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OVERVIEW OF ACTIVITIES OF ORGANS, ORGANIZATIONS AND PROGRAMMES OF THE UNITED NATIONS SYSTEM

Report prepared jointly by the Secretary-General of the United Nations Conference on Science and Technology for Development and the Administrative Committee on Co-ordination

Mandates of the organizations

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I. INTRODUCTION

1. The addendum contains brief information about the mandates of organizations of the United Nations system which participated in compiling the report on programmes linking science and technology to socio-economic development. The mandates referred to are limited to those relevant to the Conference. The information is designed to be self-contained.

II. MANDATES IN THE FIELD OF SCIENCE AND TECHNOLOGY

A. United Nations

1. Department of International Economic and Social Affairs (IESA)

2. The relevant mandates of IESA are primarily those of the Office for Science and Technology, the Centre for Natural Resources, Energy and Transport and the Ocean Economic and the Ocean Economic and Technology Office. These mandates derive from decisions of the General Assembly and the Economic and Social Council. There are two main co-ordinating machineries under the over-all guidance of the General Assembly and the Economic and Social Council, namely:

(a) The Committee on Science and Technology (CSTD);

(b) The Advisory Comittee on the Application of Science and Technology (ACAST).

3. CSTD was established in 1971 by Economic and Social Council resolution 1621 B (LI) of 30 July 1971 to provide policy guidance and make recommendations on matters relating to the application of science and technology to development. Its mandate was set out in Council resolution 1715 (LIII) of 28 July 1972 which provided that the Committee's functions shall consist of the following:

(a) Promoting international co-operation in the field of science and technology, including education, training and exchange of experience and information;

(b) Reviewing and analysing, on a continuing basis, the policy aspects of science and technology for development, with a view to:

(i) Identifying restrictive factors affecting indigenous scientific and technological development and recommending policies as appropriate on their removal;

(ii) Promoting policies geared to the establishment of a viable and adequate scientific and technological infrastructure capable of generating a self-supporting process of economic and social development;

(iii) Encouraging the development of science and technology in the developing countries themselves;

(c) Encouraging the formulation of over-all scientific and technological policies and the development of scientific and technological processes which are compatible with the endowments of the developing countries and their national development plans and priorities;

(d) Suggesting, in accordance with national development plans and priorities, scientific and technological policies to promote development with such objectives as the maximization of productivity in developing countries, the promotion of their industrialization, the reduction of their dependency on imports of capital equipment, the stimulation of their exports and the improvement of their balance-of-payments position;

(e) Assisting the Economic and Social Council in helping the appropriate intergovernmental bodies of the United Nations system to plan programmes and activities within the sphere of their respective competence in the field of science and technology for development;

(f) Assisting and evaluating policies designed to employ existing scientific and technological methods and processes to accelerate the rate of economic and social progress, both quantitatively and qualitatively, of the developing countries;

(g) Keeping under review, taking into account as appropriate the views of expert bodies concerned, new developments in science and technology, evaluating their implications and making recommendations to the Council on practical measures to maximize their contributions to development;

(h) Studying and suggesting:

(i) Ways and means of integrating scientific and technological planning and activities related to development;

(ii) Measures required to make foreign scientific and technological participation fully compatible with the national plans and priorities of the host countries;

(i) Stimulating, encouraging and suggesting scientific and technological research and application required to cope with new or changing problems in the field of development;

(j) Identifying those multisectoral and multidisciplinary problems in the field of science and technology for development which are not at present being dealt with in the United Nations system, and recommending measures, as appropriate, for dealing with them;

(k) Suggesting measures required to generate the internal and external resources necessary to implement the policies and programmes recommended by the Committee;

(l) Making recommendations to the appropriate bodies in the United Nations system on the mobilization of public opinion, especially with regard to the world scientific community, in favour of policies and programmes recommended by the Committee and by other United Nations organs working in the field;

(m) Maintaining liaison with other organizations doing relevant work in the field of science and technology for development;

(n) Assisting the Economic and Social Council in co-ordinating the activities within the United Nations system in the field of science and technology for development, with a view to ensuring the utmost efficiency and co-operation and avoiding duplication;

(o) Making recommendations, through the Economic and Social Council and the General Assembly, to the United Nations Development Programme on the policy questions arising in the field of science and technology, including projects which could be financed by the Programme out of funds allocated for global projects;

(p) Assessing and making appropriate recommendations on the conclusions of the Advisory Committee on the Application of Science and Technology to Development, and giving the Advisory Committee such guidance as may be necessary for the implementation of the functions of the Committee on Science and Technology for Development.

4. The Committee was requested in the same resolution "to assist in the process of review and appraisal of the progress in the implementation of the International Development Strategy for the Second United Nations Development Decade in the field of science and technology for development".

5. The following year, the Council affirmed that "the Committee on Science and Technology for Development shall be the focal point for the elaboration and continuing evaluation and assessment of United Nations policy in the field of science and technology, and that UNESCO and UNCTAD, in particular as regards the transfer of technology, ACAST and other organizations of the United Nations system concerned should co-operate with CSTD in the fulfilment of its tasks".

6. The General Assembly, in its resolution 31/184 of 21 December 1976, decided that the Committee on Science and Technology for Development shall act as the Preparatory Committee for the United Nations Conference on Science and Technology for Development. In resolution 32/115 of 15 December 1977, the General Assembly decided that the Preparatory Committee would be open to the participation of all States as full members.

7. ACAST was established in 1963 by Economic and Social Council resolution 980 A (XXXVI) of 1 August 1963 following the United Nations Conference on the Application of Science and Technology for the Benefit of Less Developed Areas, consisting of 18, now 28 persons, appointed by the Council on the nomination of the Secretary-General after consultation with Governments on the basis of their personal qualifications, knowledge or experience in this field, with due regard to equitable geographical representation.

