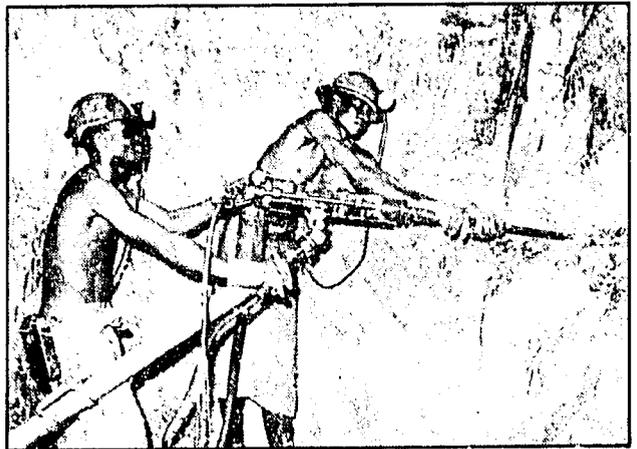


MINING

SOUTHERN AFRICAN DEVELOPMENT COORDINATION CONFERENCE



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PROJECT NUMBERING SYSTEM

Projects are numbered in a 3 digit system:

The first digit defines the Sector

- 0 - General
- 1 - Precious Metals and Minerals
- 2 - Energy Minerals
- 3 - Metallic Minerals
- 4 - Non-Metallic Minerals
- 5 - Water
- 6 - Manpower
- 7 - Mining Equipment and Consumables

The Second digit indicates the member States:

- 0 - Regional
- 1 - Angola
- 2 - Botswana
- 3 - Lesotho
- 4 - Malawi
- 5 - Mozambique
- 6 - Swaziland
- 7 - Tanzania
- 8 - Zambia
- 9 - Zimbabwe

The third digit is a serial number

L E G E N D

ADB	=	African Development bank
AGIP Spa	=	AGIP Spa
AIDAB	=	Australian International Development Aid Bureau
ANG	=	Angola
AUS	=	Australia
AUST	=	Austria
BADEA	=	Arab Bank for Economic Development in Africa
BEL	=	Belgium
BOT	=	Botswana
BRA	=	Brazil
CAN	=	Canada
CBI	=	Confederation of British Industries
CFTC	=	Commonwealth Fund for Technical Cooperation
CHI	=	Peoples Republic of China (China)
CITES	=	Convention on International Trade in Endangered Species
DEN	=	Denmark
EEC	=	Commission of the European Communities
FAO	=	Food and Agriculture Organisation of the United Nations
FIN	=	Finland
FRA	=	France
FRG	=	Federal Republic of Germany
GDR	=	German Democratic Republic
IBRD	=	International Bank for Reconstruction and Development
ICAO	=	International Civil Aviation Organisation
ICE	=	Iceland
IDA	=	International Development Agency
IDRC	=	International Development Research Centre
IDU	=	Industrial Development Unit of the Commonwealth Secretariat
IFAD	=	International Fund for Agricultural Development
ILO	=	International Labour Organisation
IMPOD	=	Import Promotion Office for Products from Developing Countries
IRE	=	Ireland
ISNAR	=	International Service for National Agricultural Research
ITA	=	Italy
ITB	=	International Tourism Board
ITU	=	International Telecommunications Union
JAP	=	Japan
KUW	=	Kuwait Fund
LES	=	Lesotho
MAL	=	Malawi
MOZ	=	Mozambique
NET	=	Netherlands
NOR	=	Norway
NORDICs	=	Nordic Countries
OPEC	=	Organisation of Petroleum Exporting Countries
POR	=	Portugal
SADCC	=	Southern African Development Coordination Conference
SAFTTA	=	Southern African Federation of Travel and Tour Associations
SAREC	=	Swedish Agency for Research Cooperation with Developing Countries
SATEP	=	ILO Southern African Team for Employment Promotion
SPZ	=	Spain
SWZ	=	Swaziland
SWE	=	Sweden
SWI	=	Switzerland
TAN	=	Tanzania
TAZARA	=	Tanzania Zambia Railway Authority
UAPTA	=	Unit of Account of the Preferential Trade Area
UK	=	United Kingdom
UNDP	=	United Nations Development Programme
UNIDO	=	United Nations Industrial Development Organisation
UNSPEC'd	=	Unspecified
USA	=	United States of America
USSR	=	Union of the Soviet Socialist Republics
WB	=	World Bank
ZAM	=	Zambia
ZIM	=	Zimbabwe

1. EXECUTIVE SUMMARY

- 1.1 The Mining Sector plays a significant role in the regional economy, in terms of its contribution to export earnings and Gross Domestic Product (GDP). A number of member States depend on mining for most of their export earnings, and as an employer of a significant number of the labour force. The year 1988 was characterised by a general increase in prices on the world market, of the minerals of the region.
- 1.2 During the first stage of the development of the Mining Sector, projects were formulated with a view to gathering the necessary technical and economic information to enhance the knowledge about the mineral resources of the SADCC region and their exploitation, and thereby assess the status of the mining industry in the region. In this regard a number of important studies have been completed, resulting in the identification of concrete investment projects. The focus of the SADCC Mining Sector programme is, therefore, now moving from project studies to the investment and implementation phase.
- 1.3 The Sector now has 36 projects, estimated to cost US\$69.37m, of which US\$61.29m is in foreign currency. Of this amount, US\$35.65m (57.39%) has been secured.
- 1.4 In this programme, attention is being focused on the development of small and medium scale mining of minerals such as gemstones and industrial minerals, which could be implemented with modest capital outlay, and still contribute significantly to the development of the industry of the region.
- 1.5 Contacts were initiated with international financial institutions, so as to define the constraints to, and assess prospects for mobilising investment in the Mining Sector. These contacts resulted in the formulation of a project (0.0.8) to study the investment climate in the SADCC Mining Sector, supported by the World Bank.
- 1.6 Cooperation with other SADCC Sectors and institutions in the region is being strengthened, in order to rationalise programmes, and the use of resources in the region. In this regard, a project (0.5.1) to be implemented jointly with the Eastern and Southern African Minerals Resources Development Centre (ESAMRDC) has been incorporated into the programme. Furthermore, the SADCC Energy and Mining Sectors have jointly organised a workshop on the exploitation and

utilisation of the vast coal resources of the region. Cooperation was also enhanced, among others, with the Preferential Trade Area (Iron and Steel, Fertilizers), Zimbabwe Institute of Mining Research (implementation of regional data base), and liaison is maintained with the SADCC Industry and Trade Sector in the implementation of mineral transformation projects.

- 1.7 The Sector is in contact with the regional business community in an effort to involve them in programme implementation. In this respect, and as a follow-up to Project 7.0.2 (Mining Chemicals and Explosives) the Sector held consultations with Zambian and Zimbabwean explosives manufacturers, and Zimbabwean ferro-silicon manufacturers.

2. REVIEW OF THE REGIONAL SITUATION

- 2.1 Mining plays a major role in the economies of most member states. The mineral resources of SADCC include base metals (copper, lead, zinc and tin), ferrous and ferro-alloy metals (iron, manganese, nickel, chromium, molybdenum, cobalt), precious metals (gold, silver, platinoids), energy minerals (coal, petroleum, gas, uranium), industrial minerals, fertilizer and chemical minerals, and gemstones.
- 2.2 The development of these mineral resources in the region has historically been dictated by the demands of the industrialised countries. This phenomenon, has resulted in a mining industry geared towards producing raw materials for export. Due to the concentration on the large scale development of export oriented minerals, very little attention has been given either to the smaller deposits or to the equally important low value minerals that provide a base for the industrial and manufacturing sectors of a national economy.
- 2.3 However, dependence on minerals varies from one Member States to the other. In this regard, four (4) countries, namely, Lesotho, Malawi, Mozambique and Tanzania get less than 5% of total revenues from minerals, whereas three countries obtain 80% or more of their revenues from only one mineral. These are Angola (oil); Botswana (diamonds); and Zambia (copper). In the case of Swaziland the revenue contribution of the mineral sector is 6%, and that of Zimbabwe is estimated at 44%.
- 2.4 For sometime now the national economies of most SADCC member states have experienced stagnation or negative

growth rates. Among the factors contributing to this state of affairs are the following:

- over dependence on the export of a few mineral raw materials and agricultural commodities and importation of capital, intermediate and consumer goods;
- depressed prices for the main SADCC export commodities particularly minerals;
- deteriorating terms of trade and worsening balance of payments, which aggravated an increasing debt burden in the region;
- lack of foreign exchange, leading to reduced import capacity for essential inputs and spare parts, and this results in capacity under utilization of various essential industries, including mines; and,
- lack of appropriate technology and skilled manpower.

2.5 Operating on such a background, the mining sector in the region has not contributed as much as it could. However, despite efforts aimed at industrial diversification and agricultural expansion, it is evident that the mining sector's predominant position as the major foreign exchange earner in the member States, is likely to continue for some time to come.

2.6 In terms of value, the SADCC mineral production (excluding oil) was estimated at US\$2 400m in 1987. A preliminary figure for the 1988 production gives an increase of 33% to US\$3 200m. This is due to the improvement in the world market metal prices. According to available statistics, the Mining Sector in SADCC contributed about 12 percent of Gross Domestic Product (GDP) and about 60 percent of export earnings in 1987. For the period 1986 to 1988, the regional revenue from mining production is estimated to have increased by more than 80%, due to the improvement of metal prices on the world market, and exchange rate adjustments in relation to the US Dollar. Diamonds and copper each accounted for about 35% of the total revenue, followed by gold (9%), nickel (5.5%), coal (3.5), asbestos (2.9%), cobalt (2.3%), gemstones (mainly emeralds) (1.1%) and chromite (1.1%); whereas the total value of other minerals (iron ore, lead, zinc, phosphate, silver and tin) represents about 6%.

- 2.7 In terms of foreign exchange earnings, diamonds took the first position in 1987 (43%), followed by copper (30%), gold (10%), ferro-alloys (5.6%), asbestos (2.6%), nickel (2.1%) cobalt (2%) and gemstones (1.4%). Graphical representations of SADCC mineral production, and the share of mineral exports in the total regional exports, are given in Figure 1 and Figure 2 (see pages 22 and 23).
- 2.8 A summary review of mineral production in the region is given below:
- 2.8.1 Diamonds
- In 1988, diamond production reached 16 million carats, 10% increase over 1987 figures, and about 18% over 1986 figures.
- This increase is mainly due to Botswana, which accounts for about 95% of SADCC production. The remaining 5% is on account of production from Angola, Lesotho, Swaziland and Tanzania. It is worth noting that the value of Swaziland's production, although small, increased 200% between 1986 and 1988. Diamonds are likely to become the main mineral in the near future, in terms of export earnings.
- 2.8.2 Copper
- Copper production decreased from 521 000t in 1987, to 463 000t in 1988, due to the decline in production in Zambia, which accounted for 91% of SADCC production. Reasons for the decline in production were high costs of production, which led to the closure of some mines, which are now on care and maintenance. The other 9% is accounted for by production from Botswana and Zimbabwe.
- 2.8.3 Gold
- Gold production has remained at about the same level (15t per year) over the last five years, with 97% coming from Zimbabwe, and the other 3% from Tanzania and Zambia.
- 2.8.4 Nickel
- Nickel production reached 34 000t in 1988, a 26% increase on 1987, mainly due to the recovery of nickel prices. The two SADCC producers

[Bamangwato Concessions Ltd. (BCL) - Botswana, and Bindura Nickel Refinery (BNR) - Zimbabwe] were nearly on the verge of closing down in 1987, due to continuous financial losses. The situation is now fully recovered.

