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ECONOMIC COMMISSION FOR AFRICA
Sixteenth session/Seventh meeting of
the Conference of Ministers
Freetown, Sierra Leone, 6-11 April 1981

FINAL REPORT OF THE
REGIONAL CONFERENCE ON THE DEVELOPMENT AND
UTILIZATION OF MINERAL RESOURCES IN AFRICA

(Arusha, United Republic of Tanzania, 2-6 February 1981)

Opening of the Conference

1. The First Regional Conference on the Development and Utilization of Mineral Resources in Africa was convened and organized by the United Nations Economic Commission for Africa, in Arusha, the United Republic of Tanzania, from 2 to 6 February 1981.
2. The Conference was opened by Mr. C.D. Msuya, Prime Minister of the United Republic of Tanzania.
3. After welcoming the participants, he drew the attention of the Conference to the prevailing socio-economic problems of the African continent. He stressed that under the circumstances the Conference should, inter alia, assess the mineral resources endowment of the region; review the present status of its development and identify existing weaknesses; and recommend appropriate policies and action programmes which would strengthen the contribution of the mineral sector to the socio-economic development of the African region.
4. Noting that the known mineral resources of the region were both immense and varied and that large areas of it were unexplored, he concluded that the chances of further mineral discoveries remained considerable. He stressed that these mineral resources must be used more effectively than hitherto to support the various socio-economic activities in the region aimed at meeting the needs of its peoples.
5. He considered that the institutional capabilities of many individual member States remained too weak for them to undertake effective mineral resources development in their respective countries. He therefore called upon African countries to alleviate such weaknesses through the pooling of their scarce resources to enable them to quickly effect mineral resources development in the region.
6. In his opening address, Mr. Adebayo Adedeji, Executive Secretary of ECA, thanked the people, party and Government of the United Republic of Tanzania for hosting the Conference.
7. He stressed that the downward slide and continuing worsening of the socio-economic condition of the continent resulted from overdependence on mono-agricultural, mono-mineral and mono-metal exports whose production depended on entrepreneurial decisions which remained in the hands of non-Africans.
8. He expressed his belief that the Lagos Plan of Action for the economic development of Africa adopted by the OAU Heads of State and Government in April 1980 constituted the basis for remedying Africa's present and future ills. He maintained, however, that for the Plan to succeed, Africa's minerals and other natural resources had to play their rightful role in the promotion of a self-reliant and self-sustaining socio-economic development in the African region.
9. He expressed the view that it was largely through the use of indigenous African multinational institutions that Africa's mineral resources could be developed effectively to serve the needs of the region. He cited the cases of countries such as Brazil, India, Mexico, the Philippines, the People's Republic of China, the Republic of Korea, etc., which he considered could serve as examples of how Africa could proceed in its mineral resources development.

10. A vote of thanks to the Prime Minister was moved by the heads of delegations of Egypt and the Upper Volta. They expressed the appreciation of the entire Conference for the motivation and inspiration provided by the Prime Minister, and assured him that the Conference would do its utmost to arrive at appropriate recommendations for the effective development of the mineral resources of the African region.

Election of officers

11. The Conference then unanimously elected the following officers:

Chairman	:	United Republic of Tanzania
First Vice-Chairman	:	Ghana
Second Vice-Chairman	:	Zaire
First Rapporteur	:	Egypt
Second Rapporteur	:	Zambia

It was also agreed that the officers thus elected and the ECA secretariat would constitute the Drafting Committee.

Attendance

12. The following countries were represented by official delegations at the Conference: Algeria, Angola, Botswana, Burundi, Egypt, Ethiopia, Ghana, the Ivory Coast, Kenya, Mauritania, the Niger, Nigeria, Rwanda, Uganda, the United Republic of Cameroon, the United Republic of Tanzania, the Upper Volta, Zaire, Zambia and Zimbabwe.

13. The following organizations were represented by observers: Organization of African Unity (OAU), Economic Community of West African States (ECOWAS), Economic Community of the Great Lakes Countries (CEPGL), Association of African Geological Surveys (ASGA), Regional Remote Sensing Centre, Regional Centre for Services in Surveying and Mapping (RCSSM), East and Southern African Mineral Resources Development Development Centre, Academy of Sciences of the Union of Soviet Socialist Republics, Canadian Department of Energy, Mines and Resources, Commission of the Geological Map of the World (CGMW), Commonwealth Secretariat, International Union of Geological Sciences (IUGS), United States Geological Survey, and the Institute for Geosciences and Raw Materials of the Federal Republic of Germany.

