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PREPARATORY COMMITTEE FOR THE UNITED
NATIONS CONFERENCE ON SCIENCE AND
TECHNOLOGY FOR DEVELOPMENT

Third session

22 January to 2 February 1979

Item 2 of the provisional agenda. Preparations
for the United Nations Conference on Science
and Technology for Development: (a) Progress
report of the Secretary-General of the
Conference: (i) Assessment of work at the
national and regional levels

REPORT OF THE AFRICAN REGIONAL MEETING

Opening of the Meeting

1. The African Regional Meeting of the United Nations Conference on Science and Technology for Development was held at Cairo, Egypt, from 24 to 29 August 1978. The Meeting was opened on 24 August by Mr. Mamdouh Salem, Prime Minister of Egypt. Opening addresses were made by the Prime Minister, the Executive Secretary of ECA, the Deputy Secretary-General of the United Nations Conference on Science and Technology for Development (UNCSTD) and the representative of the Administrative Secretary-General of the Organization of African Unity (OAU).

Attendance

2. The Meeting was attended by representatives of the following ECA member States: Benin, Botswana, Burundi, the Central African Empire, Chad, the Congo, Egypt, Ethiopia, the Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Mali, Morocco, Mauritania, Mauritius, the Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, the Sudan, Swaziland, Tunisia, Uganda, the United Republic of Cameroon, the United Republic of Tanzania, the Upper Volta, Zaire and Zambia.

3. The Meeting was also attended by representatives of the following States Members of the United Nations not members of ECA: Austria, Brazil, China, Colombia, Finland, France, Guatemala, India, Iran, Panama, Peru, Poland, Romania, the Union of Soviet Socialist Republics, the United Kingdom and the United States of America.

4. Representatives were present from the following United Nations bodies and specialized agencies: the United Nations Economic Commission for Western Asia (ECWA), the United Nations Conference on Science and Technology for Development (UNCSTD), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Industrial Development Organization (UNIDO), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the International Labour Organisation (ILO), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Civil Aviation Organization (ICAO), the World Health Organization (WHO), the International Telecommunications Union (ITU), the World Meteorological Organization (WMO), the Inter-Governmental Maritime Consultative Organization (IMCO), the World Intellectual Property Organization (WIPO). The Organization of African Unity (OAU), the Association for the Advancement of Agricultural Sciences in Africa (AAASA), the Association of African Universities (AAU), the African Association for the Advancement of Science and Technology (AAAST), l'Association internationale des parlementaires de langue française (AIPLF), l'Agence de coopération culturelle et technique (ACCT) and the Science Education Programme for Africa (SEPA) were also represented.

Addresses

5. In his opening address, the Prime Minister of Egypt read a statement by President Mohamed Anwar El-Sadat, who welcomed the participants and drew attention to the historical importance of the Meeting, whose purpose was to seek more effective means of applying science and technology and to work out a united African stand to be taken at the forthcoming United Nations Conference on Science and Technology for Development on behalf of Africa as a whole.

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6. The present era was one of individual, collective and national unrest and ambition due to the increasing and interlinked socio-economic problems besetting the developing countries. Those problems could be solved by means of science and technology, which most of the developing countries lacked. Their inadequacies in that regard were responsible for the gulf which now lay between the industrialized and rich societies and the developing societies.

7. The third world countries therefore had to strive to redress the balance in a spirit of justice, which could be done if their Governments faced up to the crying need to make the changes required under a new international economic order. For that reason the Meeting should help to strengthen pan-African solidarity by making practical recommendations and drafting a pragmatic programme of work.

8. It was time for the African continent, which covered a quarter of the earth's surface and contained enormous reserves of natural resources, to enter the age of nuclear power. Egypt for its part was prepared to lend support to any decisions favoured by its sister countries on the African continent. Actually, as he had pointed out at the African Summit Conference held at Khartoum in July 1978, African solidarity was also vital in tackling the problem of foreign interference in the internal affairs of Africa. Moreover, Egypt was convinced that there were no insoluble differences between its people and their brothers in Africa and was prepared to accept any just solution to any differences which might arise with its sister countries.

9. Total unanimity was essential in solving the problems of socio-economic development. Instead of exhausting national resources and funds on futile conflicts, an exchange of experience was called for, which could be effected only through science and technology. Egypt was perfectly aware of its historical responsibilities and would spare no effort in providing its sister countries in Africa with material and moral assistance.

10. In conclusion he commended the African support of the Egyptian peace initiative and said he considered the obvious willingness of African countries to defend the principles of justice and peace to be one of the main measures of the success of the African people in their quest for progress and collective development.

11. The Executive Secretary of ECA welcomed the participants to what he termed one of the most significant meetings to be held in Africa in the present decade since the purpose of the world Conference with which it was concerned was to discuss the whole complex of considerations involved in the application of science and technology to development. It was expected to embrace all the aspects of socio-economic development and growth, examine the impact of such development, identify the major problem areas involved and indicate the right direction for action at the national, regional and international levels. The main objectives of the world Conference were to strengthen the technological capacity of developing countries, to adopt effective means for the use of scientific and technological potential and to provide the developing countries with instruments of co-operation in the fields of science and technology.

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12. The African countries were deficient in every form of technology, and the gap between the developing and the developed countries in that respect was widening. It was clear that the third world in general and Africa in particular needed to work out a science and technology strategy. In fact, where Africa was concerned, consideration should be given to a whole new development strategy, whose primary objective would be the achievement of a technological revolution in Africa within the shortest possible time.

13. He drew attention to the draft ECA regional paper for UNCSTD and made the following points with respect to its contents. First, although Africa offered a staggering range of challenges where scientific research and technological invention were concerned, the structure of most African economies prevented those challenges from being expressed as effective demands. Next he spoke of the transfer of technology, on which African countries were heavily dependent. The significance of that dependence was determined by the distribution of imported technology among basic or strategic industries. The problem of strengthening domestic technological capabilities extended beyond competent staff, efficient machinery and negotiated terms and conditions of ownership or user rights. Although costs and restrictive clauses were important, capabilities in defining needs and considerations of choice, installation, operation, maintenance and improvement might be more important. Moreover, too little attention was paid to the transferee and to the role of public enterprise in that capacity.

14. The third basic question covered by the regional paper was that of manpower. In that connexion ECA attached very great importance to its projects for a regional centre for industrial design and manufacturing and for a higher technical institute, which were expected to meet urgent manpower needs. ECA's contribution to solving the manpower problem was reflected in its African training and fellowship programmes and its work on manpower planning.

15. Turning to the question of the impact of the structure of demand on the pattern of production, he mentioned the problem of standardization, which ECA had tackled by setting up the African Regional Standardization Organization. He also mentioned the role of transnationals in the transfer, development and trade in technology.

16. He ended by drawing attention to the approach of the African region to international negotiations, which African delegations rarely attended with a set of agreed, specific and concrete objectives in mind. For a more effective performance at the Vienna Conference in 1979, the present Meeting must come out with a concrete plan of action indicating the national and regional action required and mapping out the issues for negotiation with the scientifically and technologically advanced economies.

17. The representative of the United Nations Conference on Science and Technology for Development addressed the Meeting on behalf of the Secretary-General of the Conference, who was ill. He reported however, that the Secretary-General had sent through him to the Government of Egypt and to the participants his wishes for a good meeting. He further reported that preparations for the Conference were well in hand and that regional reports and recommendations for action were of fundamental importance to its work.

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18. Quoting from a speech by the Secretary-General of the Conference, he said that there were a number of points connected with the objectives of the Conference on which there was a certain measure of consensus. In the first place it was agreed that technology could be viewed in two different ways, first as property to be acquired and second as the outgrowth and an integral part of a specific economic, social, political and cultural system. More attention had been given to technology in its first definition than in its second. In its second definition technology resulted first in the imposition on the recipient parties of foreign standards and attitudes. Secondly it rendered sterile the scientific and technological creativity of the developing countries. Thirdly it led to a diminution of the specific characteristics of the developing countries and fourthly to a failure of those countries to participate effectively in their own decision-making processes. Whereas dependence on technology as property could be remedied by removing obstacles to the flow of technology, dependence on technology in its second definition could be solved only by developing a system of selectivity. Indeed, the imbalance between the developed and the developing countries made it essential to correct the effects of an indiscriminate flow of technology.