2.8.5 Coal

The region produces two types of coal, bituminous for coking coal for metallurgical purposes, and lignite for other industrial purposes.

Coal production in 1988 increased by 5% to 6.4 million tonnes, a 40% increase over 1986 figures. New developments in the coal sector have mainly come from Zimbabwe, especially with the commissioning of a new thermal power plant in Wankie. In the near future Botswana will significantly increase its production with the coming in operation of Sua Pan Soda Ash Project.

Tanzania started the operation of a new small scale mine, and Malawi continues to develop her small scale coal mining industry. (Production statistics are not available).

Negotiations between Mozambique, assisted by Sector Coordinator, and France; are in progress for the development of the Moatize project. Currently production at, and distribution from Moatize are affected by the security situation.

Swaziland produces coal which is not suitable for use in the boilers available in the country. The coal produced is exported, and the country instead imports coal from South Africa which is suitable for the country's facility. SADCC Project 2.6.1 Assessment of Increasing Uses of Coal in Swaziland aims at reversing this situation, and increasing production to meet both local and export demand.

2.8.6 Asbestos

1988 Asbestos production reached 210 000t, a 5% increase over the 1987 figure, and 13% increase over the 1986 figure.

Asbestos is produced by two countries, Zimbabwe (89%) and Swaziland (11%). No data is available on the types, uses and the quantities of asbestos produced.

2.8.7 Cobalt

1988 Cobalt production reached 5 450t, a 14% increase over 1987, and 19% over 1986 figures.

Zambia accounts for 92% of SADCC Cobalt production.

2.8.8 Gemstones

The SADCC region is now emerging as a significant producer of emeralds. However, 1988 figures (1 600 kg) show a decline after the 1987 peak (2 200 kg).

Zambia (65%) and Zimbabwe (35%) are presently the only SADCC producing countries. Emeralds account for 93% of the total value of regional gemstone production.

Production of other gemstones (amethyst, aquamarine, tourmaline, etc) continues in several SADCC countries (Malawi, Mozambique, Tanzania, Zambia, Zimbabwe). Data on production output has not been collected at the regional level.

2.8.9 Chromite

Chromite is only produced in Zimbabwe. Production has remained fairly constant over the last three years (about 560 000t per year).

3. REVIEW OF THE PROGRAMME

3.1 To address the problems of the mining sector, the SADCC strategy was formulated to meet the following objectives:

- improvement of knowledge of mineral resources, through the establishment of adequate inventories of existing and potential resources;
- exchange of scientific, technical and economic data on geology, mining and minerals among SADCC countries;
- creation of better systems of forecasting consumption patterns with a view to optimising the utilisation of mineral resources, and the development of mechanisms for intra-regional trade;

- maximum diversification of the mining industries, particularly through the development of industrial minerals, and small scale mining, bearing in mind the principle of equitable regional development;
- reduction of external dependence of the regional mining industry, by the development of the local manufacturing capacity for mining equipment, spares and consumables;
- establishment of appropriate scientific, technical and industrial environment required for the development of minerals industries;
- training of high level professional, managerial and technical personnel in all aspects of mineral resources development; and
- cooperation among SADCC countries in the development, mining, processing and marketing of mineral resources.

3.2 The SADCC Mining Sector programme is divided into the following categories:

3.2.1 Projects of General Concern

This category includes projects of general support to the mining industry (small scale mining, data bank and minerals information, remote sensing, exploration, map compilation, geochronology laboratory).

3.2.2 Mineral Processing and Marketing

Support for small scale mining, and the development of processing facilities and marketing structures in the region.

3.2.3 Energy Minerals

The programme intends to define a strategy for improving coal development in the region. In this regard, a general study on the coal resources in the region is underway. Emphasis is being given to support member States to increase coal production (Malawi, Mozambique, Swaziland). Steps are also being taken to increase the use of indigenous coal resources by modifying the burning installations (Swaziland).

3.2.4 Metallic Minerals

Emphasis is being given to the development and optimisation of processing and utilisation capacities of base metal industries (steel, copper, aluminium, titanium) and related downstream operations. In addition, support is being given to exploration projects in order to discover new deposits.

3.2.5 Non-Metallic Minerals

Emphasis is being given to the development of fertilizer raw materials (phosphate, potash and lime), and of mineral inputs necessary to the local industry (refractory minerals, gypsum, bentonite, ceramic raw materials and kaolin).

The importance of non-metallic industrial minerals is clearly demonstrated by the large number of projects in this sub-sector.

3.2.6 Water

The Mining Sector is mainly concerned with the harnessing of underground water resources. Any developments in this field will only be decided after the conclusions of the assessment of the water resources of the region, currently being jointly undertaken with the Soil and Water Conservation and Land Utilisation Sector.

3.2.7 Mining Equipment and Consumables

The Sector has recognised the need to develop the local production of inputs to the mining industry. Emphasis has been given to the collection of data on mining equipment and spares, and mining chemicals and explosives. Regular contacts are being maintained with the regional industry to overcome the constraints in the development of the production of mining inputs as already indicated under the Executive Summary.

3.2.8 Manpower

Recognising the need to develop indigenous manpower, the Mining Sector identified and formulated projects aimed at making the region self-sufficient in the manpower needs. In this regard, emphasis has been placed on the

coordination of the existing industrial and educational units, standardisation of courses and strengthening of training facilities.

CURRENT STATUS OF PROJECTS

Project 0.0.0: Support to the Mining Sector Coordinating Unit

This is an on-going project and it involves provision of personnel and technical support to strengthen the capacity and capability of the Sector Coordinating Unit. The project entails secondment of five experts in the fields of Mining, Geology, Mineral Processing, Economics and Manpower Planning. To each of these experts, a Zambian counterpart is provided who will eventually take over the responsibilities performed by the experts. The project is estimated to cost US\$2.3 million. Out of this figure, US\$0.40 million has been secured from France and the Nordic countries.

Project 0.0.3: Sharing of Mineral Processing Facilities

The aim of this project is to review the existing and planned mineral processing facilities in the region, and to assess how best these facilities might be utilised to benefit all the member states. The consultant is required to make recommendations on how best to rationalise the utilisation of existing plants; and recommend, if necessary, the establishment of new metallurgical plants. The project is estimated to cost US\$0.13 million.

A technical advisor will be appointed by the Nordic Countries to the SADCC Mining Sector Coordinating Unit, whose first task will be to execute this project.

Project 0.0.4: Remote Sensing Survey Using the Spot Satellite

The objectives of this project is to assess and evaluate the present national programmes of the SADCC member States on the use of spot satellite remote sensing techniques for recording stereoscopic pairs of images to prepare a photo-geological interpretation of selected mineral provinces in the SADCC member states, with a view to enhancing mineral resources exploration. The survey will also examine the feasibility of establishing a SADCC tracking station and interpretation centre. The project is estimated to cost US\$0.46 million. Funding being sought.

Project 0.0.5: Regional Seismic Network and Data Centre Feasibility Study

The objective of this project is to study the feasibility of establishing, at the national and the regional level, SADCC Seismological Network to detect earth movements. Efforts are being made to raise funds. Phase 1 of the project is estimated to cost US\$0.49 million.

Project 0.0.6: Small Scale Mining and Minerals Beneficiation

The project is divided into two phases. The objectives of the first phase are:

- selecting potentially high value mineral deposits in the region, which are amenable to small scale mining and processing;
- identifying appropriate methods for production and marketing of products and financing arrangements;
- determining the appropriate mining and processing equipment to be used; and
- selecting, within the region areas for pilot project for small scale mineral operations.

Phase II will be the actual implementation of a pilot programme, to test the suitability of the small scale mining and processing approach. This project is a follow up to Project 0.0.1 "Small Scale Mining, Processing and marketing". Phase I is estimated to cost US\$0.24 million.

A technical advisor has been appointed to the SADCC Mining Coordinating Unit, whose first task will be to execute Phase I of the project.

Project 0.0.7: Regional/National Geological Minerals and Mining Bibliographic Data Banks

The objectives of the project are:

- to select a number of institutions in the region which have facilities to constitute regional and national data banks;
- to define the work programmes and needs of the data banks;
- to secure and install additional needs of data banks;

- to establish standard format for data and information compilation;
- to prepare a regional bibliography; and
- to train local staff to operate the data banks.

The project is a follow-up to Project 0.0.2 "Inventory on Geology, Minerals and Mining". The project is estimated to cost US\$1.2 million. Funding being sought.

Project 0.0.8: Analysis of the Investment Climate in the SADCC Mining Sector

The objective of the study is to review the regulatory and incentive framework for mining development in each of the SADCC countries, and make specific recommendations on action to improve this framework. The project is underway with the support of the World Bank, at an estimated cost of US\$0.2 million.

Project 0.5.1: Regional Geophysical and Geochemical Map Compilation Facility

The objective of the project is to establish, within the region a geophysical and geochemical map compilation facility. This facility is expected to serve as the local point for the development and production of new maps and the exchange of mineral information.

The project proposes that the existing Mozambican facility in Empresa Nacional de Hidrocarbonetos be expanded to serve as a regional centre.

This work will be performed with the participation of the Eastern and Southern African Mineral Resources Development Centre (ESAMRDC) in the collection of geochemical and geophysical data.

The project cost is US\$650 750. Funding being sought.

Project 0.9.1: Central Isotope Geochronology Laboratory

This is an on-going project whose facilities are located in Zimbabwe. The facilities are being used by member States. US\$0.23 million have been secured from EEC to meet regional obligations of the centre (analysis to be done for member

States and training of regional staff) for three years. For the moment the use of the Facility by other member States is free. However, when the support of the EEC is exhausted, member States using the Facility will pay basic fees to

cover the services rendered. Preparation of the detailed project document is in progress. Project estimated cost is US\$0.23 million.

Project 1.0.1: SADCC Gemstone Buying Processing and Marketing

During Phase I of the project, work will focus on the examination of the international demand/supply market for gemstones. The feasibility of establishing a regional marketing mechanism for rough and processed gemstones, as well as a regional jewellery industry based on gemstones, will be assessed. Phase II of the project will be the actual implementation of project arising from the first phase. Phase I is estimated to cost US\$0.135 million. Funding being sought for Phase I (preliminary study). Phase II (implementation of the recommended facilities) will depend on results of Phase I.

This project is a follow up to Project 0.0.1 "Small Scale Mining, Processing and Marketing".

Project 2.0.1: Exploitation of Coal Resources in the SADCC Region

The objective of this project is to review the known coal resources of the region; in order to make an assessment of the possibilities of development, in terms of potential local consumption and export markets.

The project is underway with the support of Commonwealth Fund for Technical Cooperation (IDU), at a cost of US\$0.15 million.

