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ECONOMIC COMMISSION FOR AFRICA

Second Meeting of the Southern African
Working Group of the Intergovernmental
Committee of Experts for Science and
Technology Development

11 - 12 October 1989
Lusaka, Zambia

REPORT OF THE SECOND MEETING OF THE SOUTHERN AFRICAN WORKING GROUP OF THE INTERGOVERNMENTAL COMMITTEE OF EXPERTS FOR SCIENCE AND TECHNOLOGY DEVELOPMENT

A. ATTENDANCE AND ORGANIZATION OF WORK

1. Opening of the meeting

The Second meeting of Southern African Working Group of the Intergovernmental Committee of Experts for Science and Technology Development, was held in Lusaka, Zambia, from 11 to 12 October 1989.

During the opening, Dr. Silangwa, the Secretary General of the Zambia National Council for Scientific Research welcomed the participants, and highlighted the objectives of this working group meeting and the role of Science and Technology in scio-economic development. The Second meeting of the working group should assess the implementation of recommendations of the first working group meeting, and the constraints they faced.

The ECA representative, Prof. S. Jugessur, Chief of the Science and Technology Section, on behalf of the Executive Secretary of the United Nations Economic Commission for Africa recalled the first meeting of the Southern African Working Group of the Intergovernmental Committee of Experts for Science and Technology Development held in Lusaka from 30 September to 2 October 1986 and which was called upon to examine the needs and priorities of the countries of the subregion.

In this spirit, Prof. Jugessur, indicated that the first meeting focussed on a few action areas in which further detailed consideration should be given with a view to develop concrete project proposals for follow up by individual countries or by a group of countries in the subregion. These concrete project proposals should take into account the three areas suggested by the IGCESTD in its meeting of November 1981 and concerning Development of Science and Technology; Basic Needs (Food and Agriculture, Forestry, Health, Water and Housing); Industry, including Energy, Transport and Communications (including their influence on environment).

Prof. Jugessur, reminded that the main purpose of the Second meeting was to bring drafts and any relevant information that could help to finalize or re-orient the projects for seeking funds for implementation on the basis of subregional co-operation. In that connection, he finally indicated the provisional agenda of the present meeting which consisted of reports from member States on science and technology activities in relation to proposals made during the first meeting; consideration of draft projects and their funding; programme of the Working Group during the biennium 1990-1991.

The Director of the Lusaka, MULPOC, Mr. Esrome T. Kurunori, highlighted the role of the subregional office of the ECA, in the light of the Conference of Ministers resolution of 18 April 1988, empowering the MULPOC to co-ordinate the activities of the working group and to keep the member States of the subregion informed of these activities.

Hon. J.B. Simuyandi, MCC, Chairman of the Science and Technology Sub-Committee of the Central Committee of Zambia, extended a warm welcome to the participants, and hoped that they will come up with viable solutions to most urgent problems facing African development, for the consideration of the Governments of the member States. He stated that the establishment of the working groups was in line with both the Lagos Plan of Action and the Vienna Programme of Action.

The Government of Zambia has realized the importance of Science and Technology and established the National Council for Scientific Research, and quite recently the Science and Technology Sub-Committee of the Central Committee of the Party - UNIP. Adequate financial resources are necessary for promoting the development and application of science and technology, and resource mobilization must be looked into. The problem of training and retention of scientific manpower, was becoming very acute, and improved conditions of service to scientists and technologists were essential. Local experts must be encouraged and adequately remunerated.

The establishment of regional and international networks of research and development institutions, must be pursued. There was need for:

(a) design and execution of joint research and development projects;
(b) discussion and formulation of common or complementary research methodologies for tackling common problems and joint research programmes.
(c) exchange of information, research experiences and research results; and
(d) exchange of researchers (through visits, training programmes, etc.).

He urged that the working group should consider draft projects which would be quickly and easily implemented, taking into account subregional capabilities in terms of manpower, finance and equipment. These should form part of a well-charted out course of action for the period 1990-1991.

2. Participation

Representatives of the following ECA member States of the Southern African subregion attended the meeting: Botswana, Lesotho, Malawi, Zambia and Zimbabwe.

The following United Nations bodies and specialized agencies were also represented: UNECA and UNDP.