19. The second point on which some consensus had been reached was related to the process of public participation. It was dangerous to assume that the automatic application of the dictates of science and technology would solve all problems, without reference to public opinion and the process of social decision-making. Science and technology must be applied in a voluntary, conscious manner and must not be used for political domination.

20. Thirdly, it was agreed that the process of finding international solutions to scientific and technological problems should hinge on a search for the common interest and not wander into philanthropy and charity. It was continually asserted that the third world countries had nothing to offer in exchange for the co-operation extended by the developed countries in furtherance of their technological development. But it was wrong to represent the divergence between developed and developing countries as an a priori consideration when only innovation and change could provide a solution to world problems. As a spokesman for the Swedish Ministry of Foreign Affairs had recently said, general and global redressment could be realized through a major effort at solving the economic and financial problems of the developing countries. The scientific and technological development of the third world would provide new opportunities for the enterprises of developed countries and might well eliminate the problem of the impoverishment of the third world. At the political level, it would dispel the risks of disruption or explosion in the world.

21. Fourthly, there was concurrence on the need for a new type of negotiation on scientific and technical matters within the United Nations and in other forums, which would start on common ground, would involve no attempt at bargaining, would be held in a sufficiently long-term framework for discussion and would combine the "diplomatic" and "substantive" aspects of negotiation.

22. The fifth point of agreement related to the impact of science and technology on culture. Indeed, science and technology transcended the economic sphere and

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extended to national and international life as a whole. It would not be sufficient merely to analyse the relationship between scientific and technological systems and economic and production structures. Contemporary societies could safeguard their existence only by incorporating new elements; and science and technology had constructive as well as negative effects on cultures.

23. Mr. Kenneth Dadzie, United Nations Director-General for Development and International Economic Co-operation, also addressed the Meeting. He pointed out that he had been requested by the United Nations Secretary-General to supervise preparations for the Conference for Science and Technology for Development in the absence of the Secretary-General of the Conference for a few weeks and remarked that it was most appropriate that, as an African himself, his first involvement in the preparatory process for the Conference should be in the context of the African Regional Meeting.

24. He said it would be the basic task of the Conference to analyse and translate into specific objectives the scientific and technological components of the new international economic order. The Secretary-General of the Conference had recently listed the purposes of the new international economic order in the field of science and technology as being to ensure the co-operation of developed and developing countries in the establishment, strengthening and development of the scientific and technological infrastructure of developing countries; the expansion of the assistance of developed countries in support of the scientific and technological programmes of the developing countries; the increase of the proportion of R and D in developed countries devoted to problems of interest to developing countries and the expansion of international co-operation with a view to adjusting the scientific and technological relations among States. Those principles had guided the preparatory work for the Conference which involved the co-operation of various branches of the United Nations family, including the regional commissions. The important thing now was to maintain the momentum of national, subregional and regional interaction up to and beyond the Conference. To do so was essentially the task of Governments, but the fullest involvement of the scientific and technological communities was also indispensable; and that type of involvement had been the norm in many African countries.

25. He ended his statement by assuring participants that the programme of action they adopted and the report of their Meeting would constitute essential contributions to the general preparations for the Conference.

26. The representative of the Organization of African Unity (OAU), speaking on behalf of the Administrative Secretary-General, said that in the opinion of OAU the African Regional Meeting was taking place at a time when the problems of one country or group of countries inevitably affected other countries and when economic weakness was no longer identical with economic and political insignificance. If African countries were to develop, they must accept the kind of activity that generated technical progress and economic growth. They had the responsibility of planning technical change. One means of bringing about change was education; but education was a slow process, and the evidence of such phenomena as the rural exodus suggested that Africa was not prepared to wait. OAU felt that that problem should be approached by having recourse both to the most advanced technology available and

to scientific research with a view to bringing Africa into the industrial system. Africans should view industrial programmes in terms not of immediate gains and losses but of the contribution technology could make to national development and the creation of a permanent industrial complex.

27. He called for an increase in expenditure on science and technology infrastructure and on research and development and for technological assistance from the developed world suited to the specific needs of Africa. There was also an urgent need to establish a programme for scientific and technological co-operation among the developing countries. Priority should be given to the efforts initiated by UNCTAD in favour of a legally binding code of conduct on the transfer of technology from the developed to the developing countries. A revision of the international patent system was also necessary.

Election of officers

28. The Meeting unanimously elected Mr. Abdel Moneim Abou-El-Azm (Egypt), as Chairman; Mr. Youssouf Traoré (Mali), as first Vice-Chairman; Mr. M. J. Lumina (Zambia), as second Vice-Chairman; Mr. Soliman Sissoko (Guinea), as first Rapporteur and Mr. Rabindrah Ghurburram (Mauritius), as second Rapporteur.

Adoption of the agenda and organization of work

29. The Meeting adopted the following agenda:

1. Opening of the Meeting
2. Election of officers
3. Adoption of agenda and organization of work
4. Brief statements by heads of delegations from ECA member States on the situation in their respective countries with respect to the application of science and technology to development
5. Consideration of the Draft Regional Paper
6. Consideration of resolutions submitted by representatives of the least developed countries in Africa
7. Other matters
8. Adoption of the report and closure of the Meeting

30. Upon his election, the Chairman told the participants that the Meeting was an expression of the determination of the people of Africa to take the United Nations Conference on Science and Technology for Development most seriously. The national papers had been prepared, many national meetings and seminars had been held and regional views had been formulated at the Preparatory Meeting held at Arusha (United Republic of Tanzania) in 1977. The main business of the current Meeting was to formulate an African stand on the items and subitems of the UNCSTD agenda.

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31. The Meeting decided to establish a Working Group to review the Draft Regional Paper and report to the plenary Meeting.

Homage to the late Jomo Kenyatta, President of Kenya

32. The Chairman paid homage to the late President of Kenya who had died on 22 August 1978. The participants rose and observed a minute of silence in his memory.

33. The head of the Kenyan delegation in responding to the Chairman's statement of condolence said that his delegation was deeply touched by the kind sentiments expressed. He stated on behalf of the Government and people of Kenya that his country valued its friendly ties with other African nations and promised that the condolences expressed would be conveyed to the bereaved family, the Government and the people of Kenya. The Meeting agreed to transmit a cable of condolence to the Government and people of Kenya.

Message to the Secretary-General of the Conference

34. On the suggestion of the delegation of Egypt, the Meeting unanimously decided to transmit a cabled message to the Secretary-General of the Conference, who was indisposed, wishing him a speedy recovery.

Statements by heads of delegation

35. Brief statements were made by heads of delegation on the situation in their respective countries with respect to the application of science and technology to development.

Consideration of the Draft Regional Paper

36. The Meeting decided to establish a Working Group composed of representatives of Benin, the Central African Empire, Chad, Egypt, Ethiopia, Ghana, Kenya, Lesotho, the Niger, Nigeria, Senegal, Sierra Leone, Swaziland, Uganda, the United Republic of Tanzania, Zaire and any other country that wished to join it to consider the Draft Regional Paper in the light of statements made by several heads of delegation regarding the situation in their respective countries in respect of the application of science and technology to development.

37. The Working Group unanimously elected Mr. Youssouf Traoré, first Vice-Chairman of the plenary Meeting, as Chairman; Mr. Paseka Khabele (Lesotho), as Vice-Chairman; Mr. Arnaud d'Abzac (Chad) and Mr. Stachys N. Muturi (Kenya) as Rapporteurs.

38. After a procedural discussion, the Working Group agreed to adopt the Draft Regional Paper as a working document which it would study and modify in the light of the country statements made at plenary meetings, as well as national and other papers which were available. Consideration would also be given to direct contributions made by members of the Working Group itself.