8. The terms of reference of ACAST are as follows:

(a) To keep under review progress in the application of science and technology and propose to the Council practical measures for such application for the benefit of the less developed areas;

(b) To review, in close co-operation with the Administrative Committee on Co-ordination, the scientific and technological programmes and activities of the United Nations and related agencies and propose to the Council measures for their improvement, including the establishment of priorities and the elimination of duplication;

(c) To consider specific questions referred to it by the Council, or by the Secretary-General, or by the executive heads of the specialized agencies and the International Atomic Energy Agency;

(d) To study and to advise the Council as to the need for making changes of organization or other arrangements which would advance the application of science and technology for the benefit of developing countries.

9. In resolution 1621 B (LI) of 30 July 1971, the Council decided that the Advisory Committee "should furnish expertise to the Committee on Science and Technology for Development, in addition to its terms of reference, and that it might receive such instruction from that Committee as would be necessary to provide it with scientific, technical and innovative advice and ideas in this field".

10. The Council in resolution 1715 (LIII) of 28 July 1972, decided that "in the future the Advisory Committee's reports will be referred to the Committee on Science and Technology for Development".

(a) Office for Science and Technology (OST)

11. The terms of reference of the Office for Science and Technology are:

(a) To provide substantive secretariat services to the United Nations bodies dealing with science and technology, namely the Committee on Science and Technology (CSTD) and the Advisory Committee on the Application of Science and Technology (ACAST);

(b) To collect and disseminate information on the activities of the United Nations system in science and technology; identify gaps and duplications in these activities; delineate areas for co-operation between the specialized agencies and other organs and harmonize related activities;

(c) To ensure co-ordination of multisectoral and interagency studies;

(d) To keep abreast of the applications of science and technology to development and initiate or undertake special studies of an exploratory nature;

(e) To review, appraise and support the implementation of the world and regional plans of action for the application of science and technology to development and assist the regional commissions in this regard;

(f) To assist other units of the Secretariat as needed in matters pertaining to science and technology;

(g) To maintain continuing links with the scientific and technological community and with the various governmental and non-governmental institutions dealing with science and technology.

(b) Centre for Natural Resources, Energy and Transport (CNRET)

12. The mandates regarding activities in this programme are contained in General Assembly resolution 32/176 on Multilateral Development Assistance for the Exploration of Natural Resources, paragraph 1 (c).

(c) Ocean Economic and Technology Office (OETO)

13. Mandates: Economic and Social Council resolution 1970 (LIX), Economic and Social Council resolution 2099 (LXIII).

2. Regional Commissions

(a) Economic Commission for Europe (ECE)

14. The Senior Advisers to ECE Governments on Science and Technology is the main ECE Principal Subsidiary Body responsible for scientific and technological co-operation within the ECE. The Senior Advisers' terms of reference are as follows:

"(a) Exchange of experience between member Governments in the application of science and in technological policy, including forecasting;

"(b) Formulation of proposals aiming at the promotion of international co-operation in the application of science and technology;

"(c) Improvement and co-ordination of the activities of the subsidiary bodies of the Commission in the field of science and technology;

"(d) Co-ordination of the activities of the Commission with other international or intergovernmental organizations dealing with the problems of scientific and technological co-opertion, particularly with UNESCO, with a view to avoiding duplication of work".

(b) Economic and Social Commission for Asia and the Pacific (ESCAP)

15. ESCAP at its thirty-third session noted that, as technology constituted one of the most important aspects of industrialization, the programme undertaken by the secretariat in the formulation of technology development policies would be an important step towards evolving appropriate policies among the developing countries

of the region. It urged that greater efforts and resources be directed into the area of rural technology development by initiating projects in that field so that the benefits of technology could flow into rural areas. It expressed the view that efforts should be directed more towards developing and expanding appropriate technologies for the rural areas, with particular stress on the exchange of information on and the transfer of such technologies among the developing countries.

16. With regard to the United Nations Conference on Science and Technology for Development to be held in 1979, the Commission recognized the leading role of the secretriat with regard to regional and subregional preparations for that important Conference. It called upon all member countries to co-operate fully with the secretariat in the formulation of regional inputs.

(c) Economic Commission for Latin America (ECLA)

17. The mandates of ECLA regarding activities in science and technology are contained in Commission resolution 357 C (XVI). The Commission is required to:

(a) Give general guidelines for the analysis and application of science and technology to the development of Latin America, and in particular carry out the functions indicated in resolution No. 1 adopted at the Meeting on Science, Technology and Development in Latin America held in Mexico City from 2-6 December 1974;

(b) Co-ordinate the preparatory work at the regional level for the World Conference on Science and Technology for Development which the United Nations Economic and Social Council is to convene towards the end of this decade;

(c) Serve as an advisory body to the Executive Secretary of ECLA in matters relating to the analysis and application of science and technology to the economic and social development of Latin America.

(d) Economic Commission for Africa (ECA)

18. The programmes and activities of the ECA in science and technology derive from its terms of reference which, inter alia, call upon it to:

(a) Make or sponsor such investigations and studies of economic and technological problems and developments within the territories of Africa as the Commission deems appropriate, and disseminate the results of such investigations and studies;

(b) Undertake or sponsor the collection, evaluation and dissemination of such economic, technological and statistical information as the Commission deems appropriate;

(c) Assist in the formulation and development of co-ordinated policies as a basis for practical action in promoting economic and technological development in the region.

19. This basic legislation has constantly been supplemented and expanded by resolutions and decisions of the General Assembly, the Economic and Social Council and the Commission which have laid emphasis on specific areas of technological development or called for new initiative on others. These guidelines have by and large determined the general orientation of the activities pursued under the science and technology programme of the Commission.