14. The Conference was attended by representatives of the United Nations Development Programme, the United Nations Conference on Trade and Development, the United Nations Institute for Training and Research, the Economic and Social Commission for Asia and the Pacific, the Department of Technical Co-operation for Development of the United Nations Secretariat, the United Nations Industrial Development Organization, the World Health Organization, and the United Nations Educational, Scientific and Cultural Organization.

15. The South West Africa People's Organization attended the Conference.

Adoption of the agenda

16. The Conference adopted the following agenda:
1. Opening of the meeting
 2. Election of officers
 3. Adoption of the agenda and organization of the work
 4. Objectives and roles of minerals in the economic and social development of the Africa region, Lagos Plan of Action
 5. Review and assessment of the main mineral resources of the African continent
 6. The present status and development trends of the mineral extraction industries in the region
 7. Relevant experience in planning and implementing the mineral resources development programmes in Africa
 8. Specific requirements for mineral resources development programmes and the role of African countries in supplying such needs (political, legal and administrative issues, capitals, skill and technology)
 9. The role of the international community, other non-African agencies and transnational corporations in the provision of external support for African mineral resources development projects
 10. African multinational co-operation in geology and mineral resources development; the multinational mineral resources development centres
 11. Strategy and modalities for development of mineral resources during the next decade in the light of the Lagos Plan of Action
 12. Geological research and exploration for new resources
 13. Mining and mineral processing activities in Africa
 14. Utilization of mineral raw materials in developing Africa: problems of primary and secondary transformation, trade and consumption
 15. Research and development of new techniques in mining and mineral processing
 16. Technical aspects related to the conservation of non-renewable resources and environmental protection
 17. Management aspects: Institutional framework, investments and operating costs, manpower resources and training
 18. ECA work programme on mineral resources development in Africa, (a) Policy matters, (b) Technical matters (1981, 1982-1983, 1984-1985)
 19. Any other matters
 20. Consideration and adoption of the report of the Conference
 21. Closure of the Conference

17. In addition to the working papers prepared by the ECA secretariat, documents were prepared for, and submitted to, the Conference by the following countries and organizations: Algeria, Angola, Benin, Egypt, Kenya, Nigeria, Rwanda, the Sudan, the Union of Soviet Socialist Republics, the United Republic of Tanzania, the Upper Volta, Zambia, Zimbabwe, East and Southern African Mineral Resources Development Centre, and the United Nations Industrial Development Organization.

Proceedings of the Conference

18. During the initial plenary sessions of the Conference, general statements were made by a number of heads of delegations and observers, including: Algeria, Angola, Botswana, Egypt, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, Uganda, the United Republic of Tanzania, the Upper Volta, Zaire, Zimbabwe, the Department of Technical Co-operation for Development of the United Nations Secretariat, the East and Southern African Mineral Resources Development Centre, the International Union of Geological Sciences, the Organization of African Unity, the Regional Centre for Services in Surveying and Mapping, and the United Nations Industrial Development Organization.

19. The country statements provided brief information regarding mineral resources development activities in the countries concerned. It was recognized that the initiative for the development of mineral resources in many of the countries of the African region remained in the hands of non-Africans, a situation which had led to the poor contribution of mineral resources to the socio-economic development of the African countries. Many delegations therefore called for increased African multicountry co-operation in the pooling of scarce national resources in carrying out multicountry African projects in mineral exploration, exploitation, processing and utilization, with a view to promoting a regionally located self-reliant and self-sustaining socio-economic development process in the continent in accordance with the Lagos Plan of Action for the economic development of Africa adopted by the OAU Heads of State and Government in April 1980.

20. Several delegations expressed the hope that the Conference would make appropriate recommendations which would enable African countries to use African initiative and resources to develop the region's mineral resources in the best interests of its peoples.

21. Some delegations made specific recommendations to the Conference; these included increased exchange of information on mineral resources development among African countries; harmonization of mineral development policies by the African countries; the strengthening of existing African national and multinational institutions dealing with mineral resources development in the region and the establishment of new ones; increased utilization of African mineral resources to support development activities in the continent, etc. Various delegations expressed their readiness to implement the final recommendations to be adopted by the Conference.

22. The delegation of Nigeria stated that its Government would seriously consider any request from a sister African country for technical assistance in oil exploration.