39. A representative of ECA introduced the Draft Regional Paper, explaining that

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the Draft Regional Paper had been prepared following certain guidelines. Some of those guidelines had been set by the General Assembly of the United Nations, while others had been set up by the Intergovernmental Meeting of African Experts on Aspects of Technology Development which was held in 1977 at Arusha, United Republic of Tanzania. He also explained that the preparation of the Draft Regional Paper had been subject to certain deadlines which were beyond the control of ECA.

40. The ECA representative further reported that the Draft Regional Paper was based on many contributions made by various United Nations bodies, other international organizations, a number of national organizations, Governments of ECA member States and various individuals. A special contribution to the Draft Regional Paper had been made the previous month by a meeting of experts convened at Yaoundé, United Republic of Cameroon, specifically for the purpose of obtaining advice on the Draft Regional Paper before its final submission. There had not been enough time to incorporate the experts' recommendations in a revised Draft Regional Paper and that was why he wished the Working Group to consider the report of the meeting of experts alongside the Draft Regional Paper.

41. He then summarized each of the six chapters of the Draft Regional Paper, observing that the first three chapters consisted primarily of background material and that the fifth chapter was largely descriptive. He therefore asked the Working Group to concentrate on chapter IV, which identified the obstacles and bottle-necks in the use of science and technology in Africa, and especially on chapter VI, in which a programme of action aimed at eliminating those obstacles and bottle-necks was proposed.

42. In concluding his remarks, the ECA representative stated that ECA was under no illusion that the Draft Regional Paper was a perfect document. That was why the paper was referred to as a draft. He was confident that the paper would be greatly enriched by the recommendations which the Working Group was going to make.

43. The presentation of the Draft Regional Paper was then followed by general remarks on the paper as a whole. Afterwards specific observations were made about each of the six chapters of the paper.

44. The general remarks made about the paper were the following:

(a) Considering the circumstances in which the Draft Regional Paper had been prepared, and especially the fact that a large number of the national papers had not been available for reference, the paper was excellent as a draft. There were nevertheless certain serious weaknesses as described below;

(b) The flavour of the Draft Regional Paper was not adequately African. That might be corrected by including relevant examples from ECA member States' national papers which illustrated the topics discussed in the paper. In that connexion, additional statistics needed to be included in the paper by reference to figures given in national papers. That process might also replace some statistics which were in the paper but which were outdated;

(c) Notwithstanding the fact that material leading up to chapters IV and VI,

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the most important chapters of the paper, was contained in chapters III and V, chapters IV and VI themselves required further elaboration. Accordingly, greater space was required for those chapters than was actually given to them. Changes would have to be made so that the chapters were no longer mere lists of obstacles and recommendations by inclusion of preambles and background information;

(d) The African region had suffered most at the hands of the developed countries and so more than any other region was entitled to assistance from those countries. In so far as the Draft Regional Paper was addressed partly to developed countries, there was need to write that theme into the paper. But to be fruitful, that had to be done in such a way that not too many demands were made, but only the most important ones. For that reason, there was need to select judiciously the demands to be included in the paper so as to result in a shorter list of demands. Therefore, recommendations which were not addressed to the developed countries, such as those implementable at the national level, might be given less emphasis in the paper;

(e) The level of precision could be raised in some parts of the paper by using more specific statements. As an example, some of the recommendations made in the paper were not accompanied by indications of how they were to be carried out. In that connexion an attempt was needed to indicate explicitly to whom the recommendations were addressed.

45. After the above general remarks, specific observations on each of the first five chapters of the paper were made, which it was agreed to include in the final draft of the Regional Paper.

46. The Working Group considered the last chapter, chapter VI, in general terms and, because of its crucial importance, agreed to form a technical sub-committee to study the chapter in detail and make recommendations. The technical sub-committee consisted of the representatives of Lesotho (Chairman), Kenya and Chad (Rapporteurs), as well as representatives of Egypt, the Sudan, the Niger and ECA. Subsequently the Working Group met and adopted the recommendations of its technical sub-committee with some amendments.

47. The plenary Meeting was seized of the progress report of the Working Group, which indicated that more time was required.

48. The Chairman announced that for health reasons he was constrained to leave the Meeting before its closure. He said he was convinced that the Meeting would produce a carefully worked out Regional Paper faithfully reflecting the constraints to development in Africa and containing realistic recommendations for action to eliminate such constraints.

49. One delegation, speaking on behalf of the Meeting, expressed appreciation for the manner in which the Chairman had conducted the Meeting and wished him speedy recovery.

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Consideration of resolutions submitted by representatives of the least developed countries in Africa

50. The Meeting considered the draft resolutions contained in the report of the meeting of least developed countries held on 22 and 23 August 1978 at Cairo.

Adoption of reports and closure of the Meeting

51. On 29 August the Meeting adopted the present report, together with six resolutions (see annex I), the programme of action contained in the addendum to the present report and the report and resolutions of the meeting of least developed countries (see annex II).

52. The Chairman then declared the Meeting closed.

Annex I

Resolution 1. Assistance for the preparations for the United Nations Conference on Science and Technology for Development

The African Regional Meeting of the United Nations Conference on Science and Technology for Development,

Recalling General Assembly resolutions 3201 (S-VI) and 3202 (S-VI) of 1 May 1974 containing the Declaration and Programme of Action on the Establishment of the New International Economic Order, and 3281 (XXIX) of 12 December 1974 containing the Charter of Economic Rights and Duties of States,

Recalling also General Assembly resolution 3362 (S-VII) of 16 September 1975 in which, inter alia, the Assembly decided to convene the United Nations Conference on Science and Technology for Development with the objective, in particular, of strengthening the technological capacity of developing countries to enable them to apply science and technology to their development,

Recalling further decision I (1) of the first session of the Preparatory Committee for the United Nations Conference on Science and Technology for Development concerning the programme of work for the preparatory period for the Conference,

Noting the views and recommendations expressed by member States at the African Regional Meeting,

Noting also with appreciation the comprehensive statements made at the meeting by the Executive Secretary of ECA, the representative of the Secretary-General of the Conference and the representative of the Administrative Secretary-General of OAU,

Determined that the decisions of the 1979 Conference should lead to a strengthening of the capabilities of developing countries to generate their scientific, technological and productive capacities, so as to enable them to solve their own problems and meet their own needs,

1. Requests the Executive Secretary of ECA, with the active co-operation of the Administrative Secretary-General of OAU and the Secretary-General of the Conference, to continue facilitating the preparations, at the national, subregional and regional levels, for the 1979 Conference as regards in particular:

(a) The continued provision of technical advisers to member States, upon request, for the continued improvement of their national papers and over-all preparations for the Conference;

(b) The organization of seminars on the role of science and technology on the following selected topics which are of special interest to the African region:

- (i) Rural development;
- (ii) Industrial development;
- (iii) Education and training for the production of scientific and technological manpower for the development of the African region;
- (iv) The development of non-conventional sources of energy of particular relevance to the needs and resources of Africa;

2. Invites all the executive heads of the competent agencies and organs of the United Nations system to assist, as appropriate, the Executive Secretary of ECA in carrying out the tasks enumerated in paragraph 1 above.

Resolution 2. Establishment of an advisory committee

The African Regional Meeting of the United Nations Conference on Science and Technology for Development

Decides to establish a committee composed of the following countries: Chad, Egypt, Kenya, Lesotho, the Niger and the Sudan to act as an advisory committee which will work with the ECA secretariat to help it in:

- (a) Redrafting the final Programme of Action;
- (b) Redrafting the final version of the African Regional Paper, bearing in mind especially the provisional agenda of the Vienna Conference.