3. Election of Bureau

The meeting of the Southern African Working Group unanimously elected the following bureau:

Chairman: Prof. M.N. Siamwiza (Zambia)
Rapporteur: Mr. J.B.S. Diphaha (Botswana)

4. Adoption of the Agenda

The following agenda was unanimously adopted without any amendments:

1. Opening of the meeting;
2. Election of the Bureau;
3. Adoption of the Agenda and the Programme of Work;
4. Reports from member States on Science and Technology activities in relation to proposals made during first meeting;
5. Consideration of draft project (based on project ideas shortlisted at the first meeting) and their funding;
6. Programme of the Working Group during 1990-91;
7. Adoption of the report and closure of the meeting.

Report from member States on Science and Technology activities in relation to proposals made during the first meeting (Item 7)

BOTSWANA

The Botswana delegate presented a verbal report on Science and Technology policy activities in the country.

The Botswana Tehnology Centre (BTC) which is the focal point on Science and Technology matters, was created in 1979 to undertake 'intermediate technology' activities in the country. As a result of the rapid development in the economy, especially the industrial sector, the Board of the BTC resolved in 1988 to shift emphasis away from rural technologies to the medium to large-scale industrial activities. Because there was no policy on Science and Technology in Botswana, the BTC was faced with a major constraint in implementing the new mandate of the organization. It was thus resolved to set up a Research, Science and Technology Council which would be responsible for policy formulation and implementation on Science and Technology. The Council would also be responsible for co-ordinating all research activities in the country. The policy on Science and Technology would be aimed at facilitating industrialization. The Council will also ensure that Science and Technology is integrated into the national planning process and that technology related projects are examined for their techno-economic content.

Models of Science and Technology Councils in and out of Africa were consulted and visits made to Malaysia, Singapore and South Korea. The assistance of the Commonwealth Science Council was also sought. Reference was also made to the Brazilian model.

A Keynote Policy Issues Paper on Science and Technology was also prepared for the National Development Plan 7 which commences in March 1991.

The basic proposal involves a policy statement to be adopted by Government and the formation of a Council which will be responsible for co-ordination of research activities, formulation of policy and its implementation. The BTC will act as the executive arm of the Council. The BTC on the other hand, will act mainly as a software organization with hardware implementation done through existing organizations in the private sector and in the Government and parastatal organization.

To be effective the BTC had to strengthen its technology Information Infrastructure. This would be done by identifying all technology centres in the country, identifying their needs and establishing communications linkages between them and the BTC, as the technology hub. Internationally, relevant technology centres and databases would be identified and linked up with. This would facilitate technology transfer and technology forecasting. It was stressed that the proposed Council and the policies it would implement, would have regional perspectives incorporated in it. To this end, the Council will represent Botswana in efforts at regional co-ordination of Science and Technology policy matters. It is planned to have the Council formally established early in the new year.

LESOTHO

Lesotho has made no direct follow-up of the recommendations that were made during the first meeting of the Southern African Working Group of the IGCESTD that was held in Lusaka in 1986, because it did not participate at the meeting. However, some activities have been undertaken in some related areas, and some of these are highlighted below:

1.FOOD PROCESSING AND FOOD LOSSES

The Fourth National Development Plan attaches great importance to the need to increase and diversify exports while withholding imports. Therefore in addition to encouragement of local indigenous industry, Lesotho pursues a policy of foreign investment to complement domestic enterprise. The major food processing industries geared to exportation of products include the fruit and vegetable cannery which produces canned fruits, fruit juices and asparagus.

In order to maximize retention of benefits accruing from the Highlands Water Project the following food processing activities have been earmarked for provision of food for the large numbers of workers in the project:- Meat processing, production of eggs, milk and related products, bakery.

The establishment of Irrigation Schemes based mainly on the Highlands Water Project, and manufacturing of irrigation tools and fertilizers are being pursued in order to arrest the pre-harvest food losses.

2. PROCUREMENT, REPAIR AND MAINTENANCE OF SCIENTIFIC EQUIPMENT

Very little progress is being made in this area, and where such a facility exists, it operates within the related instituton, and only caters for equipment used within the institution. The private sector undertakes the exercise to a very limited extent. Problems in this area are mainly related to shortage of qualified technicians and unavailability of spare parts as such equipment is generally imported from other countries.

Lesotho has been trying hard to work towards the establishment of a science and technology policy-making body. The Ministry of Planning in collaboration with the Ministry of Education are working towards a cabinet decision in this matter.