23. The statements made by observers indicated the respective roles of their organizations in mineral resources development in the Africa region. They fully associated themselves with Africa's development aspirations and promised support in implementing the recommendations of the Conference.

24. The ECA secretariat, for its part, introduced three basic papers dealing with:

(a) Objectives and roles of minerals in the economic and social development of the Africa region and the Lagos Plan of Action (E/CN.14/MIN.80/6);

(b) Major mineral resources of Africa (E/CN.14/MIN.80/3); and

(c) The present status of mineral development in Africa (E/CN.14/MIN.80/5).

25. During the general plenary discussion which followed the introductory statements by delegates, observers and the secretariat, the following main observations were made:

26. The mineral resources endowment of the Africa region was appreciable when compared to that of other regions, in spite of the fact that large areas still awaited systematic exploration and assessment. Some countries appeared to be better endowed with these resources than others.

27. Since achieving political independence, many countries had managed to increase the production of their mineral raw materials for export, but the state of the mining industry in the region remained unhealthy and was in some cases deteriorating.

28. Of the many problems that the mineral sectors of the African countries faced the following received particular attention: over-reliance on non-African operators for the development of the region's mineral resources to meet the demands of the industrialized countries for mineral raw materials; unco-ordinated mineral development policies which enabled foreign mineral development operators to exploit certain countries; weak institutional capabilities of many countries rendering them unable to develop their mineral resources in their own best interests; low level of intra-African co-operation in mineral development activities; and a deplorably low level of intra-African trade in mineral products.

29. Although some bilateral, multilateral and international assistance had been provided for decades to the region in the field of mineral resources development, such assistance had left most member countries of the region in a state of helplessness with regard to the exploration, evaluation, extraction, processing and marketing of their mineral resources.

30. The methods suggested for improving the minerals sectors of the countries included the harmonization of the mineral development policies of African countries; the intensification of multicountry co-operation in all mineral development activities; the strengthening and establishment of multinational institutions to carry out mineral development operations; improving the exchange of information on mineral resources development among African countries; and promotion of increased intra-African trade in minerals and mineral products. Through such arrangements it was believed that African countries would soon be able to lay the foundations of the engineering and capital goods industries on which the Lagos Plan of Action heavily depended, promote exchanges between the industrial and other sectors, and generally raise the incomes, increase employment and improve the welfare of the African people.

Committee sessions

31. The Conference was organized into two committees as follows:

- (i) The Committee on Policy Issues composed of representatives of ECA member States, which discussed only policy aspects of mineral resources development in Africa;
- (ii) The Committee on Technical Issues composed of experts from member States and observers, which discussed technical aspects of mineral resources development in Africa.

32. The recommendations of the two Committees, as subsequently adopted by the final plenary sessions, are set out below.

RECOMMENDATIONS ON POLICY ISSUES

Policy Aspects of Mineral Resources Development in Africa

I. BUILDING UP OF TECHNICAL KNOWLEDGE OF THE MINERAL RESOURCES BASE

A. At national level

- (i) State geological and mining services should be reviewed in the light of the expansion and improvement needed to advance geological and mineral work in each African country. New approaches to bilateral and multilateral technical assistance should be considered, including intra-African co-operation, co-operation with other third world countries, developed socialist countries and developed market economy countries. State geological and mining services should be considered as part of the basic infrastructure for economic growth and should therefore be given high priority and adequate resources;
- (ii) Basic maps (geological, geophysical, geochemical, and metallogenic) should be prepared to guide surveys at national level;

- (iii) At the national level, all information on mineral resources should be accumulated and evaluated (using the new United Nations classification) with a view to the preparation of national inventories; the efficiency of existing arrangements for accumulating and evaluating information on national mineral resources endowments should be reviewed;
- (iv) Geological documentation, reports and maps and mineral collections should be preserved and proper use made of them;
- (v) The national research and development base should be extended to include the technology required for exploration in difficult areas, such as arid zones, forests and lagoons;
- (vi) Land-locked and least-developed countries should press for high priority to be given to the development of capabilities - national and multinational - for the exploration, evaluation, extraction, processing and marketing of their mineral resources in international - especially United Nations - aid and technical assistance programmes; land-locked and least-developed countries should give positive attention to the efficient utilization of aid, evaluation of past aid, and formulation of a strategy for future aid and technical assistance;
- (vii) Attention should be given to the harmonization of legislation and investment incentives in mineral resources development by member countries. Member countries should review and update national legislation in order to provide a modern framework for the exploration, evaluation, extraction, processing and marketing of minerals;
- (viii) Organizational structures, derived from the colonial era, should be evaluated and reformed in the light of modern administrative requirements, for the development and utilization of mineral resources.