Resolution 3. Progress report of the Secretary-General of the Conference

The African Regional Meeting of the United Nations Conference on Science and Technology for Development,

Recalling the provisions of paragraphs 4, 5, 6 and 7 of General Assembly resolution 32/115 of 15 December 1977,

Considering that the postponement until 1979 of the third session of the Preparatory Committee for the Conference will cause administrative, financial and budgetary difficulties which will delay the programming of further preparatory activities needed for the Conference,

Considering the recognized need to strengthen the role of the regional commissions and to provide them with the necessary financial and human resources to enable them to carry still further the activities in the field of science and technology which constitute their contribution to the preparatory process of the Conference,

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1. Requests the General Assembly at its thirty-third session in 1978 to consider and adopt decisions on the following matters:

(a) The analytic progress report by the Secretary-General of the Conference on the state of preparation of the Conference;

(b) Allocation of funds necessary for the full implementation of the national, regional and interregional activities as foreseen by the Secretary-General of the Conference;

2. Urges all States to take all necessary measures to make positive contributions to the preparatory work for the Conference and to continue to extend their full co-operation to the Secretary-General of the Conference in carrying out the responsibility for co-ordination invested in him by the General Assembly.

Resolution 4. Immediate creation of a post for a French-speaking African regional consultant and co-ordinator at ECA headquarters

The African Regional Meeting of the United Nations Conference on Science and

Concerned by the need for a linguistic readjustment as regards the activities of the Preparatory Committee of the United Nations Conference on Science and Technology for Development in Africa,

Desirous of efficiently preparing Africa for the World Conference to be held in Vienna in 1979,

Urges the Secretary-General of the Conference and ECA to:

(a) Pursue preparations in all African countries for the Conference to be held in Vienna in 1979 following the Cairo Meeting;

(b) Immediately assign a French-speaking Regional African Consultant and Co-ordinator at the headquarters of ECA, in direct liaison with the Conference secretariat in New York, whose activities would cover the French-speaking African countries as a whole, to assist them in preparing for the 1979 Vienna Conference in a way conducive to the implementation of the recommendations of the African Regional Meeting.

Resolution 5. Establishment of follow-up mechanism

The African Regional Meeting of the United Nations Conference on Science and Technology for Development,

Recognizing the world-wide urgent need to put an end to the disparities, inequities and the relations of hegemony which exist between the developed and the developing countries and hence the need to establish and implement the new international economic order,

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Recognizing further that African countries are particularly wide apart in the attainment of socio-economic development from the majority of the developing countries of the world,

Mindful of the fact that the most urgent call for action is from African countries that are and have been facing those survival threatening problems caused by prolonged natural disasters,

Conscious of the critical and persistent problems in the very large rural or subsistence sectors of countries within the African region,

Mindful of the obstacles which impede the effective utilization of science and technology for survival and development in the African countries and hence of the need to eliminate these obstacles,

Conscious of the role of science and technology in helping the African countries in general to reduce the effects of technological dependency and approach technological self-reliance,

Recognizing the vital importance, therefore, of reaching a world agreement on the Code of Conduct for the Transfer of Technology,

Recalling the objectives of the United Nations Conference on Science and Technology for Development as outlined in Economic and Social Council resolution 2028 (LXI) of 4 August 1976 and General Assembly resolution 31/184 of 21 December 1976, and of the necessity of emerging from the Conference with a world programme of action,

Considering that the world programme of action, both in concept and in practice, in order for it to be realistic, action-oriented, purposeful and conducive to the realization of the set out prescribed objectives within a given time frame, should involve the participation of the entire world community for action at the national, subregional, regional, interregional and international levels, and particularly the participation of the developed countries, the United Nations system and international organizations,

1. Emphasizes the necessity of establishing an effective and adequately funded mechanism for follow-up and implementation of the world programme of action which will emerge from the United Nations Conference on Science and Technology for Development;

2. Requests the Secretary-General of the United Nations Conference on Science and Technology for Development to examine the various options for the establishment of the said mechanism for consideration by the States Members of the United Nations in good time before the Conference.

Resolution 6. Restructuring of the ECA Science and Technology Unit

The African Regional Meeting of the United Nations Conference on Science and Technology for Development,

Realizing that there is increasing awareness among African Governments of the important role of science and technology as effective and indispensable tools for national development,

Considering the fact that the need for greater efforts towards the development and use of science and technology has in recent years been echoed in statements made and resolutions adopted at conferences of African ministers of education, trade, industry and economic planning,

Aware that the Economic Commission for Africa, and in particular its Science and Technology Unit, has a major co-ordinating role in the attainment of the goals and objectives contained in such statements,

Noting that the Science and Technology Unit had already been assigned additional duties as a result of the preparatory activities for the United Nations Conference on Science and Technology for Development,

Noting also, that the duties of the Science and Technology Unit will increase after 1979 when it will be called upon to follow up the recommendations which will emerge from the Conference,

Recommends that:

(a) The Science and Technology Unit of ECA should be elevated to the Division level;

(b) Once elevated, the Unit should be strengthened both structurally and financially due regard being paid to linguistic distribution.

Annex IIMEETING OF LEAST DEVELOPED AFRICAN COUNTRIES HELD AT CAIRO,
EGYPT, ON 22 AND 23 AUGUST 1978

1. Representatives of the least developed countries in Africa, met on 22 and 23 August 1978 at Cairo to consider strategies for overcoming obstacles in the application of science and technology to their development. The meeting preceded the African Regional Meeting of the United Nations Conference on Science and Technology for Development held from 24 to 29 August 1978, so that recommendations and resolutions of their meeting could be submitted for consideration by the Regional Meeting.

2. The meeting was attended by representatives of the following least developed countries: Burundi, Chad, Ethiopia, Lesotho, Mali, Uganda, United Republic of Tanzania and Upper Volta. Observers were present from Egypt and Swaziland and from ECA and the secretariat of the United Nations Conference on Science and Technology for Development.

3. It was the consensus of the meeting that the least developed countries in general shared many of the problems facing other developing countries in Africa. However, the particular circumstances of the least developed countries resulted in the elevation of some of these problems to levels of critical urgency. The least developed countries in Africa found themselves at the stage of development where basic needs for survival were not being fully met. Those needs included food, water, health, shelter and basic education. While it was recognized that each country must ultimately reinforce its own programmes in meeting those needs, the meeting noted that international co-operation and assistance would be necessary in a large number of cases where the magnitude and complexity of the problem exceeded the capability of individual countries.

4. It was for that reason that the following resolutions and recommendations were to be brought to the attention of the African Regional Meeting of the United Nations Conference on Science and Technology for Development for consideration and adoption.

A. Resolution on water

The meeting of least developed African countries,

Considering the problem raised by the lack or maldistribution of water in the least developed countries of Africa,

Considering that the economy of the least developed African countries depends mainly on agriculture and stock-breeding,

Recalling the resolutions adopted by the United Nations Water Conference held at Mar del Plata in 1977,

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Recommends:

(a) The intensification of research on water through the use of the most efficient techniques;

(b) The establishment of multidisciplinary organs to plan and manage water resources.

B. Resolution on food production

The meeting of least developed African countries,

Considering that the least developed countries derive their livelihood mainly from agriculture,

Considering that harvests are inadequate and malnutrition still plagues the majority of least developed countries and that Governments should focus their attention on this important problem,

Recalling the resolutions adopted by the World Food Conference held at Rome in 1974,

Recommends:

(a) The development and adoption of improved production techniques and of high yield varieties;

(b) The development and use of techniques for the storing and processing of food products;

(c) The adaptation of agricultural equipment;

(d) The development of the potential of Africa's animal species;

(e) The development and management of livestock and improvement of pasture and range land.

C. Resolution on health

The meeting of least developed African countries,

Considering the insufficiency of health protection among African peoples, particularly in rural areas,

Recalling the efforts of WHO, especially in the field of tropical diseases,

Urges:

(a) Stimulation of public awareness of the principles of hygiene;

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(b) The practice of medicine for the masses, especially in rural environments;

(c) As a matter of priority, systematic control of endemic diseases such as malaria, bilharziasis, leprosy, etc.