3. ATAS WITH SPECIAL REFERENCE TO PHARMACEUTICALS

The Lesotho Pharmaceutical Co-operation produces items such as capsules, dry syrups, mixtures, creams and ointments, cosmetic products. Research goes on in areas of improvement of formulation of drugs, production methods and analysis mechanism. The Co-operation also operates an efficient quality-control system.

Training is offered to related institutions within and outside the country in the conduction of practical work. Part-time lecturing is also offered at the National Health Centre in a three years Pharmacy Technicians Programme.

4. AGROGORESTRY

The Woodlot project under the Ministry of Agriculture is engaged in forestry plantation in strategic areas throughout the country. The community and the public sector are involved in National campaigns organized by the government to plant trees in selected areas. The harvesting of some of the trees has also begun.

5. SCHOOL SCIENCE EQUIPMENT

Low-cost school science equipment is produced by the Ministry of Education Production Unit which was established with the assistance of the English Overseas Development Agency (ODA) during the late seventies. One local High School (Christ The King High School) is also engaged in producing some school equipment, including science equipment. Major problems are related to recruitment and retention of qualified technicians. At school level, there is a problem of sophisticated and in some cases simple equipment lying on shelves unutilized because it cannot be repaired. Perhaps the training of teachers in repairing some sample scientific equipment needs to be considered.

MALAWI

The National Research Council of Malawi (NRCM) has, since the 1986 Subregional meeting of the Working Group of the Intergovernmental Committee of Experts for Science and Technology Development, undertaken various programmes of action in the area of science and technology development. This was mainly the result of the "National Seminar for Policy Makers on the Role of Scientific Research and Technology in Malawi's Development", which the NRCM organized in the same year (1986). Among the recommendations drawn up by the Seminar was for the NRCM to set up multi-disciplinary ad hoc planning teams in the fields of energy, building materials, fertilizer production, industrial products and health and diseases. When these ad-hoc planning teams were formed, they formulated draft plans of action in their various fields which were reviewed and adopted during the "Follow-up Seminar for Policy Makers on the Role of Scientific Research and Technology in Malawi's Development" held in 1987.

Specifically, these plans of action (projects) by field of activity, were as follows:

A. Industrial Research and Technology Development

In this area the ad-hoc planning team proposed the following projects:

1. Design and development for commercial manufacturing of small-cscale farm equipment in Malawi.
2. Utilization of locally available fruits in the production of fruit juices.
3. Utilization of local clays for the production of ceramic products.
4. Production of graphite for the local battery industry.
5. Use of local gypsum deposits as an input into the cement industry
6. Research into the production of high grade lime for use in the sugar industry and for water treatment.
7. Establishment of a small-scale paper-mill utilizing waste paper.

B. Building Materials Research and Technology Development

1. Investigate the use of molasses in road construction and maintenance
2. Determination of physical, mechanical and other properties of local timber for use in building projects and other associated works.
4. Investigation of the efficient and economical use of lime in buildings and civil works.
5. Characterization of Malawi limestones for use as a filler in paints and for the manufacture of various limes as well as refractories for use in building industry.
6. Suitability of various clays for the manufacture of bricks, roofing tiles, code blocks, bathroom and sanitary ware, and wall tiles.
7. Feasibility of using coal mine over-burden for road bearing course.

C. Research and Development in the Fertilizer Sector

1. Development of Technolgies for the utilization of phosphates available in the soils of Malawi.
2. Establishment of a Centre for Agro-minerals Research.

D. Energy Research and Development

1. Use of Ethanol Engined vehicles.
2. Ethanol in Diesel fuel.
3. Parafin/Ethanol Blend as a fuel for domestic heating, lighting and refregeration.
4. Rural electrification using renewable resources

5. Efficient utilization of fuelwoods and charcoal through the development of ceramic wood, and charcoal stores.

For the effective implementation of these plans of action a ten-year programme of activities was drawn up in all the fields. And work has already started in some of them.

In 1988 the NRCM proposed a national science and technology policy for government consideration. The proposal has attacted constructive comments from Malawi's scientific community. The decision to formulate a national science and technology policy came about upon the realization of the fact that in the absence of clear policy guidelines, institutions involved in scientific research and technology development tend to make their own inferences about national needs and goals and act accordingly.

ZAMBIA

A number of programmes have been carried out since the 1986 subregional meeting of the working group. These activities have been centered around areas of Policy and Planning, Institutional

development and strengthening, financial resource mobilization for research and development, manpower development and also in industrial development.