B. At subregional or multinational level

- (i) Measures should be taken at once to establish, in accordance with the recommendations of the Lagos Plan of Action, centres for the development of mineral resources in the Central and West African subregions. As far as the North African subregion is concerned, similar measures should be taken as soon as its member States submit to the Executive Secretary of ECA a request to establish such a centre. With regard to the existing centre for East and Southern Africa, the Governments of the member States of the subregion should take all measures necessary for its organization and functioning to enable it to provide specialized services to member States and to undertake the training of specialized manpower to meet national and regional needs. All member States of the East and Southern African subregion which have not become members of the centre should do so as soon as practicable. They should actively participate in the elaboration and execution of the thematic work programmes of the centre;
- (ii) Member States should where practicable share with others information and experience in the negotiation of different types and aspects of contracts (legal, research, financial and technical aspects) for the exploration and evaluation of mineral resources.

C. At regional level

- (i) Study tours to selected countries to observe the way in which national exploration and evaluation services are organized and work should be promoted;
- (ii) Information should be exchanged on mineral development consultancy services and on all other aspects of mineral resources development, and intergovernmental seminars and workshops should be organized for the development of such services on an indigenous basis in Africa;
- (iii) The ECA Pan-African Documentation and Information System (PADIS), with headquarters in Addis Ababa, should:
 - Classify and store all available information on all aspects of mineral resources and mining, primarily for the use of Governments, and of national and multinational parastatals; and
 - Assist Governments in the development of national documentation and information systems for all aspects of the development of mineral resources and in the training of local staff for the operation of such systems.

II. DEVELOPMENT OF NATIONAL AND MULTINATIONAL CAPABILITIES FOR MINERAL EXTRACTION, PROCESSING AND MARKETING OF MINERAL PRODUCTS

A. At national level

National action should be taken to establish State mining, processing and marketing enterprises.

B. At subregional or multinational level

Multinational action should be taken to establish multinational State mining, processing and marketing enterprises.

C. At regional level

- (i) Study tours to selected countries should be promoted on: experience in setting up and operating national and multinational companies; joint enterprises with foreign (international) companies; service contracts between national organizations and foreign companies or public sector organizations; problems of obtaining and using technology and of developing trained manpower; problems of marketing; relations with Governments; the supply of financial resources, etc;
- (ii) A regional advisory service should be established by ECA to assist Governments in appraising policy, legislation and administrative machinery relating to minerals and mining;

- (iii) Co-operation in the processing of raw materials should be encouraged with a view to maximizing the use of processing capacities within the African region.

III. DEVELOPMENT OF INTRA-AFRICAN MARKET FOR MINERALS AND MINERAL PRODUCTS

A. At national level

National machinery and capabilities for negotiating trade agreements on minerals and mineral products of interest should be strengthened.

B. At multinational or regional level

- (i) Periodic multinational or regional level consultations by producing and/or exporting countries should be organized on international trends affecting their specific minerals and mineral products;
- (ii) Seminars/workshops should be organized on the role and prospects of individual major minerals and mineral products in regional development;
- (iii) Studies on the establishment of an African metals exchange designed to serve the needs of intra-African trade should be accelerated;
- (iv) Studies should be carried out on problems of financing intra-African trade in minerals and mineral products, including the possible role of barter arrangements;
- (v) Special consideration should be given to the relationship of the programmes and projects in the United Nations Transport and Communication Decade to the transportation of mineral (and other) raw materials, bearing in mind the significance of transport costs in facilitating or inhibiting intra-African trade;
- (vi) Special consideration should be given to the need for transport facilities for exports of minerals from land-locked countries to other regions and to the possibilities of forming common or joint transport systems.