(e) Economic Commission for Western Asia (ECWA)

20. The progrmme of work and priorities of ECWA in the field of science and technology, covering the period 1978-1979, are based on the Commission's medium-term plan for the years 1978-1981, with guidance from the views expressed at the Commission's third session and comments made by the Committee on Programme and Co-ordination at its sixteenth session, as well as other comments from other bodies.

21. The region's pressing needs have been accorded the necessary emphasis in the work programme. Particular attention has been paid to the resolution of the General Assembly on economic co-operation among developing countries and that of the Economic and Social Council on strengthening regional commissions for regional and interregional co-operation. In this connexion, the following recommendations have been taken into account in identifying and developing the subprogrammes and related individual programme elements:

(a) The Manila Declaration and the Programme of Action adopted at the Third Ministerial Meeting of the Group of 77;

(b) The Economic Declaration of the Fifth Conference of the Heads of State or Government of Non-Aligned Countries;

(c) The report of the Conference on Economic Co-operation among Developing Countries held at Mexico, including the joint position paper presented to the Conference by the regional commissions;

(d) The recommendations of the United Nations Conference on Human Settlements (Habitat).

The programme also includes the reorientation of some projects which could not be implemented as a result of the civil strife in Lebanon.

3. United Nations Development Programme (UNDP)

22. UNDP is the central organization of the United Nations system for financing technical co-operation programmes and projects. It engages the services of the Executing Agencies to carry out defined substantive and operational responsibilities and tasks regarding implementation of projects financed by it. 1/ The Executing Agencies consist of the organizations in the United Nations system

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1/ UNDP itself serves as the Executing Agency for a limited number of projects. A few projects are executed by the Governments themselves.

and other organizations participating in UNDP activities. 2/ Thus, the programmes and projects financed by UNDP represent the tripartite partnership among the Governments, the Executing Agencies and UNDP.

23. The unique feature of the UNDP-financed technical co-operation programmes and projects is that they are prepared in accordance with the needs and development goals of the Governments of the recipient countries. The UNDP country programmes are prepared by the national Governments and embody their own priorities and development objectives. UNDP and the Executing Agencies offer to the Governments suggestions on the composition and contents of the country programmes. However, the ultimate choice of activities and projects and their sectoral distribution rests with the Government concerned. UNDP and Executing Agencies participate more actively in intercountry programming chiefly by means of identifying major problems common to several developing countries and intercountry programmes designed to tackle them.

24. Twin fundamental objectives of UNDP are national and collective self-reliance of the developing countries and transfers of technology, skills and know-how to the developing countries. The Governing Council firmly holds the view that "multilateral technical co-operation should be directed clearly and exclusively towards the goal of national and collective self-reliance of the developing countries"; 3/ and has further mandated that "technical assistance programmes of UNDP should be increasingly oriented to bring about tangible transfers of technology, skills and know-how to the developing countries ...;".

25. The translation of these objectives in the field of science and technology requires the "development of human resources" and "transfer, adaptation, development and diffusion of technology" in developing countries as highlighted in "New Dimensions in Technical Co-operation" adopted by the Governing Council of UNDP and endorsed by the General Assembly. 3/ Specific areas of activities mentioned in this document include, amongst others, consulting engineering services, agricultural and industrial extension services, testing, standard and other technical services, feasibility studies, engineering blueprints and designs, technical documentation and proprietory technology. 4/ The most effective means of promoting scientific and technological self-reliance in recipient countries is considered to be through building and strengthening of appropriate institutions 4/ Considerable importance is attached to the support of the development of new technologies and adaptation of existing technologies through high risk projects especially aimed at achieving technological break-throughs i relatively short periods. 1/

2/ The Executing Agencies include ILO, FAO, UNESCO, WHO, the World Bank, UPU, ITU, IMCO, IAEA, UN/OTC, UNCTAD, UNIDO, WIPO, the African Development Bank, the Asian Development Bank, and the Inter-American Development Bank.

3/ Decision of the Governing Council on the Role and Activities of UNDP, Report of the Governing Council of UNDP on its twenty-fourth session (E/6013), p. 39.

4/ DP/114, pp. 10 and 11.

26. The mandate of UNDP in the field of science and technology thus encompasses all economic and social sectors and includes training of the necessary manpower, basic applied research and experimental development for generation of new technologies and adaptation of existing technologies, scientific and technological infrastructural services, different kinds of engineering and technical services, and the provision of technical inputs required in development and implementation of investment projects.

4. United Nations Conference on Trade and Development (UNCTAD)

27. The central thrust of UNCTAD initiatives in the general field of science and technology, with accent on technology, consists in improving the terms and conditions of technology transfer, especially to developing countries, and by this and other measures taken at national, regional and international levels in strengthening the technological capability of developing countries. The UNCTAD secretariat considers that any progress towards the fulfilment of this objective constitutes an essential component of establishing the new international economic order.

28. The first official mandate of UNCTAD in the field of science and technology was given in 1970 by the Trade and Development Board which in its resolution 74 (X) established the functions of UNCTAD in the field of the transfer of technology, including:

(a) Continuing the identification of obstacles and problems that may limit the transfer of technology to developing countries;

(b) Considering studies and proposals in the field of transfer of technology, keeping in mind the objectives of accelerating the economic development in particular of the developing countries, benefits flowing from the transfer of such technology, and also taking fully into account the requirements of the least developed among these countries;

(c) Considering various forms of the foreign exchange costs of the transfer of technology and, if appropriate, suggesting measures to promote an easier, wider and more rapid transfer to the developing countries of modern technology through concerted action at the international, regional and national levels;

(d) Considering licensing and similar arrangements, giving particular attention to features which may hamper the expansion of the industries and exports of the developing countries and also the limitations that may exist in developing countries to the effective utilization of technology;

(e) Identifying, in co-operation with specialized agencies as appropriate, additional factors within UNCTAD's field of competence governing the choice by the suppliers and recipients of operative technology of particular channels and forms for the transfer.