SCIENCE AND TECHNOLOGY POLICY AND PLANNING

The major policy and plans include the creation of a Sub-Committee for Science and Technology at Central Committee level. The Ministry of Higher Education now has an added responsibility of Science and Technology. A complete chapter drafted by scientists has been included in the Fourth National Development Plan (FNDP). The chapter contains aong other things the role science and technology will play in food production, industrial development and also ways of steemming the problem of brain-drain and brain circulation.

INSTITUTIONAL DEVELOPMENT AND STRENGTHENING

A new university has been created which will have among other faculties, faculties of Technology and Forestry. Locally trained Veterinary graduates were turned out for the first time in 1988. A Tissue Culture Laboratory and one for Microbiology have been established by National Council for Scientific Research (NCSR). The Investment Co-ordinating Committee to deal with issues of Investment and Technology transfer has been created. Programmes to reduce deforestation have been initiated. This includes a research project in Agro-forestry at both national and subregional level. A subregional gene-bank has been established.

The Zambia Industrial and Mining Corporation has created a research branch while the Mining Company intends to establish a spare-parts manufacturing division.

FINANCIAL RESOURCES

The Government intends to spend K841,421,000 on S&T in the next five years. Plans to establish a research fund are also underway. The goal of spending one per cent of GNP on S&T may not be fully realized due to financial constraints.

MANPOWER DEVELOPMENT

Priority continues to lie in this area at all the three levels of education. The recent introduction of fees mainly at tertiary level may have adverse effects especially to females despite the fact that old institutions have been expanded or new ones created.

SCIENCE AND TECHNOLOGY FOR INDUSTRIAL DEVELOPMENT

Many companies are commissioning NCSR and other research organizations to look into problems of raw materials due to lack of foreign exchange. A local carbonated drink formulation has proved popular.

SUBREGIONAL, REGIONAL AND INTERNATIONAL CO-OPERATION

Zambia continue to co-operate with both UN agencies and regional/subregional institutions in matters of science and technology.

ZIMBABWE

FOOD TECHNOLOGY-FOOD PROCESSING AND FOOD LOSSES:-

Food losses have generally been experienced during storage of excess produce, for instance maize grain, where the annual losses have been estimated at between 7000 to 10,000 tonnes and to some extent in the food processing industry due to shortages of packaging materials due to inadequate foreign currency. To redress the latter, exporters have been able to generate some foreign currency through the Export Revolving Fund whereby they are accorded the use of a percentage of the export revenue to import some of the packaging raw materials.

The University of Zimbabwe has established an Institute of Nutrition and Food Science whose functions include promoting and educating the public on matters relating to food processing and preservation. The institute has organized public seminars and conducted lectures for food processing organizations on these issues. They have also advocated the introduction of food standards to ensure that food processing in general is up to acceptable international standards. Two of the Scientists at the University have developed a method of determining aflatoxin contamination of food within 24 hours, which is a major break-through in food science internationally.

In March this year Zimbabwe hosted a PRODOC sponsored seminar on food packaging which accorded participants some knowledge on the latest trends and developments pertaining to food packaging internationally.

Zimbabwe is in the process of establishing a UNIDO sponsored Industrial and Technological Information Bank (INTIB) of which one of the data banks will contain information on food processing technology.

In science and technology in general, the country is in the process of establishing a Scientific and Industrial Research and Development Centre to provide technical advisory services to the manufacturing sector combining major applied research and development function as well as dealing with standards.

Currently a study is being carried out on the possibility of adopting the Business and Technology Incubator concept to promote small scale industrial and technological development.

Consideraztion of Draft Project and Their Funding (Item 5)

The Chairman pointed out that in the last IGCESTD meeting, it was felt that there were too many projects. He suggested that the meeting may wish to consider reducing the number of projects to be considered. He invited the participants to propose projects for subregional implementation.

The first proposal was for three projects to be considered instead of the six as presented in the last meeting. After some discussion, it was resolved that three projects should be adopted as a workable number.

It was further proposed that the following topics should constitute the proposed three projects viz:

(a) Food Technology
(b) School Science Equipment
(c) Subregional Science and Technology Policy

Consideration was also given to fuel generation from surplus maize or grass. After discussion it was resolved that the abundance of oil reserves in the region and the peculiarity of surplus maize to one country made this an unviable project for the subregion.