IV. MANPOWER DEVELOPMENT

A. At national level

- (i) Standard manpower profiles should be established for exploration, processing, marketing and R & D as guides for manpower planning;
- (ii) Inventories of existing education and training facilities at national level should be made with a view to improving those facilities (bearing in mind the need for providing for practical training) and for the purpose of promoting co-operation, as provided for in B(i) below;

- (iii) Periodic national manpower surveys should be carried out with a view to establishing the availability of different kinds and levels of skills as to ensure their optimal utilization, both nationally and regionally;
- (iv) State scholarship policy and pattern and existing arrangements with public and private companies at home and abroad for practical training of indigenous personnel should be reviewed;
- (v) Facilities in secondary schools to motivate young students to specialize in various branches of the earth sciences should be encouraged and created;
- (vi) Technical assistance programmes with other third world countries, developed socialist countries, and developed market economy countries for training Africans in various branches and at different levels of the earth sciences should be revised and expanded.

B. At subregional and regional levels

- (i) Consultations at multinational and regional levels should be organized on possibilities of optimizing the use or development of education and training facilities, bearing in mind the need for centres of excellence in the earth sciences;
- (ii) Moral and financial support for the existing regional centres for cartography and remote sensing should be intensified;
- (iii) Support should be given to regional associations in the earth sciences, in particular to the Association of African Cartographers (AAC) and the Geological Society of Africa (GSA);
- (iv) Student and personnel exchange programmes should be promoted.

V. THE DEVELOPMENT OF NATIONAL AND INTERNATIONAL MINERAL EXPLORATION AND MINING AND PROCESSING EQUIPMENT INDUSTRIES

- (i) Study visits should be organized to selected third world countries on procedures and experience in the organization and management of national and multinational State manufacturing enterprises for the production of equipment, implements, tools and other supplies for mineral exploration, evaluation, extraction and processing, and of maintenance services;
- (ii) Detailed analyses should be made of engineering and other inputs into the mining industry to serve as guides to the selection of standardized and other items for intra-African manufacture and trade;
- (iii) Consultations, based on (ii) above, among State mining enterprises should be arranged on the possibility of intra-African production of, and trade in standardized equipment, parts and components, implements, tools and other supplies for the mining industry;

- (iv) An inventory should be made of national and multinational manufacturing capabilities for intra-African production of standardized equipment, parts and components, implements, tools and other supplies for mineral exploration, evaluation, extraction and processing, and for maintenance services, with a view to their expansion or the establishment of new enterprises;
- (v) Multinational intra-African negotiations should be organized for the establishment of multinational enterprises (including joint enterprises or contract services with foreign companies for production, manpower development, technology and marketing) for the production and marketing of standardized equipment, parts and components, implements, tools and other products for the mining industry, and for similar equipment and supplies for medium- and small-scale mining (see (vii) and (viii));
- (vi) Negotiations should be arranged with foreign enterprises on their purchasing policies and their requirements for standardized engineering and other inputs;
- (vii) Technologies, equipment, implements and tools and other supplies for medium- and small-scale mining operations should be reviewed;
- (viii) A multinational agreement should be reached on standardization of equipment, implements and tools and other supplies for medium- and small-scale mining;
- (ix) Indigenous national and multinational companies should be established for intra-African production and marketing of equipment, implements, tools and chemical and other supplies for medium- and small-scale mining, including joint enterprises or contract services with foreign companies for production, manpower development, technology and marketing.

VI. RESEARCH AND DEVELOPMENT

- (i) Analyses should be made of industrial property rights (including trade marks) in parts and components, chemical and other supplies for the mining industry as guides to production and/or negotiations, policies and strategies;
- (ii) R & D should be organized on a multinational basis relating to standardization of equipment and other supplies for the mining industry, with special reference to medium- and small-scale mining;
- (iii) Regional mechanisms should be established for monitoring trends in technological change in mineral exploration, mining and processing, for consideration of the implications of such change for mining in Africa, and for providing advice to Governments and mining companies. Particular attention should be paid to trends in the scaling down and simplification of exploration, mining and processing equipment. These activities could be undertaken by the three subregional centres for mineral resources development;

- (iv) Studies should be made of new capital/labour mixes in exploration technology which favour the utilization of hand-held, back-packed and other mobile equipment and of semi-skilled labour;
- (v) Studies should be made of the spatial and other aspects of the organization of national exploration and geological mapping services, associated with (iv);
- (vi) National corporations should be established for negotiating the transfer and use of imported technology.

