6460  | 2584 | 0   | 2584 | 0   | 1292 | 0   |
| C-TA-3  | 1753       | 0   | 1753  | 1085 | 0   | 501  | 0   | 167  | 0   |
| C-TA-4  | 900        | 100 | 1000  | 900  | 100 | 0    | 0   | 0    | 0   |
| Total   | 11508      | 111 | 11619 | 5623 | 105 | 3979 | 4   | 1906 | 2   |

## (b) FINANCING STATUS:

-----

PORTUGAL has made available USD 790x10<sup>3</sup> for the first year of operations of projects C-TA-1 and 4. An agreement was signed in December 1988 to that effect. The IBRD will make available an additional amount estimated at USD 1.45 million to pay for the costs of C-TA-1 and 4 in the two subsequent years.

ODA will make available in April 1989 an amount of UK £ 3.8 million for project C-TA-2 and related portion of C-TA-4.

USAID has made available some funds for project C-TA-3 under project C-LO-5.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
 =====

(a) PROJECT PACKAGE: STORES AND INVENTORY CONTROL PACKAGE (C-SC)  
 -----

1.- Improvements to the stores control system have been found to be urgently needed. It is proposed that a new computer based Fixed Order Quantity System of stock control be introduced as soon as possible. The total cost of the package is USD 1.5 million, nearly all of which is foreign exchange. Implementation will extend over a two year period. The components included in the package are described as follows:

1.1.- Equipment Purchase (C-SC-1):

Equipment to be provided includes a minicomputer, 4 high speed and 8 standard printers and 20 terminals complete with modem. The estimated total cost is USD 612,000, all of which is forex.

1.2.- Implementation (C-SC-2):

This component provides for overseas technical support to develop and test the system on site and to train Mozambique staff, both abroad and in country, in the use and maintenance of the system. The estimated cost is USD 620,000, most of which is foreign exchange.

2.- Costs and proposed expenditure programme:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-SC-1  | 941        | 0   | 941   | 941  | 0   | 0    | 0   | 0    | 0   |
| C-SC-2  | 560        | 6   | 566   | 375  | 1   | 185  | 1   | 0    | 1   |
| Total   | 1501       | 6   | 1507  | 1316 | 1   | 185  | 1   | 0    | 1   |
|         |            |     |       | 1992 |     | 1993 |     | 1994 |     |
|         |            |     |       | FOR  | LOC | FOR  | LOC | FOR  | LOC |
|         |            |     |       | 0    | 0   | 0    | 0   |      |     |
|         |            |     |       | 0    | 1   | 0    | 1   |      |     |
|         |            |     |       | 0    | 1   | 0    | 1   |      |     |

(b) FINANCING STATUS:  
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Part of the costs of this project are covered by USAID funding included in the project C-L0-5.

"CORE PROGRAMME" - PART B: ESSENTIAL SUPPORT  
 =====

(a) PROJECT PACKAGE: TECHNICAL ASSISTANCE FOR FINANCIAL CONTROL (C-FC)  
 -----

1.- It is recommended that a technical assistance group be recruited to help CFM(S) in all matters of financial control. This will consist of (1) one general financial expert for six months; (2) one internal audit specialist for two years; (3) a team of two computer specialists for one year, (4) a team of two experts for one year, one in organization and management matters and the other in financial costing and statistics; (5) one expert in costing and tariff construction for one year; and (6) one expert in stores accounting procedures for six months. The estimated cost of this assistance is USD 1.13 million, spread over a four year period beginning in the first year of programme implementation.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990 |     | 1991 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| C-FC-1  | 1125       | 0   | 1125  | 560  | 0   | 470  | 0   | 95   | 0   |
| Total   | 1125       | 0   | 1125  | 560  | 0   | 470  | 0   | 95   | 0   |

(b) FINANCING STATUS:  
 -----

Part of the costs of this project will be covered by USAID funding included in project C-LO-5.

## "ADDITIONAL SUPPORT PROGRAMME"

=====

## (a) PROJECT PACKAGE: ADDITIONAL WORKSHOPS IMPROVEMENTS - LOCOMOTIVES (A-LO)

-----

1.- This package is designed to extend the provision in the "Core Programme" for locomotive workshop improvements both in scope and duration. It consists of the following three components:

1.1.- Spare Parts and Materials (A-LO-1):

The provision of spare parts and materials for the locomotive workshops beyond the "Core Programme" (i.e. beyond 1991 - see C-LO-1) is covered through this component. A total amount of USD 26.6 million is required to the year 2000 based upon an annual consumption rate of USD 2.95 million.