D. Resolution on housing

The meeting of least developed African countries,

Considering the high cost of imported building materials and the fact that such materials are not always suitable for African climates,

Considering the haphazard development of urban and suburban areas and the existence of slum dwellings in Africa's capital cities and large conglomerations,

Urges:

(a) The use of local materials in housing construction;

(b) The adoption of national plans for urban development and of practical measures to solve the housing crisis.

E. Resolution on transport and communications

The meeting of least developed African countries,

Considering that most of the least developed countries are land-locked and cover vast areas,

Considering the inadequacy of existing transport and communications infrastructures,

Recommends:

(a) The diversification of access routes to the sea;

(b) The development and strengthening of road, air and water transport and of telecommunications, both within and among African countries.

F. Resolution on science and technical manpower

The meeting of least developed African countries,

Considering that the availability and training of national technical manpower are a prerequisite for any transfer of technology and self-reliant development,

Considering the need to adopt imported techniques to Africa's socio-economic conditions,

/...

Recommends:

(a) The intensification of training of local technical manpower at all levels within the national territories of Africa;

(b) Extensive co-ordination as concerns qualified national cadres from various disciplines related to the import, use and popularization of foreign techniques.

G. Special resolution on drought and desertification

The meeting of least developed African countries,

Considering that most of the least developed countries have for long years been stricken by drought,

Considering that this phenomenon can be further aggravated by desertification,

Appeals for preferential assistance to member States stricken by drought and for the pursuit of studies and research to determine the various parameters of the "drought phenomenon".

H. Resolution on international co-operation

The meeting of least developed African countries,

Considering the interdependence of nations and their wish to co-operate,

Urges:

(a) The urgent reconsideration of the United Nations models relating to aid and assistance and to bilateral co-operation;

(b) The granting of preferential aid to the least developed countries with a view to helping them to solve their immediate and crucial problems and problems relating to their future development;

(c) The strengthening of horizontal co-operation at the subregional level.

Annex III

RECOMMENDATIONS FOR ACTION ADOPTED BY THE
ECONOMIC COMMISSION FOR AFRICA

(Cairo, 24-29 August 1978)

The African Regional Meeting on the United Nations Conference on Science and Technology for Development,

Recognizing the world-wide urgent need to alleviate the disparities and inequities which exist between the developed and the developing countries, and hence the need to establish and implement the new international economic order,

Recognizing further that, in the attainment of socio-economic development, the African countries differ widely from the majority of the developing countries of the world,

Mindful of the fact that the most urgent call for action is from African countries that are, and have been, facing the survival-threatening problems caused by prolonged natural disasters,

Conscious of the critical and persistent problems in the very large rural or subsistence sectors of countries within the African region,

Mindful of the obstacles which impede the effective utilization of science and technology for survival and development in the African countries and hence of the need to eliminate these obstacles,

Conscious of the role of science and technology in helping the African countries in general to reduce the effects of technological dependency and approach technological self-reliance,

Recognizing the vital importance, therefore, of reaching a world agreement on the Code of Conduct on Transfer of Technology,

Recognizing further the importance of subregional and regional co-operation as a major instrument to achieve the expansion of domestic markets, to facilitate the use of modern technologies, efficient industrialization, better integration into the world economy, and to give greater weight to the position of African countries in international relations,

Recalling the objectives of the United Nations Conference on Science and Technology for Development as outlined in Economic and Social Council resolution 2028 (LXI) and General Assembly resolution 31/184, and of the necessity of emerging from the Conference with a world programme of action,

Considering that the world programme of action, both in concept and in practice, in order for it to be realistic, mission-oriented, purposeful and conducive to the realization of the objectives set out within the time-frame, should involve the participation of the entire world community for action at the national, subregional, regional, interregional and international levels, and particularly the participation of the developed countries, the United Nations system and international organizations,

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Adopts the following programme of action and calls on the United Nations, its appropriate agencies, and the secretariat of the United Nations Conference on Science and Technology for Development to implement the programme of action in co-operation with other international organizations:

A. Institution building for the effective utilization of science and technology for development

1. National level

(a) Making firm political commitment to the application of science and technology for development and seeking the implementation of national policies on the same;

(b) Creation or strengthening of existing national structures for policy-making and planning in science and technology;

(c) Formulation of central national plans for scientific research and technological development parallel to and concordant with the national plans for economic and social development;

(d) Reinforcement of existing institutions of scientific research and technology with regard to their manpower and material resources in order to enhance their research and development (R and D) activities and provide them with the much-needed organizational stability;

(e) Orientation of a major proportion of the national scientific research efforts towards applied objectives while maintaining an appropriate balance between applied research and basic research;

(f) Perpetuation of the notion of commitment in the R and D community, through contractual arrangements, to perform its functions to the fullest extent possible in the light of national priorities;

(g) Creation of an informed public in science and technology matters, through intensified action for the popularization of science and technology, by highlighting the role of science museums and science programmes in the media and infusing interest in handicrafts and science models while making their supplies inexpensively available to as wide a sector of the population as possible;

(h) Commitment to the setting up of statutes for policies on national research councils;

(i) Integrating the role of social sciences and the humanities in the process of over-all development, particularly for the prevention and treatment of the social ill-effects of new technologies, while working towards the preservation of the cultural identities of the nations of the region;

(j) Establishment or strengthening of existing national science and technology information and documentation services, including patent services, through:

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- (i) Dissemination of freely available technological information to local production sectors and services;
- (ii) Implementation of viable programmes for the popularization of science and technology;
- (iii) Co-operation with regional and international schemes for the establishment of a world network for the exchange of science and technology information;
- (iv) Establishment or strengthening of existing bureaux of standardization and metrology;
- (k) Cultural endeavour to acquaint the developed societies with the civilization and heritages of the African nations and the potential of their contribution to humanity;
- (l) Establishment of basic national scientific and technological services such as standards, quality control, testing and calibration.

2. Regional level

- (a) Sustained support for the African Regional Centre for Technology;
- (b) Organization of exchange programmes for scientists and technologists in the region;
- (c) Strengthening of the ties between and among the scientists and specialists in the African region, through unions and professional associations;
- (d) Convening of regional conferences and seminars, and publishing of scientific and informational periodicals on topics of importance to the development of the region;
- (e) Establishment of regional institutions for advanced training and research, particularly in those areas of scientific research and technological development which are specifically relevant to the priority areas of the African continent. This should be based wherever possible on maximum utilization of existing institutions in the region and strengthening them to be able to serve at the regional level as an alternative to establishing a chain of new ones;
- (f) Establishment of subregional and regional science and technology information systems, including those which are specifically concerned with the disciplines related to the development issues of the region;
- (g) Establishment of regional centres of high education.

(l) Inculcation in the general population of reading habits, especially in children, and the attitude of self-improvement through reading;

(m) Provision of opportunities for periodical self-improvement through attendance at refresher courses and workshops;

(n) Organization and mobilization of science and engineering professional associations;

(o) In-service and in-plant work study or holiday job programmes with strong support from industry;

(p) Training people without formal qualifications but having scientific creativity;

(q) Articulated system of selection of candidates for programmes of study and training overseas for relevant and specific manpower needs at the local level;

(r) Evolution of the existing wage and incentive system, departing from traditional patterns, and thereby providing satisfying material reward for scientists and technologists;

(s) Maintaining continuous training and providing refresher courses at all levels.

2. Regional level

(a) Exchange programmes for students and teachers of science and technology;

(b) Training and fellowship programmes for Africa;

(c) Establishment of regional centres for training and provision of specialist expertise in science and technology;

(d) Encouragement of mobility of experts, exchange of experience, and regulation of the process of migration of trained personnel and entrepreneurs within the region;

(e) Exchange programmes in the field of libraries.