VII. THE CREATION OF FINANCING, INVESTMENT AND INSURANCE INSTITUTIONS

- (i) ECA should undertake feasibility studies, which should be submitted to the Second Regional Conference on the Development and Utilization of Mineral Resources in Africa, of institutions at the regional or sub-regional level for the mobilization of finance and for investment in mineral exploration and mineral development prospects in the region. These institutions would, inter alia:
 - Advise on appropriate investment incentives for mineral projects in Africa;
 - Set up a team of financial and other experts/negotiators for the task of mobilizing finance for mineral projects;
 - Assist Governments in financing feasibility studies of high-priority projects;
 - Raise funds from member countries and other sources including international institutions for financing, under favourable terms, mineral projects for which feasibility studies have been carried out;
 - Prepare standard forms of agreement for possible use by member States in mineral projects in Africa;
- (ii) Feasibility studies should be carried out on the establishment of African insurance companies at regional and subregional levels to provide cover against the risks involved in exploration, processing, marketing and transportation of mineral resources;
- (iii) ECA should also promote study tours to national and multinational companies established in selected third world countries to finance mineral exploration and mining development, with a view to gaining experience on their organization, management and operations, and should consider the possibilities of technical assistance in setting up regional or subregional financial institutions.

VIII. IMPLEMENTATION AND FOLLOW-UP ACTION

At ECA level

- (i) The report and recommendations should be presented to the ECA Conference of Ministers in Freetown next April;
- (ii) The recommendations should be included in the ECA Work Programme 1982-1983 and Medium-Term Plan 1984-1989. The above actions establish legislative authority for the secretariat to mobilize financial and human resources (regular budget, bilateral and multilateral) and proceed with the implementation of the recommendations;
- (iii) It is strongly recommended that ECA should undertake as soon as possible the compilation, editing and publication of all the papers and documents of the Conference as "Proceedings of the First Regional Conference on the Development and Utilization of Mineral Resources in Africa".

At Government level

The conference urged African Governments to do everything possible at all levels (national, subregional and regional) to implement the recommendations of this First Regional Conference on the Development and Utilization of Mineral Resources in Africa, held in pursuance of the Lagos Plan of Action.

At other levels

Implementation will involve existing and new cartographic and mineral resources development centres, special mechanisms already established under economic co-operation arrangements, etc., and where necessary, new instruments specifically established for the implementation of the recommendations. Progress in the implementation of the whole programme will be reviewed by the Second Regional Conference on the Development and Utilization of Mineral Resources in Africa, to be convened during 1983, and possibly by organizing interim meetings of the officers of the First Regional Conference.

RECOMMENDATIONS ON TECHNICAL ISSUES

Technical Aspects of Mineral Resources development in Africa

I. BUILDING UP OF TECHNICAL KNOWLEDGE OF THE MINERAL RESOURCES BASE

A. At national level

- (i) State geological and mining services should be reviewed in the light of the need to extend and improve these services in order to advance geological and mining activities. Studies of new approaches to bilateral and multilateral technical assistance, including intra-African co-operation, should be undertaken. State geological and mining services should be considered as part of the basic infrastructure for economic growth and should therefore be given high priority and adequate resources to strengthen their technical capabilities;

- (ii) Basic and thematic maps (geological, metallogenic, geophysical, geochemical, etc.) should be prepared to facilitate research, evaluation and development of mineral resources;
- (iii) Available information on mineral resources should be accumulated and evaluated, using the new United Nations classification. To this end, member States should make every effort to induce the transnational corporations and the organizations providing aid to transfer all information and basic documents, whether already collected or to be collected in the future in the course of their mining activities;
- (iv) Geological documentation (reports, maps and geological samples) should be collected, preserved and properly used;
- (v) Appropriate steps should be taken to exchange geological, technical and economic information with the other member States and the sub-regional and international centres;
- (iv) The national research and development services should extend their activities to update the technologies required for exploration in difficult areas (arid zones, forests, lagoons, the sea bed, etc.);
- (vii) Remote sensing data for basic geological research should be acquired, used more extensively and exchanged.

B. At subregional level

- (i) Measures should be taken at once to establish, in accordance with the recommendations of the Lagos Plan of Action, centres for the development of mineral resources in the Central, West and North African subregions. As far as the existing centre for East and Southern Africa is concerned, the Governments of the member States of the subregion should take all measures necessary for its organization and functioning to enable it to undertake management training and development with a view to filling the gaps in this field. All member States of the East and Southern African subregion which have not become members of the Centre should do so at an early date. They should actively participate in the elaboration of the thematic work programmes of the Centre;
- (ii) Data and technical information should be exchanged and co-operation in field surveys and specialized laboratory services among the member States should be organized through the subregional centres or by direct arrangements;
- (iii) Workshops, study tours and consultations among geoscientists should be organized with a view to harmonizing mineral resource development programmes and providing for the exchange of experiences (methods of work, interpretation, data processing, etc.).