Another suggestion made was that of Repair and Maintenance of Scientific Equipment. After discussion it was resolved that this was a subregional project which would complement the Schools Science Equipment Project. Both projects stood a good chance to attract funding and feasibility studies to determine their viability and implementation were within reach by potential donors.

Quality Control in Pharmaceutical Products was also discussed. It was also resolved that although the project had regional implications and was desirable, it was adequately covered in other regional organizations, such as the African Regional Standards Organization in Nairobi. The meeting finally resolved to adopt the following as concrete projects for subregional implementation:

(a) School Science Equipment
(b) Repair and Maintenance of Scientific Equipment
(c) Subregional Science and Technology Policy

The meeting observed that there was no subregional science and technology policy for the subregion. When such policies are formulated every effort at regional consistency should be made. A workshop should therefore be organized to achieve this. This would also ensure that unnecessary duplication in science and technology efforts is avoided. The question of the standing conference of directors of science and technology bodies recommended by CASTAFRICA II was raised in connection with the proposed science and technology policy workshop. It was pointed out that the present workshop was concerned with subregional issues as against the

continental approach of CASTAFRICA. It was also resolved that there was no duplication of the work of SADCC in science and technology policy as the latter is still in its early stage. The proposed workshop would complement the efforts being made by SADCC in the science and technology policy area.

Having agreed on the projects, the delegates split into three groups to write the projects under the following headings:

Introduction
Background
Objectives
Activities to be undertaken
Output
Budget.

Programme of the Working Group during 1990-1991(Item 6)

A Work Programme

The Work Programme will involve three main activities viz:

1. Project finalization by ECA.
2. Submission of Projects for funding. This will be a joint exercise by Project Co-ordinator and ECA.
3. Project implementation including:
   a. Country Studies
   b. Consultancies
   c. Workshop or Meeting.

The work programme is divided into two sectors with each sector sub-divided into the subsectors as follows:

	1990	1991
I. Finalization of projects by ECA		
II. Submission of projects for funding by Project Co-ordinator and ECA		
III. Implementation of:		
(a) Country studies		
(b) Consultancies		
(c) Workshop/Meeting to discuss results		

After finalization of projects in January, 1990, the ECA will distribute them to members for their information and for action by the Project Co-ordinator.

It was stressed that delegates should make every effort to attend at the workshop on science and technology policy. The meeting resolved that the feasibility study reports should be considered by experts at a meeting to be convened for that purpose.

B. FUNDING

The ECA advised that the funding could be obtained from the following sources:

1. The UNDP IPF

This is to be used for projects proposed by Governments.

2. External Donors

The donors within the subregion are:

a. SAREC: to be approached by Co-ordinators.
b. Carnegie Corp. of New York
c. D.S.E.
d. IDRC
e. CIDA
f. SIDA

3. Embassies of major countries.

Some Ambassadors are assigned funds for allocation to certain projects.

Delegates were urged to approach Ambassadors of major countries in their respective countries. It was resolved that Zambia, the convenor country, should also act as the overall co-ordinator of the three projects with the assistance of Botswana, and that every effort should be put into ensuring implementation of projects.

Adoption of report and closure of meeting (Item 7)

The meeting, after close analysis, adopted the report as amended. The Chairman declared the meeting closed at 1800 hours on 12/10/89.

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Title of Project: 1. Large-Scale Production of School Science Equipment Co-ordinator - Lesotho

Duration: One year

Sector: Science and Technology

Estimated Starting Date: December 1990

Estimated Completion Date: November 1991

Executing Agency: Economic Commission for Africa in collaboration with governments of South African subregion.

Estimated Budget: US$35,200

PROJECT 1: Large-Scale Production of School Science Equipment Co-ordinator-Lesotho

INTRODUCTION

Science has been identified by both the developed and the developing countries of the world as a major tool for development. This tool in the modern world usually becomes effective as a result of deliberate planning and efficient and relevant science education programmes. However, most third world countries including those in the Southern African subregion fail to achieve their developmental goals partly because of inadequate science teaching and learning. The inadequacy results in less efficient output of scientific manpower at the tertiary level and in higher education mainly in terms of scientific research and development.