Project 2.4.1: Coal Exploration and Evaluation in Malawi

The objective of this project, which is underway, is to investigate and assess the economic potential of known coal occurrences in Malawi, to train Malawi nationals in coal exploration, evaluation and production, as well as inventory report writing. This project is being funded by France (US\$0.35 million) and Malawi (US\$0.58 million). The balance (US\$1.2 million) is being negotiated for with France.

Project 2.4.2: Mining Development Trial at Livingstonia, Malawi

The objective of this project is to develop commercial mining of coal in Malawi, thus furthering the objective of national self-sufficiency. Funds were secured from France

and a small scale coal mine is being operated by the Mining Investment and Development Corporation (MIDCOR). Total cost of the project is US\$0.39 million.

Project 2.4.3: Coal Analysis Laboratory in Malawi

The objective of the project was to establish a coal analysis laboratory in Malawi, as support to the present coal exploration projects to avoid sending samples abroad for testing. The laboratory is fully operational, and is at the disposal of SADCC member States. Member States are expected to pay for the services.

Project 2.5.1: Manufacture of Coke at Moatize Colliery (Mozambique)

The objective of this project is to establish coking facilities at Moatize Colliery in order to increase the value of the Moatize product, and reduce regional dependence on outside coke suppliers. The feasibility study (Phase I) is expected to take three months to complete. Phase II, the establishment of coking facility will depend on Phase I. Phase I is estimated to cost US\$0.08 million.

Project 2.5.2: Management Assistance for Coal Development in Mozambique

The purpose of this project is to support a management assistance programme for the newly established national Coal Board of Mozambique. The main objectives of the programme are to build an efficient technical structure within the Coal Board to enable it to implement, coordinate and direct the coal development programmes at all stages from the preliminary, feasibility to the launching of the projects, their supervision and management, as well as environment aspects. A technical assistance programme for three years is envisaged. The project will cost US\$1.8 million. Funding being sought.

Project 2.6.1: Assessment of Increasing Uses of Indigenous Coal in Swaziland

The objective of the project is to assess the technical problems related to Swaziland using its low-grade coal in industry, instead of importing industrial coal from South Africa. The study will evaluate both economic and financial problems involved in the switch to the local coal, at the producer and consumer levels. US\$0.041 million has been secured from France.

Project 3.0.1: Foundry Fabrication and Machinery Facilities

The objective of the study was to assess the existing foundry, fabrication and machinery facilities in the region, so as to seek ways of rationalising the existing facilities and recommend further development. Recommendations of the report are being followed up by SADCC Industry and Trade Sector.

Project 3.0.2: Establishment of an Iron and Steel Industry

The main objective of the study was to provide a systematic compilation of existing information on supply and demand for basic steel products in PTA and SADCC countries in order to establish the basis for making decision on sub-region collaboration in the Iron and Steel Sector.

Recommendations of the report have been incorporated into projects 3.0.7, 4.0.3 and 7.0.3 while other recommendations have been referred to the SADCC Industry and Trade Sector.

Project 3.0.3: Market Study for Copper Products

This project, which covers semi-manufactured and finished copper products (wire rods, rod bar section, sheets, plates, strips and tubes), seeks to determine the feasibility of establishing regional fabrication facilities.

Recommendations are being referred to the SADCC Industry and Trade Sector.

Project 3.0.4: Integrated Alumina/Aluminum/Calcination Industry

This project is a feasibility and market study aimed at determining the viability of establishing an integrated alumina/aluminum/calcination industry in the region, based on the known bauxite deposits, (Malawi, Mozambique and Tanzania). The project is underway with UNDP funding (US\$0.25 million).

Project 3.0.5: Bauxite Exploration in the SADCC Region

Phase I of this project will look into basic geological mapping, scout sampling and detailed sampling (1:5 000). The main aim of the project in Phase II is to establish concretely, the size of the bauxite reserves that exist in Mozambique and Zimbabwe, and in Phase III to assess whether that reserve can form the raw material base for a regional aluminum industry. Project cost is US\$1.53 million. Funding is being sought for Phase I.

Project 3.0.6: Assessment of Heavy Mineral Sand Deposits and Feasibility of a Titanium Oxide Plant

The project is conceived in two phases. Phase I comprises the assessment of current reserves of heavy mineral sand deposits in Malawi, Mozambique and Tanzania. During this phase, an assessment of the regional and international market for heavy mineral sands and titanium dioxide will be carried out. The cost estimate for Phase I is US\$0.132 million. Funding is sought for Phase I.

Project 3.0.7: Assessment of Iron Ore Deposits

The project aims to carry out a study in Angola and in Swaziland, to establish the iron ore reserves in these two countries. In addition, the study will assess the possibilities of establishing both regional and international markets for iron ore products. The study will take into account, the findings of Project 3.0.2.

The project is costed at US\$0.55 million. Funding being sought.

Project 3.8.1: Exploration for Lead/Zinc Prospects - Zambia

The objective of the project is to reassess all existing data on the lead/zinc deposits in the Kabwe area, with a view to establishing the quantities of ore contained in the reserves. It will also be necessary to augment the data gaps by carrying out geophysical surveys throughout the area, and carry out drilling trials as part of the effort to estimate the strength of the reserves. The cost of the project is US\$2.635 million.

Phase I of the project (reassessment of the existing geochemical data) is underway with French support (US\$0.06 million) while other phases (complementary exploration) are being negotiated with Japan.

Project 4.0.1: Development of Fertilizer Mineral Raw materials

This study, which has been completed, was to make an assessment of current and inferred occurrences of fertilizer mineral resources in the region, with emphasis on phosphate minerals, limestone, sulphur and gas. The report was considered by member States in May 1989, and the recommendations are being followed up with the SADCC Industry and Trade Sector.

**Project 4.0.2: Sua Pan (Botswana) and Lake Natron (Tanzania)
Project - Market Study**

The objective of this study is to assess the demand of common salt, soda ash, potash among the SADCC member states; and to determine the possibility of the region providing a secure market, which would allow the exploitation of the salt deposits at Sua Pan in Botswana and Lake Natron in Tanzania. The project is underway with UNDP funding (US\$0.18 million).

Project 4.0.3: Establishment of a Refractory Industry

The objective of this project is to determine the viability of establishing a refractory industry in the region; and, if found viable, to make recommendations on how this might best be achieved. The project is underway with UNDP funding (US\$0.17 million).

Project 4.0.4: Processing of Lime

The purpose of this project is to undertake a region-wide demand study for lime and lime based products, in the various industries; in order to determine the viability of establishing processing plants. UNDP is funding (US\$0.21 million) Phase I of the project and UN/DTCD is the executing agency. Project is underway.

Phase II, which involves actual investment in the establishment of lime facilities, will begin depending on the results of Phase I.

Project 4.0.5: Non-Metallic/Industrial Minerals

The aim of this project is to make an assessment of known potential of non-metallic minerals in the region and to propose concrete projects for their development. A preliminary study has been completed and was reviewed by the Sector Coordinating Unit. The final report was approved in May 1988. Phase II, the market survey, is underway (cost US\$0.17 million).

Project 4.0.6: Assessment of Vermiculite Production in the SADCC Region

The project is divided into two phases. Phase I aims at evaluating the strength of present reserves of vermiculite resources in the region through surveys in Malawi and Zimbabwe. This study will also establish the regional and international demand for vermiculite products.

Phase II, which comprises exploration, will depend on the results of Phase I. US\$0.077 million has been secured from France for Phase I.

Project 4.0.7: Assessment of the SADCC Hotel and Household Whiteware Industry

The objective of the project is first to determine, through a study, the constraints to the development of a SADCC Hotel and Household Whiteware Industry, and to assess available prospects for the industry. The study will then recommend measures that need to be taken to promote the development of these industries, as well as the projects that can be coordinated regionally. The project is estimated to cost US\$0.076 million. Funding is being sought.

Project 4.0.8: Market Survey for SADCC Ornamental Stone

The project aims at assessing the strength of the existing regional and international market for ornamental stones produced from the SADCC region; and to propose new projects in this area. The project is estimated to cost US\$0.075 million. Financing is being sought.

Project 4.0.9: Gypsum Production in the SADCC Region

The objective of the project is to assess the current market for gypsum in the SADCC region, and to propose strategies for developing the regional production of gypsum. In addition the project will assess the size of gypsum reserves in Angola and Tanzania; assess the availability of artificial gypsum in Zambia; and map out a strategy for their development.

The project, which is a follow up to Phase I of Project 4.0.5 is estimated to cost US\$0.099 million. Funding is being sought.

Project 4.1.1: Production of Fertilizers from Phosphates-Angola

The objective of this project is to exploit the extensive deposits of phosphates in the Zaire Province of Angola in order to help meet the agricultural needs of the region for phosphate-based fertilizer; and, thereby, contribute to SADCC self-sufficiency in fertilizer production. US\$0.143 million being sought for Phase I (feasibility study).

Project 4.5.1: Development of Boane Bentonite Mine-Mozambique

Phase I of the project will focus on the rehabilitation of the Boane Mine, Maputo. Phases II and III will initiate the upgrading of the mine, and on the basis of the success of this exercise, proceed to produce bentonite. Availability of markets will be a crucial factor in determining whether the mine should go into extra investment for increased production. The project is a follow up to Project 4.0.5.

The project is expected to cost US\$0.24 million. US\$0.05 million has been secured for Phase I and Phase II from Commonwealth Fund for Technical Cooperation.

Project 4.6.1: Exploration for Ceramic and Chemical Industry Raw Materials in Swaziland

The project aims at carrying out an exploration of the talc, pyrophyllite silica and kaolin deposits of South-West Swaziland. A feasibility study will be carried out to determine how these deposits can be developed for the domestic market, as well as for the region's ceramic and chemical industries. This is a follow up to Phase I of Project 4.0.5. The project is estimated to cost US\$0.540 million. Funding is being sought.

Project 4.7.1: Pugu Kaolin Project (Tanzania)

The objective of this project is to establish an open-cast mine, and treatment plant, to exploit Tanzania's kaolin resources, in order to meet the demand of the SADCC region; and to export to other countries. This project requires an equity partner and investment financing. A pilot plant has been installed with the support of Austria and the African Development Bank (ADB) (US\$7.5 million) and is in operation. A market survey is now being considered before taking the decision of proceeding to the final investment. The project is estimated to cost US\$15.000 million. The existing pilot plant is being rehabilitated with Austrian assistance. Present installed capacity is 8000 t/y.

Project 4.8.1: Mining of Fluorspar (Zambia)

The objective of this project is to open a new fluorspar mine in the Sianyoola area, in Zambia, in order to supply the SADCC market; and to export the product on the international market, and thus generate foreign exchange. Agip SpA is willing to proceed with this investment, once funding for the necessary infrastructure has been secured. About US\$13 million is, therefore, being sought for the general infrastructure development.

Project 5.0.1: Hydro-Geological Investigation

This project seeks to determine how best to organise the collection of hydro-geological data, and identify areas within the region where availability of water is most likely to benefit future development in the agricultural, industrial and mining sectors.

The project is being implemented, jointly with the Regional Hydrological Assessment (7.0.2) of the Soil and Water Conservation and Land Utilisation Sector, and is supported by the World Bank.

Project 6.0.1: Regional Manpower Survey

The objectives of this study were to:

- assess the professional, technical and managerial manpower requirements for the region;
- forecast future requirements;
- identify training institutions that require strengthening; and, where necessary;
- propose the establishment of new facilities.