C. At regional level

- (i) Regional and interregional seminars, workshops and study tours should be organized on subjects relating to the exploration, evaluation and exploitation of mineral deposits;

- (ii) Participation in the work of the specialized international organizations, and in particular of the Commission for the Geological Map of the World, is recommended and material support should be given to them with a view to updating and/or preparing the geological, tectonic, metallogenic and hydrogeological maps of Africa;
- (iii) Political and material support should be given to the Geological Society of Africa (GSA) and the Association of African Geological Surveys (ASGA) and there should be active participation in their activities. It is recommended that the headquarters of ASGA should be transferred to Africa.

II. DEVELOPMENT OF NATIONAL AND MULTINATIONAL CAPABILITIES FOR MINERAL EXTRACTION AND PROCESSING AND FOR MARKETING OF MINERAL PRODUCTS.

A. At national level

- (i) National action should be taken to establish and/or strengthen State mining corporations by providing adequate technical facilities and incentives for high-quality performance by the staff;
- (ii) The development of small-scale mining for mineral exploitation should be encouraged and the skills needed in processing minerals to produce finished products should be developed;
- (iii) Provision should be made for publication of national mineral statistics so as to make it possible to monitor mineral production and trade;
- (iv) The use of pilot plants for mineral processing prior to large-scale operations is recommended.

B. At subregional and regional level

- (i) Subregional and regional co-operation in the exploitation of mineral resources should be encouraged;
- (ii) Mineral data should be disseminated as a means of promoting regional trade;
- (iii) Multinational co-operation should be organized in establishing smelting and refining capacity at subregional level whenever and wherever feasible;
- (iv) The establishment of an African association of mining and mineral processing engineers is recommended in order to ensure that experience is shared among African countries;
- (v) ECA should undertake a study on the establishment of a regional sub-committee on mineral resources development.

III. PROTECTION OF THE ENVIRONMENT

A. At national level

- (i) The protection of the environment should constitute an integral part of exploration, mining and processing operations. Provision should also be made for this in the feasibility study phase;
- (ii) It is recommended that member States should include appropriate environment protection provisions in national mining legislation.

B. At subregional level

For large-scale mining and mineral processing operations which may adversely affect the environment in a number of neighbouring countries (e.g., operations in international waters), it is recommended that consultative bodies or joint co-ordinating organs should be established to monitor the protection of the environment.

IV. IMPLEMENTATION AND FOLLOW-UP ACTION

A. At ECA level

- (i) The report and recommendations should be presented to the ECA Conference of Ministers in Freetown next April;
- (ii) The recommendation should be included in the ECA Work Programme 1982-1983 and Medium-term Plan 1984-1989. The above actions establish legislative authority for the secretariat to mobilize financial and human resources (regular budget, bilateral and multilateral) and proceed with the implementation of the recommendations;
- (iii) It is strongly recommended that ECA should undertake as soon as possible, the compilation, editing and publication of all the papers and documents of the Conference as "Proceedings of the First Regional Conference on the Development and Utilization of Mineral Resources in Africa".

B. At Government level

The Conference urged African Governments to do everything possible at all levels (national, subregional and regional) to implement the recommendations of this First Regional Conference on the Development and Utilization of Mineral Resources in Africa, held in pursuance of the Lagos Plan of Action.

C. At other levels

Implementation will involve existing and new cartographic and mineral resources development centres, special mechanisms already established under economic co-operation arrangements, etc., and where necessary, new instruments specifically established for the implementation of the recommendations. Progress in the implementation of the whole programme will be reviewed by the Second Regional Conference

on the Development and Utilization of Mineral Resources in Africa, to be convened in 1983, and possibly by organizing interim meetings of the officers of this first Regional Conference.

Co-operation between ECA and OAU

33. The Conference expressed the wish that, in the implementation and follow-up actions on all the recommendations of the Conference, there should be close collaboration between ECA and OAU.

Vote of thanks to the people and Government of the United Republic of Tanzania

34. The heads of delegations of Algeria, the Ivory Coast and Nigeria, speaking on behalf of the delegations of all member States represented at the Conference, and the representatives of the Organization of African Unity and of the Department for Technical Co-operation for Development of the United Nations Secretariat, speaking on behalf of all observers at the Conference, moved votes of thanks to the people and Government of the United Republic of Tanzania for the excellent facilities provided for the Conference which had ensured its highly successful outcome. Similarly, thanks were expressed for all contributions by individuals or organizations, whether Tanzanian or non-Tanzanian, to the successful outcome of the Conference.