Realistic and effective training of scientists and technologists can be achieved through the provision of practically oriented, student-centred science education programmes, and involvement of students in carrying out some science projects. These approaches to science education can only operate when there is adequate equipment to facilitate involvement of all students in handson practical science. Since most of the science equipment is very expensive and it is generally not available in the local market, it has to be imported at very high costs, hence limiting orders of sufficient quantities necessary for carrying out practicals by students. With the present crippling economic situation, the production of low-cost school science equipment with the use of locally available raw materals, is seen as a viable propostion.

BACKGROUND

The poor preparation of secondary school leavers mainly because of inadequate equipment justified a need for a collaborative effort in the production of lowcost science quipment. The serious financial constraints within the continent, and within the subregion in particular, also justify the coming together of the countries of the subregion to execute jointly specific projects on production of school science equipment based on national capabilities and availability of resources. Member countries may have different natural resource endowments which may be exploited and utilized for the benefit of the countries of the subregion. It would therefore be of great benefit to have some subregional projects on fabrication of low-cost school science ouipment to address themselves to the proper teaching and learning of science and technology.

OBJECTIVES

The long-term objective of the project is to increase the pool of trained manpower for science and technology by improving the supply of science equipment and facilities in educational institutions.

Immediate Objectives

(i) Assess the basic needs for science equipment in educational institutions in the subregion.

(ii) Identify the local and subregonal capacity for the manufacture of low cost science equipment using to a large extent locally available raw materials.

(iii) Produce a feasibility study on potential for design, modification and fabrication of low cost science quipment.

ACTIVITIES

1. Carrying out feasibility study of project related to fabrication repair and maintenance of low-cost science equipment at subregional level.

2. Discussion of report and recommendations of the feasibility study at national level.

3. Discussion of reports and recommendations of feasibility study at a subregional workshop to precipatate agreement on subregional projects.

4. Soliciting of funds for the project and assisting the country charged with responsibility of the project in order to make the project take off.

5. Identification of mechanism for training of technicians for the subregion.

INPUTS

Governments to:

1. Provide information on status of local production low-cost science equipment and key areas requiring support.

2. Identify countries for specific Projects in order to provide room for expansion, access to adequate raw materials, provision for staffing and viable propositions of conditions of service of such staff.

3. Facilitate constant servicing of machinery and take the responsibility to install and replace machinery where need arises.

4. Provide necessary facilities for infrastructure, where necessary.

ECA/OAU/UNESCO

-Support consultancy related to proposed feasibility study.

-Assist in organizing a subregional workshop to agree on subregional projects and modalities

-Assist in soliciting funds for setting up the subregional projects.

-Support in training of manpower and procurement of machinery and equipment.

OUTPUTS

Immediate:

1. Feasibility study report on potential to manufacture school science equipment in subregion.

2. Report of subregional workshop with final recommendations.

In the long-run

3. Equipment that would be found to be cheaper at the subregional level.(These could be glassware, plastic ware, electrical equipment, etc.).

4. Adequately trained technicians to man production and maintenance units in different countries.

BUDGET

- Survey and feasibility study by consultant	US$ 10,200
- Subregional workshop to agree on projects to be allocated to respective countries and to draw up specific project proposals. (Travel of 18 participants and their DSA, Travel & DSA of ECA staff, workshop material, administrative staff and Transport).	US$ 25,000
Total	US$ 35,200

Title of Project: 2. Procurement, Repair and Maintenance of Scientific Equipment in the Southern African Subregion (Co-ordinator: Zambia)

Duration: One year

Sector: Science and Technology

Estimated Starting Date: December 1990

Estimated Completion Date: November 1991

Executing Agency: Economic Commission for Africa in collaboration with governments of South African subregion.

Estimated Budget: US$45,000

PROJECT 2: Procurement, Repair and Maintenance of Scientific Equipment in the Southern African Subregion (Co-ordinator: Zambia)

INTRODUCTION

Use of Scientific Equipment, especially electronic equipment, plays a major role in most activities of the developing economies. This equipment is mostly manufactured in developed countries with the primary target market of their own countries and to meet their specific requirements. Inevitably, the developing nations have to adopt the same hardware to their own development efforts. The developed nations, in addition to the advantage of developing the equipment, have a very well established repair and maintenance infrastructure. In comparison, the developing countries lack adequately trained manpower to maintain and repair this equipment procured from the developed nations. It has been observed therefore, that a major part of these procured equipment after a while, are not in working condition, many of them with very minor faults. In many cases, very large sums of money have been spent in sending back to the manufacturers this equipment for repairs. While all these expenses are inevitable, the costs could be very much lowered by co-ordinated efforts of the various countries in a particular subregon if resources were pooled together to build a strong repair and maintenance workshop in the subregion. If an agreement is reached to identify and train key personnel - engineers and technicians in various areas of common interest, this would facilitate the setting up and smooth running of a network. Then a country in the subregion can know immdiately where to go for a particular service.