A programme in human resources development has been proposed, and is now being implemented by the Manpower Development Sector.

Project 7.0.2: Production of Mining Chemicals and Explosives

The objective of this project is to provide data on existing facilities for the production of mining chemicals and explosives; and make proposals for further expansion taking into consideration supply, demand and availability of raw materials. The study financed by the CFTC at a cost of US\$0.08 million, has been completed and the report is being reviewed by member states and the Industry and Trade Sector.

Project 7.0.3: Study on the Manufacture of Electrodes

The objective of this project is to determine the viability of establishing a regional industry for the production of electrodes. This proposal has been developed out of the SADCC/PTA study on the region's iron and steel industry (3.0.1). Funds are being sought, (US\$0.07 million).

Project 7.0.4: Central Data Bank for Mining Equipment and Spares Manufactured

The objective of the project is to establish a Central Data Bank of mining equipment and spares manufactured in the SADCC region, used by relevant mining industries. US\$0.59 million has been secured from the Nordic countries, and the work is expected to start before the end of 1989. New project.

Project 7.0.5: Rationalisation of Rock Drill Steel Manufacturing Industries

The objective of the project is to investigate ways of improving the industries which manufacture hand-held rock drills, rock drills steels and spares, in the SADCC region. Funding US\$0.08 million has been secured from the Nordic countries.

Project 7.0.6: Rationalisation of the Manufacture of Wear Resistant Liners and Rail Track and Fittings

The objective of the project is to investigate ways of improving the operations of the industries producing wear resistant liners, and rail track and fittings within SADCC region. US\$0.08 million has been secured from the Nordic Countries.

Project 7.0.7: Manufacture of Activated Carbon From Coconut Shells

The objective of Phase I of the project is to assess, through a survey, the existence of a regional market for activated carbon, and to survey the coconut charring and activating methods in the region. The project will also assess the availability of coconut resources, and the feasibility of installing an activating plant in the region. Phase II of the project is the actual installation of the plant. The project is a follow up to Project 7.0.2, "Production of Mining Chemicals and Explosives". US\$0.065 million has been secured for Phase I from Commonwealth Fund for Technical Cooperation.

Project 7.3.1: Manufacture of Diamond Tools in Lesotho

The objective of this project is to launch a market study on the demand for diamond tools in the SADCC region with a view to making recommendations on the possibilities of establishing a diamond tools manufacturing facility in Lesotho. The terms of reference for this study and a revised project description, including new costings, have

been approved. Lesotho is carrying out a preliminary study which is expected to be completed by May 1990. Project estimated cost is US\$0.08 million.

FIGURE 1

SADCC Mining Production 1987
(Total: 2394 MUS\$)

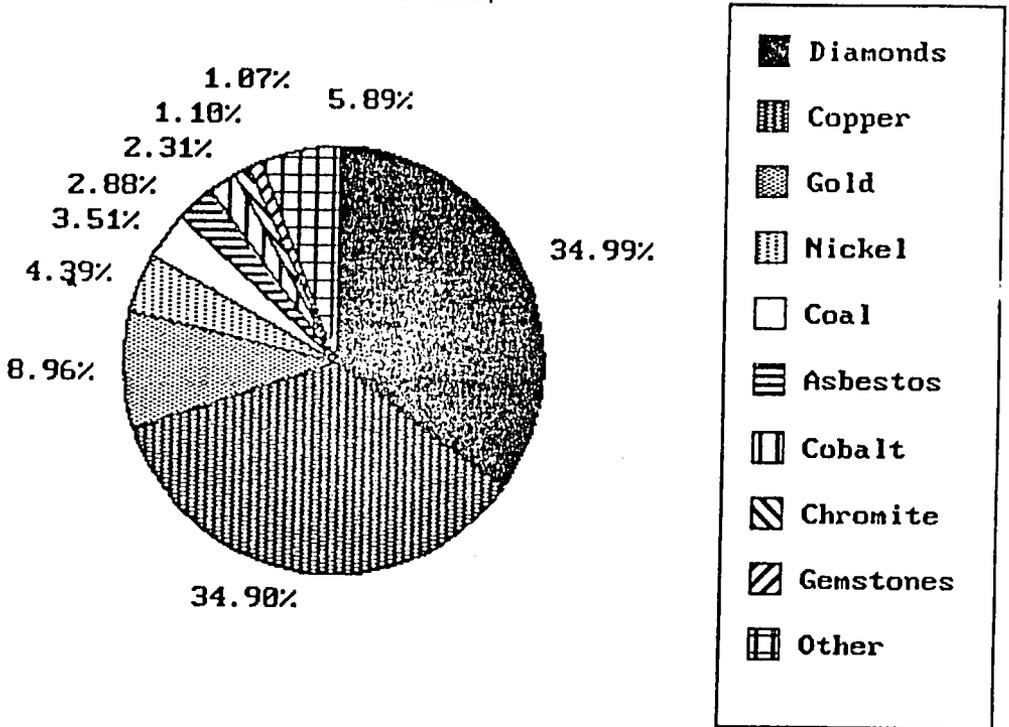
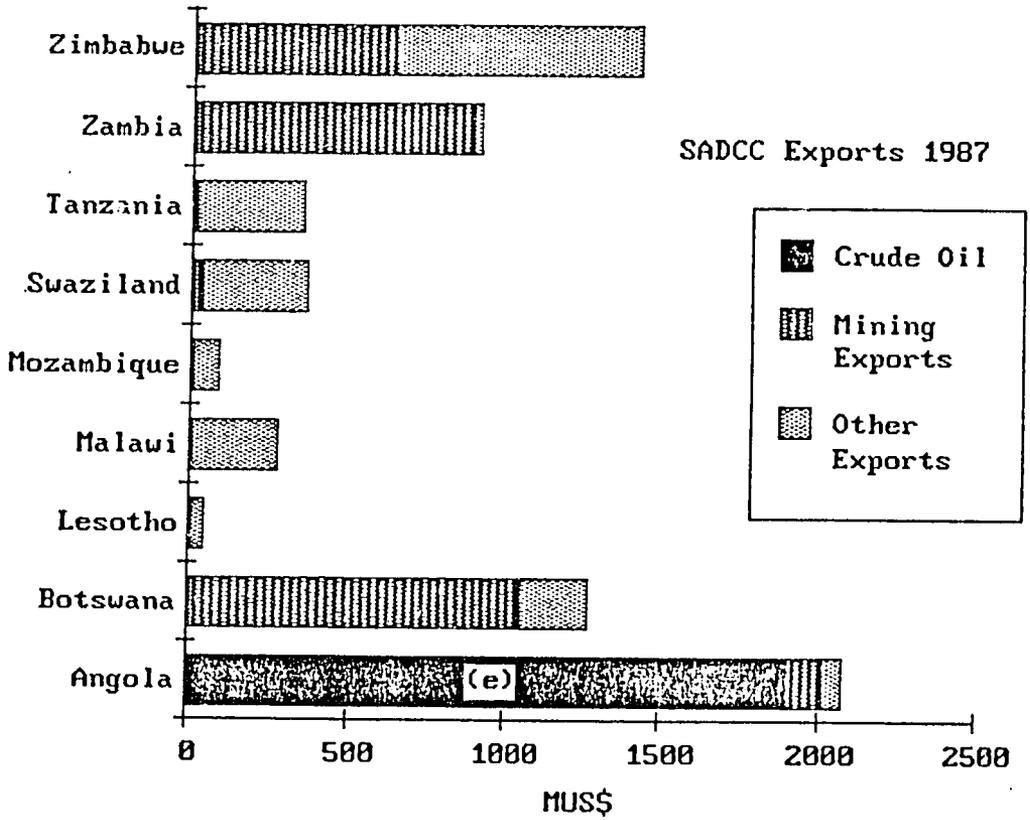


FIGURE 2



0.0.4 REMOTE SENSING SURVEY USING SPOT SATELLITE

Estimated Costs

Total: US\$ 0.46m
Foreign: US\$ 0.46m
Local: -

Financing Gap: US\$ 0.46m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign: Nil
Local: -

Start:

Duration: 4 months

Objectives: The objectives of this project are:

- * to introduce and to enable the large scale application of advanced earth observation satellite imagery in the SADCC region, for purposes of resource management and resource inventory and data collection and interpretation;
- * to ensure a coordinated introduction of satellite remote sensing techniques in the SADCC region, giving a maximum benefit to each SADCC member State;
- * To define if any specialized installation (interpretation centre, etc...) might be worth established at a regional level;
- * to assess and evaluate the present national programmes for selected minerals; and
- * to examine the feasibility of establishing a SADCC tracking station and interpretation centre.

Description: The launches of the American LANDSAT/THEMATIC MAPPER satellite in 1984 and the French SPOT satellite in 1986 mark a break-through in quality of satellite data with ground resolutions in the range of 10 m to 20 m (SPOT), up to 30 m (TM), and a much wider scanning spectrum with up to 7 channels (TM), designed for specific geological and other applications. The combined information

derived from both satellite systems improves greatly the present earth observation techniques and these satellites are opening up new fields of application.

The following are among the principal applications for images produced from SPOT and TM data:

- * aid to geologic mapping and exploration of minerals and oil/gas resources;
- * topographic surveys at medium scales such as 1: 100.000 (TM) up to 1: 50.000 (SPOT). Development of new types of thematic maps with frequent updating;
- * Land use studies;
- * Agriculture, forestry, water resources evaluations.

The tasks to be undertaken in the frame of this project are to:

- * Identify the fields of application, where the use of satellite remote sensing will have substantial impact in the SADCC countries: geology, mineral/hydrocarbon exploration, cartography, agriculture, forestry, land use;
- * Propose plan of action for realization of long-term remote sensing projects for SADCC countries, taking into account the possibility of the establishment of regional facilities, supporting the national development strategies in this field, and the other SADCC projects using satellite imagery, specifically for agriculture.

Status: Funding being sought.

0.0.5 REGIONAL SEISMIC NETWORK AND DATA CENTRE - FEASIBILITY STUDY

Estimated Costs

Total: US\$ 0.49m
Foreign: US\$ 0.49m
Local: -

Financing Gap: US\$ 0.49m

Executing agency:

Sector Coordinating Unit,

Funding Secured

Foreign: Nil
Local: -

Start: Immediate

Duration: 3 Months

Objectives: The objective of this project is to study the feasibility of establishing, at the national and regional levels, a SADCC seismological network to detect earth movements. The project will seek to:

- * establish seismological stations in the SADCC member States, where they do not already exist;
- * improve existing networks, where this is necessary;
- * establish a regional seismological network (comprising these national networks);
- * establish regional Seismological data centre to act as a seismic data bank, and undertake rapid earthquake location for SADCC; and,
- * liaise and exchange information with appropriate centers outside region.