29. This broad mandate of UNCTAD in the field of transfer of technology was underlined and strengthened by the third session of UNCTAD in its resolution 39 (III) adopted in 1972.

30. In its resolution 2 (III) the Intergovernmental Group of Experts on Transfer of Technology, at its third session held in 1974, gave UNCTAD the mandate to convene a Group of Experts to study all relevant aspects of the international patent system which have a bearing on the development process of developing countries, with a view to providing a better understanding of the role of that system in the context of a possible future revision of the system aimed at reflecting the special needs of developing countries and to make recommendations thereon.

31. In the meeting of the Group of Experts, a declaration of experts from developing countries was prepared ("The role of the patent system in the transfer of technology to developing countries: Conclusions of experts from developing countries" (TD/B/C.6/12)), and at the end of 1975, the process of revision of the Paris Convention for the Protection of Industrial Property led to an agreement on a Declaration of Objectives, which embodied the main thrust of the early UNCTAD initiatives.

32. The Intergovernmental Group of Experts at its third session also adopted resolution 3 (III) on the possibility and feasibility of an international code of conduct in the field of transfer of technology. The resolution requested the Secretary-General of UNCTAD to convene an intergovernmental group of experts to prepare a draft outline to serve as a basis for the preparation of a universally applicable code of conduct corresponding to the needs and conditions prevalent in developing countries, as well as to other special conditions found in the various flows of trade in technology.

33. By its decision 117 (XIX) the Trade and Development Board, in September 1974, set up in UNCTAD a Committee on Transfer of Technology with the following terms of reference:

> "1. To exercise its functions, within the competence of UNCTAD, under the general guidance of the Trade and Development Board, to formulate recommendations and to promote general and consistent policies in the field of transfer of technology and directly related matters;
>
> "2. To assume functions assigned to the Intergovernmental Group on Transfer of Technology and to keep under continuous review priorities in fulfilment of its functions;
>
> "3. To undertake relevant studies on the transfer of technology and, where appropriate, to gather necessary statistical data to this end;
>
> "4. To assist the Board in keeping under review and in taking appropriate action within the Board's competence for the implementation of the recommendations, declarations and other decisions made by the Conference and the Board in the field of transfer of technology;
>
> "5. To assist the Board in its task of co-operating in, reviewing and facilitating the co-ordination of activities of other institutions within the United Nations system and other relevant intergovernmental organizations in the field of transfer of technology, with the aim of avoiding unnecessary duplication and overlapping of the work;

"6. To bring, through the appropriate channels, to the attention of Governments, the regional economic commissions and other international organizations, as appropriate, its views and recommendations as to the need for and possibility of governmental or intergovernmental action, or for action at the regional level, to deal with problems related to the transfer of technology;

"7. To provide general guidance regarding technical assistance to developing countries in areas involving the transfer of technology and to co-operate in this regard with the United Nations Development Programme and other appropriate bodies concerned;

"8. To submit periodic reports to the Board on its work;

"9. To co-ordinate its work with, and to co-operate with, the other committees of the Trade and Development Board as appropriate;

"10. To consider at the request of the Board any other subject in the field of transfer of technology;

11. To co-operate with other bodies in the United Nations system and other international organizations with the aim of avoiding any overlapping and unnecessary duplication of activities in this field in conformity with the responsibilities of the Economic and Social Council, particularly those of co-ordination, keeping in mind the terms of reference of the Committee on Science and Technology for Development, and in conformity with the agreement governing the relationships between the United Nations and the agencies concerned."

34. The first session of the Committee on Transfer of Technology in 1975 represented to a significant extent a turning point in UNCTAD activities in the sense of shifting emphasis to strengthening of technological capability of developing countries. With this aim in view, it mandated, in resolution 2 (I), the UNCTAD secretariat to undertake or continue studies in the following areas, including recommendations for possible policies and measures which could be taken, particularly by the developing countries, with the objective of reducing their technological dependence and thereby promoting and strengthening their technological infrastructure and capabilities:

(a) Experience of developing countries in the implementation of their laws, regulations and policies on transfer of technology;

(b) Experience of developing countries in the field of transfer of technology in the public sector and in technology transfer arrangements arising out of bilateral assistance and aid programmes;

(c) Impact of standardization and quality control on the transfer and development of technology in the developing countries;

(d) Possibility of establishing alternative channels, including technology trading enterprises of developing countries, for the commercialization and dissemination of technology to and among developing countries;

(e) Environmental impact of technological dependence of developing countries, with a view to devising appropriate policies;

(f) Experience in transfer and development of technology between countries having different economic and social systems in the various industrial sectors, including the relevant aspects of existing or proposed tripartite industrial co-operation.

35. At the same meeting, the UNCTAD secretariat was requested to continue to provide advice to the developing countries in the preparation of national technology policies and plans and their implementation and in the establishment of a necessary infrastructure at the national level and subregional and regional levels transfer and development of technology centres. This was the first official mandate for the activities which later formed the basis for the establishment of the Advisory Service on Technology.

36. The first session of the Committee on Transfer of Technology also requested the Secretary-General of UNCTAD, in collaboration with other relevant United Nations organizations, to undertake studies which would examine the problems of the transfer and development of technology in specific sectors, with the objective of analysing methods which would strengthen the technological capability of developing countries in these sectors, including arrangements between developed and developing countries and among developing countries.

37. It also gave the mandate to the UNCTAD secretariat to carry out studies assessing the magnitude, composition, causes and effects of the outflow of trained personnel from the developing countries and to convene a group of governmental experts to examine the studies and make appropriate recommendations.