BACKGROUND

The following problems have been identified in relation to equipment in most developing countries of the subregion:

1. Many different types of equipment procured are developed by different manufacturers. This means problems in procuring spare parts for all these differing models.

2. It has been observed that many manufacturers supply their equipment without service manuals to protect their patents and to cause the users to go back to them for repairs and maintenance.

3. Many broken down equipment in developing countries have very minor faults, but due to lack of adequately trained manpower and proper facilities, these equipment remain unused.

4. Many times developing countries send for experts from developed countries, which usually, is a very expensive exercise. It would cost much less if the developing nations exposed their manpower to be trained in different companies and on several equipment. This would create a pool of local expert that can in turn be used in the subregion at lesser costs.

5. Many times developing countries have to send back to the manfacturers their broken-down equipment, when there are experts in a neighbouring country. This is a result of working in isolation. It is therefore necessary to create an awareness of different skills in the region by co-ordinated efforts and regional co-operation on matters of mutual interest.

OBJECTIVES

1. To establish a well documented computer database of all major equipment in the subregion. This should include all equipment for research, hospital, school and industry. The database should be flexible enough to be able to extract any information on an equipment or group of equipment and where it can be found in the region. The database should be updated frequently to tell the status of the equipment.

2. The established regional centre should act as a representative in the equipment procurement policy in the region. This is with the idea of streamlining the models of equipment for eventual ease of maintenance and repair and also for the procurement of service manuals.

3. The centres should keep on the database a list of all trained personnel in the region and their respective specialization. This is to facilitate smooth co-ordination of repairs in the regional network.

4. To establish good quality building structures to provide accommodation, kitchen and cafeteria, classroom, teaching laboratories and equipment. This is for the purposes of holding regional and interregional training courses.

5. To identify local personnel and put them on file, to assist in the training and teaching requirements.

6. To stock spare parts for the region from the donor countries.

7. To publish a quarterly bulletin of all the regions activities.

8. To create an awareness to the industry of the regional activities and invite participants of thelocal and regional industry.

9. To establish regional co-operation in the use of particular equipment and services.

ACTIVITIES

The project will have the following activities:

(a) Carry out an inventory of scientific equipment in each member country. The objective of this exercise is to find out, among others, varieties of available equipment and its functional status, and its location.

(b) Country specific study on policies for procurement of equipment, equipment standardization policies, policies on repair, etc.

(c) Country specific evaluation of human resources, their training, syllabi and curricula for training of human resources (technicians, engineers, etc.).

(d) Study mission by an expert to, among others, quantify the problem of repair and maintenance and procurement of scientific equipment, to sensitize member countries on need to tackle the problem from a concerted effort.

(e) Identification of infrastructures for repair and maintenance of equipment in member countries and training facilities.

(f) Organization and holding of subregional workshop on procurement and maintenance of scientific equipment;

- to bring together member countries and interested international organization;

- to receive and consider report on the subregion with regards to the problem.

- to agree on a strategy by either setting up a subregional network of institutions or to establish a subregional centre for Procurement, Repair and Mainteance of Scientific Equipment.

- to mobilize funds from member States and interested international organizations.

(g) Set up either a Subregional Network or establish a Subregional Centre for Procurement, Repair and Maintenance of Scientific Equipment.

INPUTS

Member States

(a) Staff to carry out inventory and to study policies.
(b) Support to project activities related to inventory
(c) Logistical support for subregional workshop.

ECA/OAU

(a) Mobilization of funds to carry out inventory in each member country.

(b) Logistical and material support in the setting up of a Subregional Network or establishment of a Subregional Centre for Procurement, Repair and Maintenance of Scientific Equipment.

OUTPUTS

1. An up-to-date inventory of scientific equipment of subregional and national levels.

2. Identified infrastructure and human resources available at national and subregional levels and established computer database for these.

3. Harmonized policies at both national and subregional levels on the procurement, repair and maintenance of scientific equpment.

4. Either a Subregional Network or of a Subregional Centre for Procurement, Repair and Maintenance of scientific equipment.