Description: The first phase of the project will seek to identify existing seismic networks in SADCC and undertake an inventory of the equipment being used and, where appropriate, recommend standardisation. During this phase, an assessment will be made of the most suitable hardware and soft ware for the network. Assessment will also be undertaken of the most effective and efficient mode of communication. The second phase of the project will involve the implementation of the regional

network and of the data centre. The establishment of such a regional network and seismological data centre would have a number of important advantages. It would permit:

- * monitoring of regional and local earthquake activity; and the development of strategies for earthquake disaster mitigation, and promotion of detection seismology in the region;
- * initiating research in regional crustal studies and enhancing of seismic prospecting methods in the search for mineral resources;
- * production of seismic zoning maps and the establishment of building codes for civil and mining engineering concerns;
- * contribution to the collection of seismological data for all the international organisations.

Status: Funds are being sought.

0.0.7 REGIONAL/NATIONAL GEOLOGICAL, MINERALS AND MINING
BIBLIOGRAPHIC DATA BANKS

Estimated Costs

Total: US\$ 1.20m
Foreign: US\$ 1.20m
Local: -

Funding Secured

Foreign: Nil
Local: -

Financing Gap: US\$1.20m

Executing agency:

Sector Coordinating Unit

Start: -

Duration: 5 years

Objectives: The objectives of the project are firstly to set up a regional bibliographic Data bank on Geology and Mining, and secondly to set up national geological, minerals and mining Data Banks, based on Regionally standardized data forms, software and hardware, in each SADCC member country.

The existence of these compatible national Data banks will permit, when necessary to easily compile regional data on a particular subject.

Description: The main tasks to be undertaken are:

- * to select Institutions/Departments in member countries which have facilities to handle the data bases, and to define the exact scope of the work of these units, and allocate personnel;
- * to purchase and install the equipment;
- * To finalise Minerals and Mining Industry standardized forms, control the filling of these forms, and compile them;
- * To compile a regional bibliography, and incorporate it into a global bibliographic data system;
- * To install a minerals and mining inventory software, and the corresponding security procedures respecting the confidentiality of some data;
- * To train local staff in the operation of the data banks to ensure continuity.

Funding being sought.

REGIONAL GEOPHYSICAL AND GEOCHEMICAL MAP COMPILATION
FACILITY

Estimated Costs

Total: US\$ 0.89m
Foreign: US\$ 0.89m
Local: -

Financing Gap: US\$ 0.89m

Executing agency:

Sector Coordinating Unit
ESAMRDC; and Government
of Mozambique.

Funding Secured

Foreign:
Local: -

Start: -

Duration: Five years

Objectives: The objective of the project is to establish, within the region a geophysical and geochemical map compilation facility. This facility is expected to serve as the focal point for the development and production of new maps and the exchange of mineral information.

Description: The project aims at expanding an existing facility, designed for the production of seismic sections (oil exploration) at the Empresa Nationale de Hidrocarbonetos (ENH) (State oil company) in Maputo, so as to transform it into a regional geoscience data centre able to process and interpret geophysical, geochemical, and other geoscientific data.

The creation of the facility will proceed jointly with the collection of regional geophysical and geochemical data, so as to produce initial regional thematic maps. The collection of data will be done in cooperation with the Eastern and Southern African Mineral Resource Development Centre (ESAMRDC).

The main tasks to be undertaken are:

- * identification, procurement and installation of the equipment necessary for the expansion of existing facilities;

- * survey of all existing geophysical data available in each member state, and conversion of such data to a format compatible with ENH equipment.
- * Compilation of relevant regional maps and regional interpretation of the data, and identification of gaps and areas that need to be resurveyed.
- * Creation of a regional geoscience archive.
- * Development of local expertise in the centre, to provide further services to subregional institutions in the same field.

Status: Funding being sought.

1.0.1 SADCC GEMSTONE BUYING, PROCESSING AND MARKETING - PHASE I

Estimated Costs

Total: US\$ 0.14m
 Foreign: US\$ 0.14m
 Local: -

Financing Gap: US\$ 0.14m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign:
 Local: -

Start: -

Duration: 6 months

Objectives: The objectives of the project are: to evolve a SADCC strategy for buying, cutting, polishing and selling of gemstones; to eliminate illegal mining and illicit trading in gemstones; and to enhance employment generation in the gemstone industry and foreign exchange earnings from the export or rough and cut gemstones, within the SADCC region.

Description: The countries of SADCC are endowed with many precious and semi-precious minerals such as emeralds, tanzanite, rubies, amethyst, aquamarine, agates, several semi-precious stones, etc. The

present situation is such that each SADCC country operates its gemstone industry independent of other SADCC countries. This practise has resulted in illicit trading of rough gemstones. Accordingly several SADCC countries are losing millions of dollars every year in potential foreign exchange earnings from rough gemstones and semi-precious stones smuggled out of their borders. On the other hand improvements and the expansion of cutting and polishing facilities could enhance employment opportunities and the value of gemstones produced in the countries.

During Phase I of the project, work will focus on the examination of the international demand/supply market for gemstones. The feasibility of establishing a regional marketing mechanism for rough and processed gemstones, as well as a regional jewellery industry based on gemstones, will be assessed. Phase II of the project will be the actual implementation of project arising from the first phase.

This project is a follow-up to the preliminary study on small scale mining, processing and marketing (0.0.1).

Status: Funding being sought.

2.5.1 MANUFACTURE OF COKE AT MOATIZE COLLIERY (MOZAMBIQUE)

Estimated Costs

Total: US\$0.08m
Foreign: US\$0.08m
Local: -

Financing Gap: US\$0.08m

Executing agency:

Director Coordinating Unit

Funding Secured

Foreign:
Local: -

Start:

Duration: 4 months

Objectives: The objective of this project is to establish coking facilities at Moatize Colliery in order to:

- * increase the value of the Moatize product;
- * promote intra-SADCC mineral trade; and
- * reduce regional dependence on outside coke suppliers.

Description: The Moatize Colliery has traditionally relied on overseas export markets for its coking coal, and in 1981 16 000 tons of coking coal were sold. Operations have since, however, come to a halt due to bandit activity on the railway line from Moatize to the port of Beira.

The ferro-alloy industry of Zimbabwe currently imports, annually, approximately 55 000 tons of low Phosphorous and Sulphur coke. This low P and S coking is not available at Wankie Colliery in Zimbabwe. The Moatize coking coal has been shown to be suitable for this use. It would, however, be most economic for coking to take place at the Moatize colliery, since only 25% of coking - by weight - ends up as coke. Otherwise, the transport to Zimbabwe would be expensive and the value to weight ratio of the cargo would not be maximised.

The project, therefore, aims at recommending a coking method for the manufacture of low P and S

metallurgical coke at Moatize Colliery. It also involves the installation of appropriate kilns at the colliery and the initiation of coke production. The first phase of the project involves:

- * a survey of the regional market for Moatize coke with special reference to the ferro-alloy industries;
- * a survey of coking methods and the selection of the one most appropriate to Moatize colliery; and
- * a preliminary study of the installation of coking kilns at Moatize colliery.

The second phase involves:

- * the installation of coking facilities at Moatize Colliery, including the necessary quality control facilities; and
- * the location of an experienced coking expert at Moatize for an initial period of two years after coking commences.

Status: Funding sought.

2.5.2 MANAGEMENT ASSISTANCE FOR COAL DEVELOPMENT IN MOZAMBIQUE

Estimated Costs

Total: US\$ 1.76m
Foreign: US\$ 1.76m
Local: -

Financing Gap: US\$ 1.76m

Executing agency:

Mozambique Coal Board

Funding Secured

Foreign:
Local: -

Start:

Duration: 3 Years

Objectives: The purpose of this project is to support a management assistance programme for the newly

established National Coal Board of Mozambique. The main objectives of the programme are to build an efficient technical structure within the Coal Board to enable it to implement, coordinate and direct the coal development programmes at all stages from the preliminary, feasibility to the launching of the projects, their supervision and management, as well as environment aspects.

Description: The Moatize coal basin has large reserves of excellent metallurgical and steam coal. The development of this coal will contribute to the economies of Mozambique and the region, and will increase the use of the Beira corridor and port facilities, and will also provide many job opportunities. The Coal Board is responsible for overseeing the development of these resources. A National Coal Plan has been developed in the 1980's, which falls into two major programmes.

Moatize I: The first phase of the programme aims at raising the production of marketable coal to 3,300,000 tonnes a year. The programme involves the following projects:

- + modernization of existing mines; and development of two open-pit mines;
- + development of a washing plant for cleaning coal from the open pit mines and possibly also from the underground mines;
- + construction of the necessary infrastructure to provide water, electric power, communications and outside transport roads; of a central workshop complex; and,
- + reconstruction of the Moatize - Beira railway, and, construction of 60 km high tension line from Matambo to Moatize.

Moatize II: The objective of the second phase of the programme is to increase production of marketable coal to 6,300,000 tones per year through :

- + opening up to three new open pit mines;
- + construction of additional washing facilities and infrastructure;
- + completion of the Moatize - Beira railway;

+ exploration of the Beira coal terminal.

Presently discussions are underway to make an investment decision directly on the objectives of Moatize II (6,300,000 tones per year), without considering Moatize I intermediary phase.

Management Assistance Programme: In order to coordinate and direct all these activities, the Coal Board will require the following technical personnel: one Geologist, specialist in coal exploration; one Mining Engineer, specialist in open pit mining; one Mineral Processing engineer, specialist in coal processing; and, one Mineral Economist, specialist in contracting and administration of mining projects.

Status: Funding sought.

3.0.5. BAUXITE EXPLORATION IN THE SADCC REGION

Estimated Costs

Financing Gap: US\$ 1.53m

Total: US\$1.53m
Foreign: US\$1.53m
Local: -

Executing agency:

Sector Coordinating Unit

Funding Secured

Start:

Foreign: -
Local: -

Duration: 1 year

Objectives: The objectives of the project are to establish mineable bauxite resources along the Mozambique-Zimbabwe boarder being likely to serve as a basis for the establishment of an aluminum industry in the SADCC region. Such an industry using the abundant energy resources of the SADCC region would reduce or eliminate the dependance of the SADCC countries on imported aluminum metal; enhance regional self reliance on aluminum products, and promote and sustain regional integration in economic development.

Description: There is no primary aluminum production in the entire SADCC region and all aluminum currently consumed is imported. Bauxite resources from which aluminum could be produced are known to exist in a number of countries including Malawi, Mozambique, Tanzania and Zimbabwe. Some previous work has been done in some of the bauxite localities to establish reserves but more work is needed in the remaining areas to delineate sufficient reserves for the establishment of a SADCC aluminum production industry. Accordingly the present project intends to evaluate and establish bauxite reserves along the Mozambique-Zimbabwe border.

It will be developed in two exploration stages with a third phase feasibility study of selected deposits:

- * Phase 1 will look into basic geological mapping (1 500 000), scout sampling, and detailed mapping (15 000) (519 000 US\$);
- * Phase 2 involves detailed survey of selected deposits (12 000); detailed and systematic sampling by pitting and augering; comprehensive chemical and mineralogical analyses (616 000 US\$), both in Mozambique and Zimbabwe;
- * Phase 3 involves a representative bulk sampling programme; economic evaluation of the deposit, and feasibility study (394 000 US\$) to determine whether existing reserves can form the raw material base for a regional aluminium industry.

Decision on proceeding from phase 1 to other phases will depend on technical results of phase 1 (existence of valuable occurrences), and on results of study 3.0.4.

Status: Funds being sought.