1.2.- Technical Assistance and Training (A-LO-2):

Additional technical assistance to that provided under C-LO-5, consisting of 20 artisans and managers, is provided for in this component during the years 1990 and 1991. This level of effort is considered necessary to enable CFM(S) to raise locomotive availability from a base rate of 60 % (as achievable in the "Core Programme") to 70 %. In addition the component provides for a full complement of 50 technical assistance personnel over the period 1992 to 1995, diminishing gradually to the year 2000. The total estimated cost of the component is USD 27.2 million.

1.3.- Accommodation for Technical Assistance (A-LO-3):

A provision for the construction of 20 additional housing units to accommodate staff covered under A-LO-2 is made through this component. The estimated cost is USD 2.0 million.

## 2.- Costs and proposed expenditure programmes:

| PACKAGE                 | ('000 USD) |     |       | 1989 |     | 1990      |     | 1991 |     |
|-------------------------|------------|-----|-------|------|-----|-----------|-----|------|-----|
|                         | FOR        | LOC | TOTAL | FOR  | LOC | FOR       | LOC | FOR  | LOC |
| A-LO-1                  | 26550      | 0   | 26550 | 0    | 0   | 0         | 0   | 0    | 0   |
| A-LO-2                  | 27200      | 0   | 27200 | 0    | 0   | 1600      | 0   | 1600 | 0   |
| A-LO-3                  | 1800       | 200 | 2000  | 1800 | 200 | 0         | 0   | 0    | 0   |
| Total                   | 55550      | 200 | 55750 | 1800 | 200 | 1600      | 0   | 1600 | 0   |
|                         |            |     |       | 1992 |     | 1993      |     | 1994 |     |
|                         |            |     |       | FOR  | LOC | FOR       | LOC | FOR  | LOC |
|                         |            |     |       | 2950 | 0   | 2950      | 0   | 2950 | 0   |
|                         |            |     |       | 4000 | 0   | 4000      | 0   | 4000 | 0   |
|                         |            |     |       | 0    | 0   | 0         | 0   | 0    | 0   |
|                         |            |     |       | 6950 | 0   | 6950      | 0   | 6950 | 0   |
|                         |            |     |       | 1995 |     | 1996-2000 |     |      |     |
|                         |            |     |       | FOR  | LOC | FOR       | LOC |      |     |
| (b) FINANCING STATUS:   |            |     |       | 2950 | 0   | 14750     | 0   |      |     |
| -----                   |            |     |       | 4000 | 0   | 8000      | 0   |      |     |
|                         |            |     |       | 0    | 0   | 0         | 0   |      |     |
| Financing being sought. |            |     |       | 6950 | 0   | 27750     | 0   |      |     |

"ADDITIONAL SUPPORT PROGRAMME"  
=====

(a) PROJECT PACKAGE: ADDITIONAL WORKSHOPS IMPROVEMENTS - WAGONS (A-WA)  
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1.- This package is designed to extend the provision in the "Core Programme" for wagon workshop improvements both in scope and duration. It consists of the following three components:

1.1.- Spare Parts and Materials (A-WA-1):

The provision of spare parts and materials for the wagon workshops beyond the "Core Programme" (i.e. beyond 1991 - see C-WA-1) is covered through this component. A total amount of USD 2.25 million is required to the year 2000 based upon an annual consumption rate of USD 250,000.

1.2.- Technical Assistance and Training (A-WA-2):

Additional technical assistance to that provided under C-WA-4, consisting of 20 artisans and managers, is provided for in this component during the years 1990 and 1991. This level of effort is considered necessary to enable CFM(S) to raise wagon availability from a base rate of 80 % (as achievable in the "Core Programme") to 90 %. In addition the component provides for a full complement of 50 technical assistance personnel over the period 1992 to 1995, diminishing gradually to the year 2000. The total estimated cost of the component is USD 27.2 million.