38. The fourth session of the UNCTAD Conference held in 1976 represents an important landmark in the activities of UNCTAD in the field of science and technology. In the light of the resolutions adopted at tht Conference, and in particular resolution 87 (IV), the over-all approach to implementing the application of science and technology to development is that besides improving conditions for the transfer of technology to developing countries through the elaboration and implementation of an international code of conduct on the transfer of technology, the formulation of national laws, regulations and policies on transfer of technology and revision of the industrial property system, both at international and national levels, with regard to the economic, commercial and developmental aspects of the system, special attention should be given to the strengthening of technological capacity of developing countries.

39. In resolution 87 (IV), the Conference recommended that each developing country take the necessary steps, at the national level, to ensure the formulation of a technology plan as an integral part of its national development plans, as well as co-ordination of its policies in a number of interrelated areas, including licensing arrangements, transfer, development and adaptation of technology, industrial property laws and practices, foreign investments, research and development. UNCTAD IV also recommended the establishment of appropriate institutional machinery, including national centres for development and transfer of technology.

40. In the field of co-operation among developing countries, the fourth session of the Conference recommended the developing countries to take action at the subregional, regional and international level to ensure the elaboration of preferential arrangements for the development and transfer of technology; the establishment of subregional and regional centres for the development and transfer of technology giving the definition of their main functions as well as the establishment of subregional, regional and interregional centres by developing countries in specific and critical sectors of particular interest to those countries.

41. As far as co-operation from the developed countries is concerned, the Conference recommended, among other things, to promote imports of technology originating in developing countries, to encourage their enterprises and institutions to develop technology appropriate to the needs of the developing countries, to disseminate such technology to them on equitable terms and conditions, and to undertake in these countries research and development activities of interest to them, assist in organizing training programmes in developing countries, to expand their research and development activities which can be of benefit to developing countries.

42. The Conference also recommended to all countries to improve the availability and quality of technological information needed to assist developing countries in the selection of technologies relevant to their needs, to promote international co-operation and to support international action in which they agree to eliminate and effectively control restrictive business practices in the field of transfer of technology. UNCTAD IV also decided to establish the Advisory Service on Transfer of Technology within UNCTAD to render assistance at the request of developing countries.

43. As to the activities seeking to establish a new set of international norms to bring about a more equitable sharing of the benefits between developed and developing countries from the transfer of technologies, they are determined by UNCTAD resolutions 88 (IV) on "Industrial Property" and 89 (IV) on an "International code of conduct on transfer of technology".

44. In accordance with resolution 89 (IV), the work on a draft code of conduct for the transfer of technology should be accelerated. The resolution also recommended that the General Assembly convene a United Nations Conference under the auspices of UNCTAD to negotiate on the draft elaborated by an intergovernmental group of experts, open to the participation of all member countries.

45. Since the adoption of resolution 89 (IV), six meetings of the Intergovernmental Group of Experts were convened to elaborate a draft of a code and the United Nations Conference on an International Code of Conduct on the Transfer of Technology took place on 16 October-11 November 1978. A big step forward was taken by the Conference concerning negotiations of a number of draft provisions, for example, chapters on preamble, special treatment for developing countries and international collaboration, and objectives and principles have been almost completely cleared. In its resolution, the Conference, taking note of the progress achieved towards the negotiating and the taking of all decisions necessary for the

adoption of an international code of conduct on the transfer of technology, decided to convene a resumed session of the Conference in the first quarter of 1979. The decision regarding any further session of the Conference will be taken at the resumed session in light of the progress made at that session.

46. Although the revision process of the Paris Convention for the Protection of Industrial Property is taking place in WIPO, UNCTAD in accordance with resolution 88 (IV) has been playing a prominent role in its revision (meetings of governmental experts, preparation of studies, etc.).

47. The work of the UNCTAD secretariat in the field of trade marks is closely related to the revision of the Paris Convention. A number of policy suggestions to modify the negative effect of trade marks on the development process of developing countries were proposed and further elaborated in the Declaration of the Group of 77. These proposals not only refer to the Paris Convention but also are concerned with national policies on trade marks in developing countries.

48. The future work of UNCTAD on industrial property will continue linking the industrial property system with economic and technological development. Its effort will be concentrated in finding the means of modifying the industrial property system in order to use it to reduce the technological dependence of developing countries and to strengthen their domestic technical capabilities.

49. Taking into account the fundamental importance of strengthening the technological capacity of developing countries, UNCTAD pays special attention to the mandate given to it by UNCTAD IV in resolution 87 (IV). Actually, the activities aimed at strengthening of technological capability of developing countries, individually and in co-operation among themselves, take about two thirds of the resources allocated by UNCTAD for its activities in the field of application of science and technology for development in 1978-79.

50. In accordance with resolution 87 (IV) on "Strengthening the technological capacity of developing countries", the UNCTAD secretariat, through its Advisory Service, at the national level, co-operates with and assists the developing countries in the formulation of technology plans as an integral part of their national development plans; in the establishment of appropriate infrastructure including national centres for the development and transfer of technology; in dealing with the techno-economic legal, commercial and developmental aspects of technology transactions; in establishing training programmes, etc.

51. In accordance with the same resolution, UNCTAD, together with UNIDO, UNESCO and other United Nations organizations, has been assisting the developing countries and the United Nations regional economic commissions in establishing regional centres for transfer and development of technology.

52. In fulfilling this resolution, the UNCTAD secretriat has undertaken to develop relevant programmes of co-operation among developing countries in specific and critical sectors of particular interest to these countries. A major programme has been worked out in the field of pharmaceuticals, as well as in the field of food processing, fertilizers, petrochemicals, electronics, energy, telecommunications

and capital goods and some others. At a later stage, the focus of the work will be on formulation of policies to strengthen the capabilities of developing countries in these sectors, including the establishment of supbregional and interregional centres by the developing countries in critical sectors of particular interest to these countries.