3.0.6 ASSESSMENT OF HEAVY MINERAL SAND DEPOSITS AND
FEASIBILITY OF A TITANIUM OXIDE PLANT

Estimated Costs

Total: US\$ 0.13m
Foreign: US\$ 0.13m
Local: -

Financing Gap: US\$ 0.13m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign:
Local: -

Start:

Duration: 4 months

Objectives: The objective of this project is to promote the orderly development of the SADCC heavy mineral sand deposits (Malawi, Mozambique, Tanzania), and to contribute to SADCC self sufficiency by substituting imports of titanium oxide for paints etc, with local production. Excess production will be exported.

Description: The heavy minerals sands in Malawi, Mozambique and Tanzania have been investigated, first for thorium minerals and later for titanium and other minerals, since the early '50s. Following various periodic investigations which failed to result in any mining investment, interest in these deposits, particularly those of Mozambique, has reawakened in recent years. There is every reason to believe that these deposits can now be exploited profitably.

Despite the existence of very large titanium mineral resources, the SADCC countries continue to import large quantities of titanium oxide for paints etc. No attempt has been made to assess the viability of a titanium oxide plant to supply the SADCC market, with excess production being exported.

The project will be developed in 2 phases:
The main tasks to be undertaken during phase 1 will be to:

1. Study current knowledge of the heavy mineral sand deposits of Malawi, Mozambique and

Tanzania, the proved reserves, indicated reserves and grades of the economic minerals.

2. Determine (a) the international and regional market for the heavy minerals in the sands and their price (b) the international market for titanium oxide.
3. Determine the titanium oxide consumption in SADCC and advise whether a detailed feasibility study on a titanium oxide plant is justified.
4. Assess the viability of the deposits and specify the work required prior to a feasibility study for each deposit and the sequence in which the deposits should be investigated.

Phase two of the project will be to prove sufficient reserves to justify exploitation according to recommendations of phase 1, and to make corresponding feasibility studies.

Status: Financing is being sought.

3.0.7 ASSESSMENT OF IRON ORE DEPOSITS IN ANGOLA AND SWAZILAND

Estimated Costs

Total: US\$0.06m
Foreign: US\$0.06m
Local: -

Financing Gap: US\$0.06m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign: -
Local: -

Start: -

Duration: Five months

Objectives: The objective of this study is to determine if Angola and Swaziland Iron Ores could be included in the regional Iron and Steel Industry Development Strategy.

Description: The study will review and assess in the frame of the PTA/SADCC Iron and Steel development strategy,

the potentialities of the development of iron ore deposits in Angola and Swaziland.

The main tasks to be undertaken are:

1. To appraise and assess the known iron ore resources in Angola and Swaziland with the objective of establishing a viable iron ore industry, using existing studies on the subject.
2. To identify the markets that would be available possibly within the SADCC/PTA Region for the upgraded iron ore and to establish the most suitable transport routes to such markets. This identification will be mainly made from updating existing PTA/SADCC studies on Iron and Steel.
3. To determine the metallurgical processes that would be suitable for producing a shipping product (e.g pellets, sponge iron or other upgraded material) and to identify the input resources required for such processes.
4. To determine the potential profitability of the venture using alternative assumptions concerning capital investment, operating costs, prices and output levels.

status:

Funding being sought. The study is a complement to the PTA/SADCC project on Iron and Steel.

ASSESSMENT OF SADCC HOTEL AND HOUSEHOLD WHITEWARE INDUSTRY

Estimated Costs

Total: US\$ 0.08m
Foreign: US\$ 0.08m
Local: -

Financing Gap: US\$ 0.08m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign:
Local: -

Start: -

Duration: 7 months

Objectives: The objectives of this project are to reduce dependence of SADCC region on imports of hotel and household whiteware; promote SADCC intertrade and overseas exports of these products; and promote the development of regional of industrial minerals.

Description: Many of the SADCC countries are importing a large share of their requirements of hotel and household whiteware and sanitaryware. The project will first determine, through a study, the constraints to the development of a SADCC Hotel and Household Whiteware Industry, and to assess available prospects for the industry. The study will then recommend measures that need to be taken to promote the development of these industries, as well as the projects that can be coordinated regionally.

The main tasks to be undertaken are to:

- * Visit existing SADCC hotel and household whiteware industries, so as to determine constraints and perspectives of development, and present production level.
- * Assess on going and planned projects
- * Assess existing and potential regional and export market, together with present imports
- * Recommend measures to promote development of hotel and household whiteware industry, and

the use of local raw material as input to this industry.

Status: Funding being sought.

4.0.8 MARKET SURVEY FOR SADCC ORNAMENTAL STONE PROJECTS

Estimated Costs

Total: US\$0.08m
Foreign: US\$0.08m
Local: -

Financing Gap: US\$0.08m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign: -
Local: -

Start: -

Duration: 7 months

Objectives: The objective of this project is to permit a coordinated development of ornamental stone industry in the SADCC region.

Description: Developments are being considered in the ornamental stone industry in Zambia and Mozambique, where marble projects are being implemented.

However Angola has got operation facilities for black granite and marble, and Zimbabwe is operating a black granite quarry.

All these projects, apart from furnishing small local markets, can deal with overseas export markets.

The project will review the type and quantity of products expected from the regional ornamental stone projects, and analyze the regional and overseas market for these products. A strategy of development will be recommended.

Status: Financing being sought.

4.0.9. DEVELOPMENT OF GYPSUM PRODUCTION IN THE SADCC REGION

<u>Estimated Costs</u>	<u>Financing Gap:</u> US\$0.01m
Total: US\$0.01m	
Foreign: US\$0.01m	
Local: -	<u>Executing agency:</u>
	Sector Coordinating Unit
<u>Funding Secured</u>	<u>Start:</u> -
Foreign: -	
Local: -	<u>Duration:</u> 7 months

Objectives: The main objective of this project is to satisfy the requirements of gypsum and gypsum based products in the SADCC region through a coordinated development of existing deposits and thereby reduce dependence on imported products, particularly in construction materials.

Description: There is a requirement in many of the SADCC countries for different gypsum based products for the cement industry, agriculture and construction.

Present production is low and cannot furnish the demand, thus requiring imports of raw materials or semi-finished products based on gypsum.

However prospects exist for regional production:

- * in Angola, where potential reserves have been identified in the area of Sumbe between Porto Amboim and Sombe.
- * in Tanzania where gypsum resources are known since the beginning of the century in Kilwa district.
- * in Zambia where gypsum is produced as a by product of copper.

The study will assess the current market for gypsum products in the SADCC region and to propose strategies for developing the existing known resources in Angola, Tanzania and Zambia. Reserves and probable cost of mining, processing

and transportation of the gypsum from the deposits will also be assessed.

Status: Funding is being sought.

4.1.1 PRODUCTION OF FERTILIZERS FROM THE ZAIRE PROVINCE (ANGOLA)

Estimated Costs

Financing Gap: US\$0.14m

Total: US\$ 0.14m

Foreign: US\$ 0.14m

Local : -

Executing agency:

Funding Secured

Sector Coordinating Unit
Start:

Foreign:

Local: -

Duration: 4 months

Objectives: The objective of this project is to exploit the extensive deposits of phosphates in the Zaire Province of Angola in order:

- * to help meet the agricultural needs of the region for phosphate-based fertiliser; and,
- * contribute to SADCC self-sufficiency in fertilizer production.

Description: Pilot exploitation of these phosphate resources was carried out in the early 1980's. The project involves a feasibility study to assess the investments required followed by the design of an implementation programme.

First phase involves a review and assessment of the current knowledge of the phosphate deposits in the Zaire province; and an analysis of the work previously undertaken - including the establishment of the pilot plant. Samples will be collected and analysed, and an assessment of the proven reserves undertaken. A market study, for the domestic and export markets will be launched. The second phase of the project will cover the mobilisation of resources for the implementation of the enterprise.

Status: Funding sought.

4.6.1 EXPLORATION FOR CERAMIC AND CHEMICAL INDUSTRY RAW MATERIALS IN SWAZILAND

Estimated Costs

Total: US\$0.54m
Foreign: US\$0.54m
Local: -

Financing Gap: US\$0.54m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign:
Local: -

Start: -

Duration: 14 months

Objectives: Swaziland imports about 1.75 million USD worth of various ceramic ware. projects for developing ceramic industry in the country were seriously discussed, but left pending subject to proven availability of cheap and easily accessible raw materials. The most promising deposits are all located in one geographic area. With limited additional work, it will be possible to determine the reserves and mineability of the deposits.

The objectives of the project are to evaluate four industrial mineral occurrences (Kaolin, silica, pyrophyllite and talc) which are located at close proximity to each other in the South West of Swaziland, to determine their viability for development in order to substitute for currently imported table ware, paint, pesticide, cosmetics and other related products.

Description: The industrial minerals deposits under consideration (Kaolin at Mahlangatsha; silica at Madinda; talc at Handkop and pyrophyllite at Magubheleni) have either been previously surveyed or briefly mined in the past. However, additional investigations are needed to prove the reserves and quality of material at a confidence level necessary to plan further industrial development. Accordingly, detailed geological surveys,

evaluation and the determination of the feasibility of mining the deposits to supply raw materials for ceramic, paint, chemical and cosmetic industries in the region are necessary.

Status: Funds being sought.

4.7.1 PUGU KAOLIN PROJECT (TANZANIA)

Estimated Costs

Financing Gap: US\$7.50m

Total: US\$15.00m

Foreign: US\$ 7.50m

Local: US\$ 7.50m

Executing agency:

Government of Tanzania

Funding Secured

Start:

Foreign: Nil

Local: US\$ 7.500m (Tan)

Duration: 30 months

Objectives: The objective of this project is to establish an open-cast mine, and treatment plant, to exploit Tanzania's kaolin resources, in order to meet the demand from the SADCC region; and to export to PTA and other countries.

Description: Kaolin is used as a raw material in many minerals based manufacturing industries, such as paper, rubber, ceramics, paints, pesticides, etc. The Pugu Hills, in Tanzania, contains huge and high quality proven deposits of kaolin; which are suitably located in relation to railway, road and port facilities. The exploitation of these resources for the use of local industries, and for export, will have a national and regional impact.

The purpose of the project is to mobilise equity investment funds for the development of these deposits in order to supply Kaolin to SADCC member States. A preliminary feasibility and engineering study has already been completed. The study proposes the development of an open cast mine and the construction of a treatment plant to produce 36,000 tones per year of refined kaolin both of filler and coating grades.

The specific activities to be undertaken in the context of this project are:

- * to identify and confirm potential sources of financing;
- * to identify and contract a consulting Engineer to carry out a detailed design and engineering work plan; and,
- * to contract a firm to supply machinery and equipment in order to construct and commission the mine and plant; and undertake management and training for a five year period.

Status: The existing pilot plant is being rehabilitated with Austrian and ADB aid. Present installed capacity is 8000 t/y.

A market survey will be commissioned soon so as to determine the feasibility of expanding capacity up to 36000 t/y of kaolin for the local and regional market. Results of the market survey will determine follow-up action on the project.