1.3.- Accommodation for Technical Assistance (A-WA-3):

A provision for the construction of 20 additional housing units to accommodate staff covered under A-WA-2 is made through this component. The estimated cost is USD 2.0 million.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1989 |     | 1990      |     | 1991 |     |
|---------|------------|-----|-------|------|-----|-----------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR       | LOC | FOR  | LOC |
| A-WA-1  | 2250       | 0   | 2250  | 0    | 0   | 0         | 0   | 0    | 0   |
| A-WA-2  | 27200      | 0   | 27200 | 0    | 0   | 1600      | 0   | 1600 | 0   |
| A-WA-3  | 1800       | 200 | 2000  | 1800 | 200 | 0         | 0   | 0    | 0   |
| Total   | 31250      | 200 | 31450 | 1800 | 200 | 1600      | 0   | 1600 | 0   |
|         |            |     |       | 1992 |     | 1993      |     | 1994 |     |
|         |            |     |       | FOR  | LOC | FOR       | LOC | FOR  | LOC |
|         |            |     |       | 250  | 0   | 250       | 0   | 250  | 0   |
|         |            |     |       | 4000 | 0   | 4000      | 0   | 4000 | 0   |
|         |            |     |       | 0    | 0   | 0         | 0   | 0    | 0   |
|         |            |     |       | 4250 | 0   | 4250      | 0   | 4250 | 0   |
|         |            |     |       | 1995 |     | 1996-2000 |     |      |     |
|         |            |     |       | FOR  | LOC | FOR       | LOC |      |     |
|         |            |     |       | 250  | 0   | 1250      | 0   |      |     |
|         |            |     |       | 4000 | 0   | 8000      | 0   |      |     |
|         |            |     |       | 0    | 0   | 0         | 0   |      |     |
|         |            |     |       | 4250 | 0   | 9250      | 0   |      |     |

(b) FINANCING STATUS:  
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Financing being sought.

"ADDITIONAL SUPPORT PROGRAMME"  
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(a) PROJECT PACKAGE: ADDITIONAL BUILDING REPAIRS AND UPGRADING (A-BR)  
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1.- In addition to the workshop building repairs and improvements included under the "Core Programme" components C-LO-4 and C-WA-3 and C-BR-1, work at other CFM(S) buildings and services are proposed (detailed descriptions are contained in Section 9.6). This includes both structural repairs and the refurbishment of basic building services. It covers most CFM(S) operational facilities not included under C-BR-1, staff housing and stations. It also extends to the improvement of water supply and electrical systems at selected locations. The total of this package is USD 3.497 million of which USD 3.05 million is forex. Implementation will extend over a period of nine years, beginning in 1992. The individual components are described below:

1.1.- Railway Housing (A-BR-1):

Repair and renovation to the stock of CFM(S) housing, including that in Maputo and permanent trackside accommodation, is proposed. The estimated cost is USD 738,000, of which USD 645,000 is in forex. The works are scheduled over the period 1993 to 1995.

1.2.- Station Buildings (A-BR-2):

Repair and renovation to the main Maputo station and ten other major stations along the line is proposed. The estimated cost is USD 920,000, of which USD 800,000 is in forex. The works are scheduled over the period 1995 to 1998.

1.3.- Other Buildings (A-BR-3):

Repair and renovation to numerous buildings and structures in Maputo not covered in the "Core Programme" are proposed. Additionally repairs to selected facilities at Chicualacuala and Mabalane are recommended. The total estimated cost of this work is USD 1.84 million, of which USD 1.61 million is in forex. The bulk of these works are scheduled over the period 1992 to 1994.

2.- Costs and proposed expenditure programmes:

| PACKAGE | ('000 USD) |     |       | 1992 |     | 1993 |     | 1994 |     |
|---------|------------|-----|-------|------|-----|------|-----|------|-----|
|         | FOR        | LOC | TOTAL | FOR  | LOC | FOR  | LOC | FOR  | LOC |
| A-BR-1  | 645        | 93  | 738   | 0    | 0   | 215  | 31  | 215  | 31  |
| A-BR-2  | 800        | 120 | 920   | 0    | 0   | 0    | 0   | 0    | 0   |
| A-BR-3  | 1605       | 234 | 1839  | 535  | 78  | 535  | 78  | 535  | 78  |
| Total   | 3050       | 447 | 3497  | 535  | 78  | 750  | 109 | 750  | 109 |

|                         | 1995 |     | 1996-2000 |     |
|-------------------------|------|-----|-----------|-----|
|                         | FOR  | LOC | FOR       | LOC |
| (b) FINANCING STATUS:   | 215  | 31  | 0         | 0   |
| -----                   | 200  | 30  | 600       | 90  |
|                         | 0    | 0   | 0         | 0   |
| Financing being sought. | 415  | 61  | 600       | 90  |