53. To fulfil the part of resolution 87 (IV) dealing with the reverse transfer of technology (brain drain), the UNCTAD secretariat prepared a number of substantive studies on the subject focusing on (i) international policy issues; (ii) main issues at the national level - based on an analysis of four country cases; and (iii) a study on prospects for co-operative exchange of skills among the developing countries themselves. These were considered by UNCTAD's Group of Governmental Experts on Reverse Transfer of Technology, which met in Geneva from 27 February to 7 March 1978, and resulted in the adoption by the Group of a set of "agreed conclusions and recommendations" which provide the framework for further work on the subject, identifying areas of agreement, areas requiring further studies or expert examination as well as an area where the Group could not arrive at a consensus. These recommendations were subsequently considered and endorsed by the Committee on Transfer of Technology, at its second session, in December 1978. Moreover, the Committee in its resolution 7 (II) on "Development aspects of reverse transfer of technology" has requested UNCTAD's Trade and Development Board, in the light of the Group's recommendations, to "consider appropriate arrangements, including the necessity of convening a Group of Experts, to examine the possibility of measuring human resource flows ...". It has furthermore requested the Secretary-General of UNCTAD to continue and undertake studies of the experience of individual countries belonging to different geographical areas in the field of reverse transfer of technology as an essential prerequisite for consideration of appropriate measures in response thereto. The subject is also on the agenda of UNCTAD V.

54. The mandate of UNCTAD in this area has been further reinforced by the recent General Assembly resolution 33/151 entitled "Reverse transfer of technology". This resolution, among other things, welcomes the inclusion in the provisional agenda of the fifth session of the Conference of an item on development aspects of reverse transfer of technology and urges all Member States to give at the fifth sesson "urgent consideration to the elaboration of measures on the development aspects of the reverse transfer of technology".

55. In accordance with resolution 87 (IV) and the resolution adopted at the second session of the Committee on Transfer of Technology (1978), UNCTAD actively participates in the preparation of the United Nations Conference on Science and Technology for Development.

56. In conclusion, it should be stated that in a more general way, UNCTAD is guided in its activities in the field by General Assembly resolutions 2821 (XXVI), 3202 (S-VI), 3362 (S-VII), 3507 (XXX), 3517 (XXX), 31/183, 31/184, and Economic and Social Council resolutions 2028 (LXI), 2029 (LXI), 2034 (LXI) and 2123 (LXIII).

5. United Nations Industrial Development Organization (UNIDO)

57. General Assembly resolution 2152 (XXI), establishing UNIDO calls upon it to undertake operational activities, action-oriented studies and research programmes to promote the industrialization of the developing countries, and to "play the central role in and be responsible for reviewing and promoting the co-ordination of all activities of the United Nations system in the field of industrial development". Industrial technology being an integral part of industrial development, the resolution underlines UNIDO's role inter alia in "building and strengthening of institutions and administration in the developing countries in the matter of industrial technology ..." and dissemination of information on technological innovations originating in various countries and, for the developing countries, assistance in the implementation of practical measures for the application of such information, the adaptation of existing technology and the physical, social and economic conditions of developing countries through the establishment and improvement, inter alia, of technological research centres in these countries".

58. The promotion of the development and transfer of industrial technology has been a major component of UNIDO's programme and has received particular attention both in operational activities and in policy discussions in the Industrial Development Board (IDB). For example, resolution 36 (VII) calls for the exchange of newly adapted technologies, information and development assistance, as part of the exchange of experience among developing countries.

59. The Lima Declaration and Plan of Action adopted by the Second General Conference of UNIDO and endorsed by the General Assembly, envisages that developing countries should reach a share of 25 per cent of the world industrial production by the year 2000. Recognizing that the achievement of this target would imply the application of technology on a massive scale, it pays particular attention to the building up of indigenous technological capabilities of the developing countries and the measures necessary at national and international levels for the development and transfer of industrial technology. In addition, the Second General Conference adopted resolution 2 on the selection of appropriate industrial technology calling upon the Executive Director to prepare a concrete co-operative programme of action to promote the creation, the transfer and the use of appropriate industrial technology together with the ways and means of its implementation.

60. Following a proposal contained in the Lima Declaration and Plan of Action, the General Assembly called upon UNIDO to establish an industrial technological information bank, and upon UNIDO and UNCTAD to continue their efforts in their respective fields to assist in the establishment, in developing countries, of centres for the transfer and development of technology at the national, subregional and regional levels (resolution 3507 (XXX)).

61. The General Assembly also asked UNIDO to establish a system of consultations between developed and developing countries and among developing countries themselves, in order to facilitate the achievement of goals set forth in the field of industrialization, including the redeployment of certain productive capacities existing in developed countries and the creation of new industrial facilities in

developing countries; such consultations include the associated technological aspects (resolution 3362 (S-VII)). The General Assembly's endorsement of the Lima Declaration and Plan of Action also covers the recommendations of the Ad Hoc Committee on the Long Range Strategy for UNIDO, which emphasized UNIDO's activities in the field of technological information and operational activities on the "transfer, development and adaptation of appropriate technologies, including exchange of industrial know-how among developing countries". The General Assembly also recommended that a joint study be undertaken by all Governments under the auspices of UNIDO, in consultation with UNCTAD and making full use of the knowledge, experience and capacity existing in the United Nations system of methods and mechanisms for diversified financial and technical co-operation which are geared to the specific changing requirements of international industrial co-operation (resolution 3362 (S-VII)).