4.8.1 MINING OF FLUORSPAR IN THE SIANYOOLU AREA (MAZABUKA) ZAMBIA

Estimated Costs

Total: US\$35.00m
Foreign: US\$35.00m
Local: -

Financing Gap: US\$13.00m

Executing agency:

Government of Zambia

Funding Secured

Foreign: US\$22.00m (AGIP)
Local: -

Start:

Duration:

Investment Phase:
years

Mining Phase: 40 years

Objectives: The objective of this project is to open a new fluorspar mine in Zambia in order to supply the

SADCC market; and to export the product on the international market, and thus generate foreign exchange.

Description: Fluorspar is a fluxing agent used in the metallurgical industry, and also in the photographic and glass industries. At present small quantities of fluorspar are mined in Zimbabwe, and the project will supplement this supply; and will allow Zambia to export internationally.

Agip SpA holds a prospecting licence in the Gwembe Valley, in Zambia, for base and industrial minerals. During exploration Agip discovered and delineated, in the basement formation, a series of veins of fluorspar of very good quality and thickness. The grade is generally above 70% and the minable reserves are estimated at 2,000,000 tones, which could easily be increased to 4,000,000 tones, for the production of acid grade fluorspar. The annual forecast production is 120,000 tones. After supplying the SADCC member States the excess can easily be exported providing foreign exchange to Zambia (US\$20 million annually), as well as increase traffic to the railways, create employment and development of a rural area in the very depressed Gwembe Valley, 80km east of Mazabuka.

The project, therefore, entails the provision of infrastructure, which includes roads, power supply, housing, water supply, school and health facilities.

Status: A prefeasibility study was completed in January 1988. Agip SpA is willing to proceed with investment, once funding for the necessary infrastructure has been secured. Funding is, therefore, being sought for this general infrastructure.

7.0.3

STUDY ON THE MANUFACTURE ELECTRODES

Estimated Costs	Financing Gap: US\$0.08m
Total: US\$0.08m	
Foreign : US\$0.07m	
Local : -	Executing agency:
	Sector Coordinating Unit
Funding Secured	Start:
Foreign: Nil	
Local: -	Duration: 6 months

Objectives: The objective of this project is to determine the viability of establishing a regional industry for the production of electrodes.

Description: Roughly 7 500 tonnes of electrode paste is consumed annually in the region, in the process of electric smelting of chromite, copper and nickel. All of this is at present imported, mainly from South Africa. This paste is normally made from anthracite coal as the binder and a principal objective of the study is to identify a suitable anthracite deposit, or a suitable alternative.

The project is divided into two phases. During the first phase a comprehensive market survey will be undertaken of the current and future demand for electrodes of the region. The study will assess the requirements for both graphite electrodes and Soderberg electrode paste, and seek to identify the principal current suppliers and advise on the reliability of future supply. Alternative suppliers and their cost will also be assessed.

An appraisal will be undertaken of the various methods of electrode manufacturing within the region, together with a survey of the availability of the necessary raw materials within the region.

On the basis of this information, and an assessment of the economic viability of the project, the consultants will be requested to recommend the most appropriate method of electrode manufacture and the possible location of the prospective plant.

The second phase of the project involves the extensive testing of the manufacturing method recommended in phase one, as part of a definitive feasibility study of the production of electrodes in the region.

Status: Funding being sought for phase.

7.3.1 MANUFACTURING OF DIAMOND TOOLS IN LESOTHO

Estimated Costs

Total: US\$0.08m
Foreign: US\$0.08m
Local:

Financing Gap: US\$0.08m

Executing agency:

Sector Coordinating Unit

Funding Secured

Foreign: -
Local: -

Start:

Duration: 8 months

Objectives: The objective of this project is to launch a market study on the demand for diamond tools in the SADCC region, and to make recommendations on the possibilities of establishing a diamond tools manufacturing facility in Lesotho.

Description: The SADCC region is well endowed with diamonds of both jewellery and industrial quality; Botswana, Angola and Tanzania being the most important producers. In other member States small-scale miners are involved in diamond mining, of industrial quality.

The Mining sector in the SADCC region uses a large quantity of diamond tools, drill bits, turning tools, saws, etc., most of which are imported.

Lesotho has, over many years, developed skills in the diamond industry. For instance, the Machace Diamond Cutting Workshop employs some sixty workers who cut and polish stones from 0.1 carat.

The dependence of the SADCC region on imported diamond tools should be reduced by establishing

manufacturing facilities for diamond tools. It is proposed to take advantage of Lesotho's diamond production and the presence of skills to develop a manufacturing industry which is not capital intensive.

Status: Funding being sought. The terms of reference and a revised project description, including new costings, have been approved. Lesotho is carrying out a preliminary study to be completed by May 1990.

CRITERIA AND PROCEDURES FOR PROJECT SELECTION

These criteria are intended to maintain the coherence of the SADCC Mining Sector programme, within the general framework of the objectives of SADCC. They shall serve as guidelines for the member States, Sector Coordinator and cooperating partners, in the selection and presentation of new project proposals for inclusion in, as well as in the review of projects already in the programme.

1. CRITERIA

The basic criterion to be used is whether or not the project in question contributes significantly to the achievement of SADCC's four primary development objectives:

- * the reduction of economic dependence, particularly, but not only, on South Africa;
- * the forging of links to create a genuine and equitable regional integration;
- * the mobilisation of resources to promote the implementation of national, interstate and regional policies; and,
- * concerted action to secure international cooperation within the framework of SADCC's strategy for economic liberation.

The overall SADCC objectives are in themselves, however, too general to provide adequate guidance for the selection of discrete projects. It is, therefore, necessary that each project be positively evaluated against the following checklist:

- * how does the project relate to SADCC's overall regional objectives - specially, does the project contribute to the reduction of dependence, or does it enhance regional self reliance in a specific area?
- * is the project rooted in the perceived needs of the people of the region, or is it simply a 'good idea' generated by some outsider; has it been discussed with the member States directly concerned prior to presentation at a regional meeting; is there sufficient background documentation to make an objective judgement about the project?

- does the project benefit/involve more than one country; if not, what is its relevance to the region as a whole?
- * what is the relationship between the regional project/programme and related national programmes, i.e. are the national and regional programmes mutually supportive and what priority is accorded to them?
 - * is the project part of a coherent regional programme or is it simply an ad hoc initiative?
 - * to what extent is it envisaged that regional resources - human and material - will be used in the implementation of the project and what priority and efforts have been given to the mobilisation of national/regional resources?
 - * is there a local executing agency/enterprise to implement the project?
 - * does the project contain adequate provision to cover its recurrent costs?
 - * are there adequate arrangements to ensure effective operational coordination after the capital investment phase has been completed?
 - * have the long term manpower implications of the project been provided for?
 - * could the project be broadened to enhance its regional impact?

PROCEDURE FOR PROPOSAL EVALUATION AND APPROVAL OF PROJECTS

i) Formulation of New Projects

For a project to be considered, it should be formulated in a standardised manner covering the following aspects:

Objectives

Description

- * reference to how the project relates to SADCC objectives;
- * why it has relevance as a regional project;
- * relation to national programmes;

- * socio-economic justification;
- * full technical description of how the work is to be carried out;
- * cost estimates and sources of financing.

Implementation

- * Executing Agency
- * work programme and time schedule.

Projects can be proposed by member Governments and/or the Sector Coordinator.

The formulation can be done by:

- * a member State, or member States in cooperation;
- * Sector Coordinating Unit;
- * the Sector Coordinating Unit and a member State(s) in cooperation.

Approval Procedure

A new project shall go through the following steps:

(a) Project Formulation and Documentation

This should be done by the entity proposing the project.

(b) Presentation to the Sector Coordinating Unit

The project document should be submitted to the Sector Coordinating Unit at least three months prior to a meeting of the Sector Ministers, in order to allow for due consideration and analysis.

(c) Evaluation by Sector Coordinating Unit

The Sector Coordinating Unit shall carry out an evaluation to ascertain that the project proposal is consistent with the objectives, strategy and criteria of the SADCC Mining Sector, before being submitted to the relevant sectoral authority for approval.

(d) Distribution of project proposals

The documentation for new projects should, preferably, be distributed to all member States well in advance of the meeting in which they will be considered.

(e) Presentation to Sector Officials

The member State(s) concerned, supported by the Sector Coordinating Unit present(s) the project for consideration at a meeting of relevant sectoral authority.

(f) Approval

Project proposals must be considered by the Sectoral Committee of ministers for recommendation for approval by the Council of Ministers, before they are formally placed onto the Sectoral Programme of Action.

(g) Urgent proposals

Only in exceptional circumstances, as in the case of emergency projects, should consideration be given to project proposals which have not been processed as above.

PROCEDURE FOR CONTACTS WITH THE COOPERATING PARTNERS

Sectoral programmes and projects are, generally communicated through the sectoral programme document produced for the Annual Consultative Conference. However, in between Annual Consultative Conferences, specific projects may be communicated to interested cooperating partners directly.

In the case of a project located in one country, the member State which is host for the project, assisted by the Sector Coordinating Unit, will coordinate contact with interested cooperating partners. Both the Sector Coordinating Unit and other interested member States must be kept fully informed of progress in consultations on the implementation of projects, either by direct contact or usually through progress reports submitted to Sectoral meetings. In the case of projects involving more than one country, and general coordination activities or projects involving all member States, the Sector Coordinating Unit, assisted as appropriate, by the member States, will coordinate contacts.

4. AGREEMENT AND CONTRACT PROCEDURES

The Council of Ministers has agreed that as a matter of general principle, SADCC project agreements should be signed by the member States directly involved and cooperating partners, and witnessed by the Sector Coordinator. Such agreements should spell out the rights and obligations of all parties and, in particular, should indicate clearly the reporting and monitoring procedures.

5. PROJECT IMPLEMENTATION, OPERATION AND MONITORING

Implementation refers to the preparation and execution of a project, but does not include subsequent operation and maintenance (e.g. of a plant).

Member States involved in each project, with the assistance of the Sector Coordinating Unit, are responsible for its implementation and operation, through their appropriate institutions.

The Sector Coordinating Unit will provide the required assistance to member States in all stages of the project.

Financial responsibility for each project will be of the member State(s) involved, and each member State will be responsible for servicing its financial commitments.

It will, in a number of cases, be necessary to have a project steering committee, which is responsible for overseeing and monitoring the implementation of the project and serves to give policy guidance and control. The steering committee would have the following members:

- representatives of the Member Government(s) responsible and involved;
- a representative of the cooperating partners supporting the project; and,
- the Sector Coordinator

The executing agency implementing the project, will not be a member of the committee, but will participate in the meetings for reporting and liaison purposes.

When a project involves simultaneous and inter-dependent implementation in more than one country, the steering committee will ensure the overall coordination of the implementation of the various parts of the project.

The Sector Coordinating country is responsible for reporting on the status and progress of sectoral programme and project implementation and related activities to the Sectoral Committee Officials and the Committee of Ministers; and to the Council of Ministers and Summit of Heads of State and Government, at the scheduled meetings.