3. International level

(a) Developed countries

(i) Provision of assistance in executing the current and recommended programmes of action at both national and regional levels;

(ii) Training and fellowship programmes in science and technology;

- (iii) Exchange programmes for students, teachers and research workers;
 - (iv) Engaging individuals from the region in the projects carried out in the developed countries for the benefit of development in Africa;
 - (v) Revision of the existing systems and programmes of educating and training citizens of developing countries in the developed countries, to increase their effectiveness and to make them more relevant to the needs of national development in the developing countries;
 - (vi) Training citizens of developing countries in modern methodologies in technological development institutions and in production plants in developed countries, which would help to promote production and services and introduce new perceptions in the countries of the region.
- (b) The United Nations system
- (i) Organization of intensive training programmes and establishment of regional and subregional training centres which are concerned with the fundamental development issues, including advanced vocational production training to produce different levels of graduates and trainers, and support of existing institutions;
 - (ii) Over-all assessment of the criteria used in the selection of international experts with regard to their capabilities, suitability for their commissions and remuneration; exerting efforts to ensure that a substantial number of competent experts and consultants from the African region would be selected for commissions within the region.
 - (iii) In hiring local experts, observing a certain balance between the various African subregions;
 - (iv) Working towards the establishment in Africa of at least one United Nations-sponsored university as a centre of excellence to serve the entire region and to accept a substantial proportion of African students who seek high levels of education in the developed countries;

C. Development, choice, transfer and adaptation of technology in Africa

1. National level

(a) Establishment of national centres to advise on the development, adaptation, transfer and appropriate choice of technology, and to supervise and follow up on the implementation of technology-related activities;

(b) Establishment and/or strengthening of national information and documentation services as viable centres for the acquisition and dissemination of information on the technical, economic and legal aspects of the choice, transfer and development of technology;

(c) Formulation of national policies and establishment of national laws and regulations governing the import and use of technology;

(d) Promotion of the local capability in the fields of engineering design and consultancy services;

(e) Promotion and R and D capabilities in local industrial concerns and the creation of effective linkages between research and development institutes and the users of their results;

(f) Orientation of a major proportion of the national scientific research resources towards applied objectives;

(g) Study and implementation of measures to stem and reverse the brain drain and the inappropriate deployment of local high-level manpower;

(h) Development of measures to ensure maximization of the effectiveness and utilization of technical assistance;

(i) Participation of local research and development institutions in consultative and executive capacities in the various phases involved in the process of transfer of technology;

(j) Setting up of registers of imported technologies classified by sectors and by short-term, medium-term, and long-term replacement potential.

2. Regional level

(a) Establishment and/or strengthening of regional and subregional centres for technology and centres for science and technology information and documentation to:

- (i) Provide guided leadership in the development, transfer and appropriate choice of technology;
- (ii) Act as forums for the exchange of information and experiences within the region;
- (iii) Provide advisory and consultative services;
- (iv) Serve as centres for the co-ordination, harmonization and rationalization of national and international programmes and efforts in the field of science and technology;
- (v) Promote regional scientific and technological co-operation.

(b) Identification and strengthening of competent centres in the region to act as co-ordinators of effective networks in important areas of science and technology and the regional and/or subregional levels;

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- (c) Maintaining a roster of engineering design and consultancy services as well as data on experts and R and D institutions and facilitating the dissemination of such information to users within and outside the region;
- (d) Encouraging joint industrial ventures (investments) particularly among neighbouring countries;
- (e) Establishment of regional training centres in areas of particular interest to the region through the upgrading of existing centres of excellence in particular fields;
- (f) Establishment of an African regional centre for industrial design and manufacturing;
- (g) Promotion of subregional and regional indigenous consultancy and contracting associations;
- (h) Strengthening the role of ECA in co-ordinating and following up on the implementation of the aforementioned activities;
- (i) Encouraging the transfer of appropriate technology between countries within the region through elimination of restrictions, adequate information and documentation, and preferential treatment;
- (j) Strengthening scientific and technological co-operation through the establishment of common research projects.

3. International level

- (a) Adoption of a multilateral legally binding code of conduct on the transfer of technology, with specific provision for its implementation at the national, regional and international levels;
- (b) Establishment of an international compensatory fund - to which the developed countries should substantially contribute - to compensate Africa for the serious brain drain from the region, and using these funds for the technological transformation of the region and for training purposes;
- (c) Establishment of a risk capital fund, especially in existing international and regional finance institutions, to finance technological development projects in developing countries;
- (d) The decommercialization and depackaging of technology with a view to expanding the supply of freely available technology;
- (e) Establishment of a United Nations body or, preferably, the strengthening of an existing one, to co-ordinate the science and technology elements in the various existing United Nations organizations and to serve as a referral service for Governments;

(f) Directing international organizations and international financial institutions to encourage the maximum utilization of available manpower resources and consultancy organizations in the region;

(g) Provision of technical expertise and material support which would enable the countries in the region to produce capital goods which relate to basic development requirements;

(h) Provision of practical assistance to the developing countries in matters relating to the transfer of technology through the establishment of a world centre, with an affiliated technological information expertise bank, which would participate in the negotiation processes and the subsequent follow-up and evaluation of projects.

4. Action by developed countries

(a) Special treatment should be given to meeting the technological needs of the African countries, aiming at their technological transformation and the reduction of their technological dependence through the adoption of the following measures by the developed countries:

- (i) Assisting in the development of the scientific and technological infrastructure in Africa by giving effective support to institution building and training of manpower;
- (ii) Increasing technical information availability through accelerated declassification of non-military information currently considered proprietary to security or company interests;
- (iii) Considering the entire spectrum of problems involving the industrial property system and technology transfer, including the advantages of transferring vertically integrated technology;
- (iv) Redirection of a substantial part of R and D resources to tackle the specific technological problems of the African continent; such efforts should be problem-oriented and action-oriented and should be located in the continent so as to utilize and bolster its scientific and technological resources and capabilities;
- (v) Engaging personnel from Africa in the projects carried out in the developed world for the benefit of and/or for implementation in Africa;
- (vi) Facilitating the use of transferred technology in such a manner as to assist the African countries in attaining their trade and development objectives;
- (vii) Control over the practices of transnational corporations in the developing countries of the region;
- (viii) Provision of finance for R and D co-operative activities in the region.

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5. Action by the United Nations system

(a) Establishment of an effective world technological information network to enhance the productive capabilities of developing countries, including a revision of industrial property laws and regulations, particularly those dealing with patents and trademarks;

(b) Adoption of a world integrated programme for the development of appropriate and intermediate technologies to improve the quality of life and improve the productive capabilities of the rural areas in the developing countries;

(c) Harmonization of the science and technology policies and activities of the United Nations system and their co-ordination with those of other international organizations, and provision of guidelines on general scientific and technological policy;

(d) Establishment of a mechanism for an effective and continuing dialogue and consultation between developed and developing countries in issues pertaining to science and technology and to the question of the adaptation, development and transfer of technology in particular;

(e) Helping Africa in particular by:

- (i) Building up the necessary infrastructure for the effective application of science and technology;
- (ii) Controlling and/or regulating the restrictive practices by transnational corporations in connexion with their operations in the region;
- (iii) Effectively supporting the region in its effort to obtain preferential treatment in the field of the effective choice and transfer of technology;
- (iv) Pressing for the honouring of commitments and resolutions adopted at the international level on issues pertaining to science and technology;
- (v) Strengthening the role of ECA in terms of structure and resources in order to improve its capability in the provision of assistance and support in science and technology.