ANNEX

LIST OF DOCUMENTS

- (a) Documents submitted by the ECA secretariat
1. Objectives and roles of minerals in the economic and social development of the African region and the Lagos Plan of Action (E/CN.14/MIN.80/6)
 2. Major mineral resources of Africa (E/CN.14/MIN.80/3)
 3. The present status of mineral development in Africa (E/CN.14/MIN.80/5)
 4. Processing and utilization of mineral raw materials in African countries (E/CN.14/MIN.80/8)
 5. Prospects of intra-African trade in certain mineral raw materials (E/CN.14/MIN.80/10)
 6. The mineral development programme of the DTCD (E/CN.14/MIN.80/12)
 7. Appraisal of existing institutions dealing with the mineral resources development in African member States (E/CN.14/MIN.80/7)
 8. Report on mining legislation in African countries (E/CN.14/MIN.80/2)
 9. Manpower availabilities and possibilities of alleviating the shortage of trained personnel in Africa (E/CN.14/MIN.80/11/Rev.1)
 10. Environmental aspects of the development of mining and mineral processing industries in Africa (E/CN.14/MIN.80/9)
 11. Multinational co-operation in mineral exploration, exploitation, processing and utilization of mineral resources in Africa (E/CN.14/MIN.80/4)
 12. Iron ore (E/CN.14/MIN.80/3.1)
 13. Chromium (E/CN.14/MIN.80/3.2)
 14. Lead and zinc (E/CN.14/MIN.80/3.3)
 15. Tin (E/CN.14/MIN.80/3.4)
 16. Copper (E/CN.14/MIN.80/3.5)
 17. Manganese (E/CN.14/MIN.80/3.6)
 18. Nickel (E/CN.14/MIN.80/3.7)
 19. Titanium (E/CN.14/MIN.80/3.9)
 20. Tungsten, columbium and tantalum (E/CN.14/MIN.80/3.10)
 21. Bauxite and development of aluminium industry in Africa (E/CN.14/Min.80/3.12/Rev.1)

(b) Country Reports

1. Development and assessment of the main mineral resources in the Sudan (ECA/NRD/MIN.80/INF.1)
2. Inventory of mineral resources in Benin (ECA/NRD/MIN.80/INF.6)
3. Aide-mémoire on the mineral wealth of Rwanda and its management (ECA/NRD/MIN.80/INF.7)
4. Problems in the development of mineral resources in the Upper Volta (ECA/NRD/MIN.80/INF.11)
5. Mineral resources of Zimbabwe - an overview (ECA/NRD/MIN.80/INF.13)
6. Development and utilization of mineral resources in Egypt (ECA/NRD/MIN.80/INF.14)
7. The petroleum scene in Nigeria - Status and trends (ECA/NRD/MIN.80/INF.15)
8. Development and utilization of mineral resources in Kenya - a review (ECA/NRD/MIN.80/INF.16)
9. Objectives and role of minerals in the economic and social development of Nigeria (ECA/NRD/MIN.80/INF.19)
10. Mineral development strategy in the United Republic of Tanzania (ECA/NRD/MIN.80/INF.17)
11. La recherche géologique et minière en Algérie (ECA/NRD/MIN.80/INF.18)

(c) Papers submitted by observers

1. Petroleum potential of Africa and prospects for its development (ECA/NRD/MIN.80/INF.2) (The Ministry of Geology of the USSR)
2. The environment and the adverse effects of mining factors (ECA/NRD/MIN.80/INF.3) (The Institute of Africa of the Academy of Sciences of the USSR)
3. Role of borehole geophysics in mineral resources exploitation (ECA/NRD/MIN.80/INF.5) (University of Zambia)
4. Experience derived in establishing a regional mineral resources development centre (ECA/NRD/MIN.80/INF.8) (ESAMRDC)
5. Mineral resources and the strengthening of international co-operation between African countries (ECA/NRD/MIN.80/INF.9) (The Institute of Africa of the Academy of Sciences of the USSR)
6. The mineral resources of Africa as part of the world's mineral wealth (ECA/NRD/MIN.80/INF.10) (The Institute of Africa of the Academy of Sciences of the USSR)