BUDGET

(a)	Inentory for nine countries 9 x 2000	US$ 18,000
(b)	Travel for Expert (in subregion)	2,000
(c)	DSA for Expert for 45 days 45 x 100	4,500
(d)	Travel for 9 participants for workshop	5,000
(e)	Honorarium for expert	4,500
(f)	Microcomputers	10,000
(g)	Miscellaneous	1,500
	Total	45,500

Network or Centre: To be worked out on basis of final decision.

Title of Project: 3. A Workshop on the Development of a Subregional Policy in Science and Technology for the Southern African Subregion (Co-ordinator: Zimbabwe)

Duration: One year

Sector: Science and Technology

Estimated Starting Date: December 1990

Estimated Completion Date: November 1991

Executing Agency: Economic Commission for Africa in collaboration with governments of South African subregion.

Estimated Budget: US$34,200

PROJECT 3: A Workshop on the Development of a Subregional Policy in Science and Technology for the Southern African Subregion (Co-ordinator:Zimbabwe)

INTRODUCTION AND BACKGROUND

The Lagos Plan of Action (1980) underpins the continent's commitment to the development of science and technology, and its recognition that science and technology is the continent's answer for socio-economic development of its member States.

The Lagos Plan of Action spells out specific objectives for a strategy for mobilizing science and technology for development. Subsequently, CASTAFRICA II (1987) made a number of recommendations for future development of science and technology in the member countries. Since then member countries have taken individual initiatives towards the establishment and strengthening of science and technology. To this end, national policies on science and technology have been evolved, or are actively being pursued.

In this Southern African subregion, a few countries now have science and technology policies, and others are currently in the process of formulating such policies. There is now need for a subregional effort to harmonize these national policies (where they exist) as well as work towards a subregional policy on science and technology. As such a policy will serve to guide the plicy makers and implementing agents in the acquisition, adaptation and effective utilization of science and technology in their respective countries for socio-economic development, the importance of such a policy cannot be over-emphasized.

The project involves the convening of a workshop which would afford the experts and policy makers an opportunity to deliberate and share ideas on their respective national policies, and to consider a draft subregional policy on science and technology.

OBJECTIVES

(a) Immediate Objectives

(i) Enable member States to discuss at a workshop, national policies on science and technology and evolve a suitable subregional policy;

(ii) Create and strengthen the subregional mechanisms for the development, assimilation, adaptation and utilization of science and technology.

(b) Long-Term Objectives

(i) Enable member States of the Southern African subregion to plan their activities in science and technology in

a harmonized way so as to make optimal use of both the human and material resources available;

(ii) Enable member States to develop a capacity and capability for the assimilation, adaptation and utilization of Science and Technology for Industrial and Socio-Economic Development;

(iii) Enable member States to improve their capacities and capabilities for assimilation and adaptation of frontier technologies appropriate to their requirements.

SUGGESTED ACTIVITIES

A workshop would be convened to develop a science and technology policy for the subregion. Prior to such a meeting the participants from member States should be assigned specific tasks to facilitate the viability of such a workshop. For instance, each member should come up with a national science and technology policy and where one does not exist, initiate and produce a draft national policy to enable the workshop to harmonize these into one subregional policy. Also each participant should identify their respective national capabilities in terms of technological research and development structures, ressources, manpower, etc. as well as priority area of R&D already identified in each member State. Furthermore, it could be helpful if each participant could come up with a draft paper highlighting the elements of their national policy and national capabilities which they feel could be of benefit to the subregion and which they feel should be incorporated into the subregional science and technology policy.

REQUIRED INPUTS

1. Member States assigning at least one expert and a policy maker to prepare paper and participate in the workshop.

2. Available studies on policy formulation and implementation in the region as well as internationally for discussion.

3. At least one cosultant on science and technology policy formulation to act as workshop consultant.

ANTICIPATED OUTPUTS

1. Draft subregional policy on science and technology for the consideration of member States at national or political levels.

2. Report of workshop on subregional policy.

BUDGET

A minimum of two participants per member State will be required. The cost of the workshop broken down into the various components listed below is estimated as follows:

1.	Travel of 16 participants	US$ 8,000
2.	DSA for about 1 week	11,200
3.	Secretarial expenses including travel and DSA	3,500
4.	Administrative support	1,500
5.	Consultancy	10,000
	Total	34,200