D. Food and agriculture

1. National level

(a) Formulation of national policies for the utilization of science and technology in agriculture for the social and economic welfare of the people;

(b) Formulation of a strategy for rural development based on, among others, the development of agriculture and agro-based industries;

(c) Utilization of science and technology for improving the production of food in quality, quantity and diversity;

(d) Provision of gainful and productive employment, especially for women, in the agricultural sector;

(e) Production of cash crops in order to improve the income of rural households and of export and import-substitution crops to increase foreign exchange earnings and savings;

(f) Increasing knowledge of the environment, including weather patterns and the assimilation of processes and phenomena that are of importance to the development of agriculture, and orienting research towards new technological fields using fundamentally biological means to improve soil fertility and protect the vegetation;

(g) Taking an inventory of resources such as climate, soils, vegetation and surface and underground water in order to determine the land capability and the best agricultural activities in relation to the environmental capacity;

(h) Improvement of distribution and marketing facilities for agricultural products;

(i) Development and application of suitable technologies in order to bring arid, semi-arid and swampy lands into production;

(j) Development of technologies that permit optimum utilization of limited water resources for irrigation;

(k) Development of technologies that are commensurate with land-use intensification for rain-fed agriculture in the over-populated areas;

(l) Establishment and/or strengthening of R and D institutions to improve local agriculture;

(m) Establishment of crop improvement programmes through plant breeding, crop husbandry and crop protection;

(n) Study of wild plants suitable for use as food and industrial products;

(o) Development of pre-harvest and post-harvest technologies to minimize losses in agricultural products, particularly grains;

(p) Implementation, at the national level, of the recommendations relating to food and agriculture made by the United Nations Conference on Desertification;

(q) Adaptation, development and production of agricultural tools and machinery for different purposes and conditions;

(r) Research on and development of techniques of livestock farming and animal nutrition and research on animal diseases and the production of drugs and vaccines to control them;

(s) Study of non-domesticated animals as potential sources of food;

(t) Research in agro-meteorology, particularly in regions frequently affected by drought and other weather hazards;

(u) Development of fisheries, including preservation of products;

(v) Development of forestry through appropriate programmes of forest resources development and conservation;

(w) Establishment and/or strengthening of food technology institutions, and development of new processed foods from existing agricultural products;

(x) Provision of education and training for supervisory, extension and other workers in agriculture;

(y) Provision of adequate resources for the development of agriculture;

(z) Equitable distribution of land;

(aa) Development of special foods for livestock, utilizing fortified agricultural and industrial wastes.

2. Regional level

(a) Establishment of subregional bio-climatological centres;

(b) Co-operation in water development projects for irrigation;

(c) Establishment or strengthening of subregional and regional centres for agronomic research;

(d) Establishment or strengthening of insect pest control centres, especially migratory insect pests;

(e) Establishment of centres or programmes for the control of the major livestock diseases;

(f) Establishment of tsetse-fly eradication programmes;

(g) Development of suitable agricultural tools for different purposes and conditions;

- (h) Research on and development and utilization of improved agricultural techniques for both traditional and new crops;
- (i) Research on and development and application of stock-farming and animal-nutrition techniques;
- (j) Creation of a plasma bank;
- (k) Establishment of centres for marine science and technology;
- (l) Establishment of research centres for the genetic improvement of the main tree species;
- (m) Establishment of education and training centres for supervisory, extension and other workers in agriculture.

3. International level

(a) Developed countries:

- (i) Assistance in implementing the above programmes at both the national and regional levels;
- (ii) Development of favourable terms of trade particularly in relation to the prices of primary and processed agricultural products;
- (iii) Preferential treatment of African countries with regard to the sale and supply of oil, fertilizers and pesticides;
- (iv) Preferential treatment in agricultural development for countries prone to frequent droughts and desertification;
- (v) Implementation, at the international level, of the recommendations relating to food and agriculture made by the United Nations Conference on Desertification;
- (vi) Application of science and technology in the region in a concerted effort to increase the indigenous production of food supplies and other items of basic human needs.

(b) The United Nations system

- (i) Financial and material assistance from the World Meteorological Organization in the field of agriculture;
- (ii) Assistance from the competent United Nations agencies to African countries in developing high-yielding varieties and advanced agricultural techniques, establishing agro-industries, agro-meteorological and hydrological activities.

E. Housing and urban development

1. National level

(a) Formulation of effective and reasonable urbanization and habitation policies, which will take into account high- and low-density dwelling areas, with backup support from science and technology through:

- (i) The provision of urban and rural planning and settlement designs;
- (ii) The development of improved traditional and new building materials based on local resources;
- (iii) The development of suitable, inexpensive methods of construction;
- (iv) The establishment of national building standards bureaux for the standardization of building materials and components with regard to dimensions, composition, quality, performance and methods of manufacture and testing;

(b) Provision of adequate utilities, in particular water, sewerage and waste disposal systems;

(c) Encouraging the formation of indigenous consulting organizations to help to develop appropriate techniques in the area of design and construction and to promote the effective transfer of technologies relevant to local needs;

(d) Promotion of the establishment of small-scale manufacturing units for the production of building materials and components;

(e) Establishment and/or strengthening of research projects on local building materials.

2. Regional level

(a) Strengthening of selected national training centres for personnel in tropical architecture, urban planning, building and construction technology;

(b) Strengthening the research capabilities of those selected institutions for the development of local building materials;

(c) Subregional and regional arrangements for planning, design and construction of housing projects.

3. International level

(a) Establishment of a capital fund to finance the training of manpower in the technology of urban development and housing;

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(b) Establishment of financial support through scholarships for the training of manpower in the areas of water resource development, waste disposal, urban planning and road construction;

(c) Strengthening of existing United Nations agencies concerned with urban housing in the region.

F. Health and Sanitation

1. National level

(a) Control of transmissible diseases by vector control, diagnosis and treatment of diseases, and programmes of immunization;

(b) Improvement of national health planning, implementation and evaluation of the following:

(i) Health education of the public;

(ii) Improvement of health infrastructure;

(iii) Improvement of nutritional status and maternal and child care;

(iv) Research on drug safety and drug dependence;

(v) Safe and ethical programmes of family planning;

(c) Research on medicinal plants and on traditional medicines;

(d) Protection of workers against professional diseases in agricultural and industrial enterprises;

(e) Development of the appropriate health technology;

(f) Training of health personnel.

2. Regional level

(a) Establishment of research centres for medicinal plants and traditional drugs;

(b) Control of transmissible diseases at subregional and regional levels;

(c) Assistance in the training of high-level health personnel in the fields of education and research.

3. International level

- (a) Control of communicable and transmissible diseases;
- (b) Training of medical and para-medical personnel;
- (c) Organization of joint medical health research programmes in co-operation with other regions, particularly with countries having similar problems.

G. Transport and communications

1. National level

- (a) Improvement and extension of road transport services through:
 - (i) Establishment of national transport institutes entrusted with the economic and engineering studies of the various projects;
 - (ii) Establishment of consultant bureaux for road planning and design;
 - (iii) Rational organization of road transport services;
 - (iv) Improvement of the organization of road maintenance by national enterprises;
 - (v) Construction of service roads in the rural areas and/or improving existing ones;
 - (vi) Participation in the United Nations Transport and Communications Decade in Africa;
- (b) Strengthening of railway transport through:
 - (i) Improvement in the operational efficiency of existing rail routes;
 - (ii) Adaptation of methods to achieve the linking of railway systems of different technical specifications;
 - (iii) Development of improved handling facilities at railway terminal points;
 - (iv) Improvement of maintenance services for railway equipment;
- (c) Development and improvement of inland waterways and maritime shipping;
- (d) Improvement of the efficiency of port operations;
- (e) Improvement and development of air transport facilities and services;

/...

(f) Development and improvement of telecommunication networks and services through:

- (i) Improvement and expansion of national networks;
- (ii) Development of technical criteria for the planning of national telecommunication networks and services;
- (iii) Maintenance of telecommunication networks and equipment;
- (iv) Improvement of telecommunication links with neighbouring African countries;
- (v) Development of the telecommunication and electronics industry;

(g) Training of personnel in all areas and at all levels of transport and communications.

2. Regional level

- (a) Inauguration and completion of the trans-African road network;
- (b) Development and improvement of subregional and regional telecommunication networks and services;
- (c) Development of methods to achieve the linking of railway systems of different technical specifications;
- (d) Organization of subregional and regional conferences, seminars and symposia aimed at:
 - (i) Transport and communications improvement, research and development;
 - (ii) Harmonization of administrative, customs and immigration formalities and adoption of identical nomenclature, documentation and legislation by all countries in the region;
- (e) Establishment of inter-African air lines and the improvement of air freight and air mail;
- (f) Establishment of subregional and regional engineering aircraft maintenance services;
- (g) Development of multinational inland waterway and maritime shipping lines;
- (h) Strengthening co-operation between neighbouring African countries through the harmonization of road signs and signals and axle-load limits, so as to permit infrastructures and equipment which will render intercountry transit as easy as possible to be built in the future.