Project	Project Title	Estimated Cost US\$ Million		Funding Secured & Source Local US\$ Million	Funding under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign				
MINING							
OVERALL COORDINATION							
0.0.0	Support to the Mining Sector Coordinating Unit	2.30	2.30	-	0.15 (FRA) 0.25 (NORDICs) 0.35 (ZAM)	-	1.55 On-going
0.0.3	Sharing of Mineral Processing Facilities	0.13	0.13	-	0.13 (NORDICs)	-	To commence upon secondment of an advisor to the Coordinating Unit
0.0.4	Remote Sensing Survey Using the Spot Satellite	0.46	0.46	-	-	-	0.46 Funding being sought.
0.0.5	Regional Seismic Network and Data Centre-Feasibility Study	0.49	0.49	-	-	-	0.49 Funding being sought for feasibility study.
0.0.6	Small Scale Mining and Minerals Beneficiation	0.24	0.24	-	0.24 (FRG)	-	To commence upon secondment of an advisor to the Coordinating Unit
0.0.7	Regional/National Geological Minerals and Mining Bibliographic Data Banks	1.20	1.20	-	-	-	1.20 Funds being sought.
0.0.8	Analysis of the Investment Climate in the SADCC Mining Sector	0.20	0.20	-	0.20 (WB)	-	Under implementation.
0.5.1	Regional Geophysical and Geochemical Map Compilation Facility	0.89	0.89	-	-	-	0.89 Funding being sought.
0.9.1	Central Isotope Geochronology Laboratory	0.23	0.23	-	0.23 (EEC)	-	Laboratory completed and operational.
Sub-total		6.14	6.14	0.00	1.55	0.00	4.59
PRECIOUS METALS AND MINERALS							
1.0.1	SADCC Gemstone Buying, Processing and Marketing	0.14	0.14	-	-	-	0.14 Funds being sought for Phase I.
ENERGY MINERALS							
2.0.1	Exploitation of Coal Resources in the SADCC Region	0.15	0.15	-	0.15 (CFTC)	-	Project under implementation
2.4.1	Coal Exploration and Evaluation in Malawi	2.61	2.03	0.58	0.83 (FRA) 0.58 (MAL)	1.20 (FRA)	- Project under implementation
2.4.2	Coal Mining Development Trial at Livingstonia, Malawi	-	-	-	-	-	- Project completed and operational

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Project	Project Title	Estimated Cost US\$ Million		Local	Funding Secured & Source US\$ Million	Funding under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign					
2.4.3	Coal Analysis Laboratory in Malawi	-	-	-	-	-	-	Project completed and facilities available to member states.
2.5.1	Manufacture of Coke at Moatize Colliery (Mozambique)	0.08	0.08	-	-	-	0.08	Funding sought for feasibility study (phase 1)
2.5.2	Management Assistance for Coal Development in Mozambique	1.76	1.76	-	-	-	1.76	Funding being sought
2.6.1	Assessment of Increasing Uses of Indigenous Coal in Swaziland	0.04	0.04	-	0.04 (FRA)	-	-	Project to start September 1989
Sub-total		4.64	4.06	0.58	1.60	1.20	1.84	
METALIC MINERALS								
3.0.1	Foundry Fabrication and Machinery Facilities	-	-	-	- (CFTC)	-	-	Study completed, recommendations being followed up by SADCC Industry Sector
3.0.2	Development of Iron and Steel Industry	-	-	-	- (UNIDO)	-	-	Study completed, recommendations being followed up in coordination with PTA and SADCC Industry Sector
3.0.3	Market Study for Copper Products	-	-	-	- (NET)	-	-	Study completed, recommendations transferred to Industry Sector
3.0.4	Integrated Alumina/Aluminium/Calcination Industry	0.25	0.25	-	0.25 (UNDP)	-	-	Project under implementation
3.0.5	Bauxite Exploration in the SADCC Region	1.53	1.53	-	-	-	1.53	Funding being sought for phase 1
3.0.6	Assessment of Heavy Mineral Sand Deposits and Feasibility of a Titanium Oxide Plant	0.13	0.13	-	-	-	0.13	Funds being sought for phase 1
3.0.7	Assessment of Iron Ore Deposits	0.06	0.06	-	-	-	0.06	Funds being sought
3.8.1	Exploration of Lead/Zinc Kabwe District (Zambia)	2.64	2.64	-	0.06 (FRA)	2.58 (JAP)	-	Phase I in progress. Funds being sought for explorations.
Sub-total		4.61	4.61	0.00	0.31	2.58	1.72	
NON-METALIC MINERALS								
4.0.1	Development of Fertilizer Mineral Raw Materials	-	-	-	- (CFTC)	-	-	Study completed, follow-up actions being reviewed with SADCC Industry Sector

Project	Project Title	Estimated Cost US\$ Million		Local	Funding Secured	Funding under	Financing	Comments/Status:
		Total	Foreign		& Source US\$ Million	Negotiation US\$ Million	Gap US\$ Million	
2.4.3	Coal Analysis Laboratory in Malawi	-	-	-	-	-	-	Project completed and facilities available to member states.
2.5.1	Manufacture of Coke at Moatize Colliery (Mozambique)	0.08	0.08	-	-	-	0.08	Funding sought for feasibility study (phase 1)
2.5.2	Management Assistance for Coal Development in Mozambique	1.76	1.76	-	-	-	1.76	Funding being sought
2.6.1	Assessment of Increasing Uses of Indigenous Coal in Swaziland	0.04	0.04	-	0.04 (FRA)	-	-	Project to start September 1989
Sub-total		4.64	4.06	0.58	1.60	1.20	1.84	
METALIC MINERALS								
3.0.1	Foundry Fabrication and Machinery Facilities	-	-	-	- (CFTC)	-	-	Study completed, recommendations being followed up by SADCC Industry Sector
3.0.2	Development of Iron and Steel Industry	-	-	-	- (UNIDO)	-	-	Study completed, recommendations being followed up in coordination with PTA and SADCC Industry Sector
3.0.3	Market Study for Copper Products	-	-	-	- (NET)	-	-	Study completed, recommendations transferred to Industry Sector
3.0.4	Integrated Alumina/Aluminium/Calcination Industry	0.25	0.25	-	0.25 (UNDP)	-	-	Project under implementation
3.0.5	Bauxite Exploration in the SADCC Region	1.53	1.53	-	-	-	1.53	Funding being sought for phase 1
3.0.6	Assessment of Heavy Mineral Sand Deposits and Feasibility of a Titanium Oxide Plant	0.13	0.13	-	-	-	0.13	Funds being sought for phase 1
3.0.7	Assessment of Iron Ore Deposits	0.06	0.06	-	-	-	0.06	Funds being sought
3.8.1	Exploration of Lead/Zinc Kabwe District (Zambia)	2.64	2.64	-	0.06 (FRA)	2.58 (JAP)	-	Phase I in progress. Funds being sought for explorations.
Sub-total		4.61	4.61	0.00	0.31	2.58	1.72	
NON-METALIC MINERALS								
4.0.1	Development of Fertilizer Mineral Raw Materials	-	-	-	- (CFTC)	-	-	Study completed, follow-up actions being reviewed with SADCC Industry Sector

Project	Project Title	Estimated Cost US\$ Million		Local	Funding Secured & Source US\$ Million	Funding under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign					
4.0.2	Sua Pan (Botswana) and Lake Natron (Tanzania) Project	0.18	0.18	-	0.18 (UNDP)	-	-	Study underway.
4.0.3	Establishment of a Refractory Industry	0.17	0.17	-	0.17 (UNDP)	-	-	Study underway
4.0.4	Processing of Lime	0.21	0.21	-	0.21 (UNDP)	-	-	Study underway.
4.0.5	Non-Metallic/Industrial Minerals	0.18	0.18	-	0.18 (FRA)	-	-	Study completed, market survey underway.
4.0.6	Assessment of Vermiculite Production in the SADCC Region	0.08	0.08	-	0.08 (FRA)	-	-	
4.0.7	Assessment of SADCC Hotel and Household Whiteware Industry	0.08	0.08	-	-	-	0.08	Funds are being sought.
4.0.8	Market Survey for SADCC Ornamental Stone	0.08	0.08	-	-	-	0.08	Funds are being sought.
4.0.9	Development of Gypsum Production in the SADCC Region	0.10	0.10	-	-	-	0.10	Funds are being sought.
4.1.1	Production of Fertilizer from the Zaire Province (Angola)	0.14	0.14	-	-	-	0.14	Funds being sought for phase 1 (feasibility study)
4.5.1	Development of Boane Bentonite Mine - Mozambique	0.24	0.24	-	0.05 (CFTC)	-	0.19	Funds secured for initiating Phase 2.
4.6.1	Exploration for Ceramic and Chemical Industry Raw Materials in Swaziland	0.54	0.54	-	-	-	0.54	Funding being sought.
4.7.1	Pugu Kaolin Project (Tanzania)	15.00	7.50	7.50	7.50 (TAN)	-	7.50	Market survey in progress. Costing of the project will be reviewed accordingly.
4.8.1	Mining of Fluorspar in the Sianyolo Area (Zambia)	35.00	35.00	-	22.00 (AGIP/SPa)	-	13.00	Funds are being sought for infrastructure.
Sub-total		52.00	44.50	7.50	30.37	0.00	21.63	
WATER								
5.0.1	Hydro-Geological Investigations	1.00	1.00	-	1.00 (WB)	-	-	Being implemented in coordination with Soil and Water Conservation & Land Utilisation Sector.
Sub-total		1.00	1.00	0.00	1.00	0.00	0.00	

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Project	Project Title	Estimated Cost US\$ Million		Local	Funding Secured & Source	Funding under Negotiation	Financing Gap	Comments/Status
		Total	Foreign		US\$ Million	US\$ Million	US\$ Million	
MANPOWER								
6.0.1	Regional Skilled Manpower Survey	-	-	-	- (EEC)	-	-	Study completed. Follow-up action underway in the Manpower Sector.
Sub-total		0.00	0.00	0.00	0.00	0.00	0.00	
MINING EQUIPMENT AND CONSUMABLES								
7.0.1	Mining Equipment, Manufacturing Repairing and Reconditioning Facilities	-	-	-	- (CFTC)	-	-	Study completed and recommendations are being followed up.
7.0.2	Production of Mining Chemicals and Explosives	-	-	-	- CFTC)	-	-	Study completed recommendations being followed up.
7.0.3	Study on the Manufacture of Electrodes	0.08	0.08	-	-	-	0.08	Funds are being sought.
7.0.4	Central Data Bank for Mining Equipment and Spares Manufactured in the SADCC Region	0.59	0.59	-	0.59 (NORDICs)	-	-	Implementation to commence soon.
7.0.5	Rationalization of Rock Drill Steel Manufacturing Industries in the SADCC Region	0.08	0.08	-	0.08 (NORDICs)	-	-	Implementation to commence soon.
7.0.6	Rationalisation of the Manufacture of Wear Resistant Liners and Rail Track and Fittings in the SADCC Region	0.08	0.08	-	0.08 (NORDICs)	-	-	Implementation to commence soon.
7.0.7	Manufacture of Activated Carbon from Coconut Shells in the SADCC Region	0.07	0.07	-	0.07 (CFTC)	-	-	Definition of precise terms of reference in progress.
7.3.1	Manufacturing of Diamond Tools in Lesotho	0.08	0.08	-	-	-	0.08	Funding being sought.
Subtotal		0.98	0.98	0.00	0.82	0.00	0.16	
GRAND TOTAL		69.37	61.29	8.08	35.65	3.78	29.94	