62. The International Forum on Appropriate Industrial Technology was organized in compliance with resolution 2 of the Second General Conference Resolution and the Co-operative Programme of Action on Appropriate Industrial Technology (ID/B/188), in two parts: a technical-official level meeting and a ministerial-level meeting. The first part of the forum, with the participation of over 300 technical experts including those from research institutes, discussed the application of appropriate techniques and processes from the view point of the socio-economic and technological development in semi-urban and rural communities in the developing countries, as well as on the conceptual and policy framework for appropriate industrial technology, and the appropriate development strategies and policy framework for developing the national technological development capabilities, particularly regarding the choice of appropriate industrial technology. The second part of the Forum, attended by high-level representatives from 29 developing and developed countries, considered the report of the technical group and adopted a report which identified major issues for policy action, and recommended steps to be taken by interested Governments in implementing the programme of action. UNIDO was requested to submit the report of the ministerial-level meeting which should be considered as an important policy statement, not only to the UNCSTD but to the Third General Conference of UNIDO, with the hope that the programme of action and the policy framework evolved would provide a substantive basis for the action programme to be formulated and adopted by the UNCSTD.

63. The General Assembly at its thirty-third session adopted resolution 33/78 on industrial development co-operation, which included a section, particularly referring to the transfer of technology, which reads:

"IV

"1. Requests that suitable measures be carried out, in accordance with established practice, including consideration by the Industrial Development Board when required, to strengthen, within the secretariat of the United Nations Industrial Development Organization, its activities relating to the development of the technological capability of and the transfer of technology to the developing countries in the industrial field;

"2. Reaffirms its support for the co-operative programme of action on appropriate industrial technology being undertaken by the United Nations Industrial Development Organization;

"3. Requests the Industrial Development Board at its thirteenth session to suggest, on the basis of the results of its analysis of the pilot operation of the Industrial Technological Information Bank, ways for further effective action in this sphere".

64. Resolution 47 (XI) of the Industrial Development Board consolidates and restates certain UNIDO mandates in the field of development and transfer of technology. Considering that UNIDO "should continue to make an important contribution to the promotion of international co-operation in the development and transfer of technology in order to accelerate the industrialization of the developing countries", it urges UNIDO to promote the implementation of an integrated programme in the field of development and transfer of industrial technology, in such areas as:

(a) Formulation and implementation of national technology plans and programmes and the identification and implementation of measures for improving them;

(b) Elaboration of policies on the development and transfer of industrial technology;

(c) Establishment, improvement and interlinking of national, subregional, regional and interregional centres, including special attention to strengthening technological extension and field services, with emphasis on the transfer, development and practical application of industrial technology; and the interlinking of such centres along with the Industrial and Technological Information Bank into the network for the exchange of technological information called for by the General Assembly in resolution 31/183;

(d) Promotion of dissemination and exports, as widely as possible, of technologies from developing countries;

(e) Selection of available industrial technology, the adaptation of that technology to local economic and social conditions and the development of indigenous and appropriate technology;

(f) Examination and evaluation of the technical, economic, commercial and development implications of industrial technology transfers;

(g) Training programmes at national, regional, subregional and international levels, seminars and exchange of personnel in technical activities, especially aimed at providing the capability to acquire, evaluate and manage industrial technology, for personnel in developing countries and for the better utilization and development of skilled personnel within and between developing countries;

(h) Studies and the publication of their conclusions or ways and means to promote technological and industrial co-operation among developing countries, including co-operative projects that can be implemented with the technical resources of those countries;

(i) Initiation of specific co-operation activities among the developing countries which will cover the exchange of personnel for purposes of providing advice or receiving training, and the facilitation of institutional co-operation involving, inter alia, research institutes and enterprises that carry out engineering studies and provide consulting services and manufactures;

(j) Intensification of courses on technological and industrial management, including industrial technological information in accordance with the needs of each country.

6. United Nations Environment Programme (UNEP)

65. A number of the principles and recommendations of the United Nations Conference on the Human Environment held at Stockholm in 1972 refer to the role of science and technology. Principle 18 states that "science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind". Furthermore, principle 20 states that "scientific research and development in the context of environmental problems, both national and multinational, must be promoted in all countries, especially the developing countries. In this connexion, the free flow of up-to-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems; environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the deveoping countries".

66. One of the general policy objectives of UNEP endorsed by the Governing Council at its first session was:

> "To assist all countries, especially developing countries, to deal with their environmental problems and to help mobilize additional financial resources for the purpose of providing the required technical assistance, education, training and free flow of information and exchange of experience, with a view to promoting the full participation of developing countries in the national and international efforts for the preservation and enhancement of the environment."

67. At the same session, the Governing Council requested the Executive Director of UNEP to "support and encourage the development of relevant research capabilities in developing countries on environmental problems, and to encourage comprehensive studies designed to safeguard against possible negative effects of the international transfer of technology, particularly from the developed to the developing countries; and to evaluate the effectiveness of such safeguards as may be devised". The Governing Council authorized the Executive Director to proceed promptly with the implementation of the proposals regarding the support of environmental actions in the various countries, particularly the developing countries, through extending technical assistance, helping with the organization of training programmes, supporting the development of institutional capabilities, mobilizing additional financial resources and encouraging and supporting the development and widest possible dissemination of new, environmentally sound technologies.

68. At its second session, the Governing Council recommended that, in order to ensure the continuing compatibility of the programme with the International Development Strategy, UNEP should participate in the process of review and appraisal of the strategy. Furthermore, the Governing Council decided that "high priority should be given to the relationship between technologies, environment and comprehensive development planning. Action, including a comprehensive investigation of problems and possibilities of low-waste and non-waste technologies, as well as in the transfer and adaptation at the lowest feasible cost of environmentally sound technologies, particularly to developing countries, and support for the creation of indigenous research and development capabilities, should be especially signalled out. The various implications, especially the economic, environmental and other costs and benefits to each party, of the transfer of selected highly polluting technologies from one country to another, with particular reference to the transfer of such technologies to developing countries, should be investigated".