3. International level

(a) Assistance by the International Telecommunication Union for the speedy installation of an all-African telecommunication network;

(b) Assistance in implementing the above programmes at the national and regional levels.

H. Natural resources

1. National level

(a) Establishment of a basis for taking inventories and for the development, planning and management of the natural resources of each African country;

(b) Conducting comprehensive energy demand and supply surveys in both urban and rural areas;

(c) Conduct of national surveys of potential sources of energy, identifying:

(i) Conventional and non-conventional sources of energy available in each country and their present utilization;

(ii) The possibility of a supplementary supply of energy through advanced technology;

(d) Intensification of efforts in development, adaptation and transfer of technologies for harnessing, direct utilization and conversion of non-conventional sources of energy, such as geothermal, wind, solar and bio-fuels;

(e) Development and rational utilization of natural resources;

(f) Training of national personnel to perform the required specialized services in the development of natural resources;

(g) Establishment of national documentation services to collect and disseminate information on natural resources;

2. Regional level

(a) Conducting subregional and regional surveys of potential energy supply and demand;

(b) Co-operation in the exploitation and development of large-scale energy resources particularly among neighbouring countries;

(c) Promotion of trade in energy commodities;

(d) Promotion of joint manufacture of equipment and devices for large-scale harnessing, direct utilization and conversion, where the national market for such equipment and devices is too small;

(e) Promotion of regional co-operation in natural resources research, particularly in the exploration and utilization of the natural resources of the continent;

(f) Development of research, education and technical training in the domain of natural resources by the establishment of subregional and regional training institutions and research centres;

(g) Creation and promotion of African multinational companies and institutions for the exploration of mineral resources and the utilization of energy and water resources;

(h) Establishment of subregional mineral resources development centres;

(i) Establishment of multinational centres for marine science and technology;

(j) Resorting to the latest and most advanced technologies such as remote sensing in the survey of natural resources and in mapping.

3. International level

(a) Assistance in the implementing of the above programmes at the national and regional levels;

(b) Promotion of international co-operation in the field of exploration, development and utilization of the natural resources of the continent.

I. Industrial base

1. National level

(a) The establishment of effective linkages between national industrialization strategies and science and technology policies and activities;

(b) Acceleration of the growth of industries based on the maximum feasible processing - particularly for export purposes - and utilization of local raw materials and resources;

(c) The establishment, whenever feasible, of the higher stages of industrialization, for example, intermediate and capital goods;

(d) Introduction of special measures to remove impediments facing industrial growth and provide the necessary infrastructure and supporting policies and institutional arrangements that are necessary for the acceleration of the industrialization process;

(e) The establishment of management and productivity institutions.

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2. Regional level

(a) Adoption of a progressive industrialization strategy for Africa aiming at substantially increasing Africa's share in the world industrial production and reducing its dependence on imports of manufactured goods and the creation of a solid industrial base in Africa in general;

(b) The co-ordination and harmonization of industrialization policies and programmes in the region and the establishment of regional institutions for research and training in the industrial field, and the encouragement of effective networks of industry-related activities and programmes.

3. International level

(a) Developed countries should relax barriers facing the entry of manufactured goods from Africa and grant preferential treatment to African manufactures;

(b) Developed countries should assist African countries to establish intermediate and capital good industries;

(c) The African continent has the potential to utilize the current trend of locating some commodity production centres in developing countries, particularly where material and manpower resources are available and reasonably priced; the developed countries are invited to explore these possibilities and use the facilities offered in the African region in this regard.

J. Rural technology

1. National level

(a) Emphasis on training rural artisans and other members of rural communities on the operation, maintenance and repair of agricultural and other machinery used in their communities;

(b) Expansion of extension services provided to rural communities and increased participation of the national R and D personnel therein;

(c) Provision of material and informational resources to enable the rural family to gain access to improved food and agricultural technologies;

(d) Investigation of intermediate, and appropriate, technologies for the development of life, diversification of production and increasing the earning capacity of rural communities, such as housing, small-scale production units, limited processing of agricultural products and utilization of wastes of all kinds;

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(e) Placing greater emphasis on intensive research designed to examine the role of women, particularly in agriculture and the home, with a view to introducing improved technologies to assist in their work.

2. Regional level

(a) Exchange of experience and information at the regional level in regard to the above-mentioned recommendations;

(b) Organization of exchange programmes and seminars at the regional level for extension service workers in the various countries of the region which are involved in the introduction of technological perceptions and methodologies in the rural areas;

3. International level

(a) Developed countries:

(i) Provision of assistance, primarily through R and D programmes and also through existing knowledge and know-how to enable the countries of the African region to maximize the benefits drawn from rural technologies in the areas outlined above;

(b) The United Nations system:

(i) Organization of viable programmes specifically designed to help the African countries introduce and utilize the technologies (as exemplified above) which have the potential to bring about radical change in rural life and output in African countries.

K. Drought and desertification

1. At the national level

(a) Steadily increasing the awareness and notion of the inhabitants of the desert and Sudano-Sahelian areas for the control of drought and desertification;

(b) Establishment of national institutes for investigation and research on drought and desertification;

(c) Pursuit of activities already undertaken for the control of drought and desertification.

2. At the regional level

(a) Establishment and strengthening of African regional agencies for the control of drought and desertification;

(b) Financial and material assistance to existing African organizations (the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) and the Sahel Institute) to help them achieve their goals;

(c) Implementation at the national level of the recommendations relating to food and agriculture made by the United Nations Conference on Desertification

3. At the international level

(a) Implementation of the recommendations of the United Nations Conference on Desertification;

(b) Assistance from international organizations and organs and agencies of the United Nations system and developed countries to countries in desert zones and in the Sudano-Sahelian belt for the control of drought and desertification;

(c) Special assistance by the agencies and institutions of the United Nations system, supported by the goodwill of all other countries to the Sahelian countries, with a view to promoting and developing technologies to control and to fight against the phenomenon of drought and desertification.

L. Energy resources

1. National level

(a) Conducting comprehensive energy demand and supply surveys in both urban and rural areas;

(b) Conducting national surveys of potential sources of energy, identifying:

(i) Conventional and non-conventional sources of energy available in each country and their present utilization;

(ii) The possibility of supplementary supplies of energy through advanced technology;

(c) Intensification of efforts in development, adaptation and transfer of technologies for harnessing, direct utilization and conversion of non-conventional sources of energy such as geothermal, wind, solar and bio-fuels;

(d) Intensification of efforts to develop and disseminate the use of locally manufactured efficient appliances as well as the use of more efficient energy conversion methods;

(e) Introduction of more intensive rural electrification and other rural energy supply schemes through the implementation of appropriate social, economic and technical measures;

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(f) Developing local design and manufacturing capacity of parts of or all the equipment necessary for the production, transmission, distribution and use of energy;

(g) Undertaking intensive research and experimental development (R and D) work as well as manpower training in all aspects of energy appropriate to the socio-economic conditions of countries;

(h) Starting immediately the preparation of a core of experts in the field of nuclear energy through a combined programme of training abroad and the acquisition at home of a small nuclear reactor for research and training purposes;

(i) Introducing immediately measures to combat the harmful effects on the environment of traditional energy use patterns.

2. Regional level

(a) Subregional and regional surveys of potential energy supply and demand;

(b) Co-operation in the exploitation and development of large-scale energy resources, particularly among neighbouring countries;

(c) Promotion of trade in energy commodities;

(d) Promotion of joint manufacture of equipment and devices for large-scale harnessing, direct utilization and conversion of energy where the national markets for such equipment and devices are small;

(e) Promotion of regional co-operation in research on energy resources and training.

3. International level

Assistance in the implementation of above programmes both at the national and the regional levels.