69. Furthermore, the Governing Council endorsed the following strategy:

(a) Revision of the World Plan of Action for the Application of Science and Technology to Development to include the dimension of environment;

(b) Dissemination of scientific and technological information relating to questions of the environment through UNEP/IRS;

(c) Identification of environmental factors in the process of research and development and transfer of technology;

(d) Promotion of research activities on technical and economic aspects of low polluting technology;

(e) Definition and identification of elements for new patterns of research and development and the transfer of technology;

(f) Advice to Governments, investors, industrial enterprises and trade unions on the selection of technologies for new investment projects;

(g) Strengthening of research and development capacity in developing countries, in accordance with their specific needs and characteristics;

(h) Rapid and systematic development of environmental education;

(i) Implementation of the concept of "eco-development" through interdisciplinary research programmes.

7. United Nations Institute for Training and Research (UNITAR)

70. The statutory mandate of UNITAR is to enhance, by means of training and research, the effectiveness of the United Nations in achieving the major objectives of the organization, in particular the maintenance of peace and security and the promotion of economic and social development.

71. The UNITAR Board of Trustees has authorized several research projects related to science and technology with particular reference to development.

8. United Nations Children's Fund (UNICEF)

72. The legislative base for UNICEF is primarily contained in General Assembly resolution 57 (I) entitled "Establishment of an International Children's Emergency Fund" of 11 December 1946, resolution 417 (V) entitled "Continuing needs of children: United Nations International Children's Emergency Fund" of 1 December 1950 and resolution 802 (VIII) entitled "United Nations Children's Fund (UNICEF)" of 6 October 1953.

73. The terms of reference as amended by the General Assembly provide that the resources of the fund should be used for the purpose of meeting, through the provision of supplies, training and advice, emergency and long-range needs of children and their continuing needs, particularly in under-developed countries with a view to strengthening, wherever this may be appropriate, the permanent child health and child welfare programmes of the countries receiving assistance.

74. Operating within the framework of resolutions adopted by the General Assembly, under the review of its work by the Economic and Social Council and the Second Committee of the General Assembly and with policies and the nature and distribution of assistance determined by an Executive Board made up of Governments of 30 elected States, UNICEF's programme has gradually broadened and evolved into provision of assistance for a range of "basic services" including the fields of health; education; local production, storage and consumption of nutritious foods; safe drinking water; sanitation; technology of lightening the workload of women; and, where appropriate, family planning. Elements of transfer, promotion or development of technology in these activites form an organic part of the assisted programme as a whole. Some developments are fostered at the headquarters global level but the major part is at the country level.

B. Specialized agencies and International Atomic Energy Agency

1. International Labour Organisation (ILO)

75. The International Labour Organisation has, since its inception in 1919 and as mandated by its Constitution, endeavoured to bring Governments, employers and trade unions together for united action in the cause of social justice and better working and living conditions. Four major themes determine the nature and scope of current ILO programmes:

(a) Employment promotion and poverty eradication;

(b) Improvement of working conditions and the working environment;

(c) Strengthening of tripartitism and of industrial relations systems;

(d) Protection and promotion of human rights.

76. Labour and technology are intimately linked. To begin with, technology is the fruit of labour itself; but also the application of technology implies the deployment of human resources and skills. Generally the application of technology results in the satisfaction of needs or the generation of income required to satisfy these needs. In order to contribute best to development objectives such as employment creation and poverty eradication, appropriate technologies must be selected with care from among alternatives.

77. Many traditional ILO programmes are concerned to facilitate the application of technology in many sectors of industry, in agriculture and construction. Such programmes include extensive technical co-operation in the fields of vocational training, management development, and industrial relations. The PIACT programme (known by its French acronym) is concerned with another aspect of technological change, the need to ensure good working conditions and adequate provision for the occupational safety and health of the worker. Over many years the ILO's industrial committees have discussed many aspects of the application of science and technology to industries in developing countries, including those mentioned above.

78. The increasing emphasis in ILO activities on the satisfaction of basic needs is directly based on the declaration adopted by the World Employment Conference of June 1976. The third of the five chapters of the Programme of Action adopted by the Conference is entitled "Technologies for productive employment creation in developing countries". This chapter underlines the important role which technology can play in the process of development and emphasizes the need to select appropriate technologies. It also recommends concrete action on technological choice and development at both national and international levels. Very specifically, the Programme of Action adopted by the Conference called upon the ILO to (a) help in the establishment of national, subregional and regional centres for the transfer and development of technology; (b) strengthen its activities in the field of the collection and dissemination of information on appropriate technologies, especially for the rural sector; (c) reorient and strengthen its existing programme in order to provide more manpower training and human resources development in the developing countries; (d) pursue its research and technical co-operation in the field of the development and transfer of technology; and (e) set up a working group in which employers and workers would be represented to examine action on appropriate technology for employment, vocational training and income distribution.

79. The aims of the work being carried out by the ILO on appropriate technology are: (a) to demonstrate how a basic needs strategy implies a certain choice of goods, to be locally produced or purchased abroad, and a certain choice of services to be delivered to the population; (b) to demonstrate, after it has been decided what will be produced, in what quantity and where, how an appropriate technology may be selected from among alternatives; (c) to identify these alternative technologies and to assess the scope for adapting technologies imported from the developed world; (d) to assist in the formulation of technology policies; (e) to assist, through technical co-operation projects and information dissemination activities, in the implementation of the appropriate technology concept. These activities are carried out in relation to all sectors of economic activity - manufacturing (large and small-scale), agriculture and construction.

2. Food and Agriculture Organization of the United Nations (FAO)

80. The Food and Agriculture Organization of the United Nations promotes research in its fields of competence under a mandate in article 1 of its constitution which stipulates that "The Organization shall promote and, where appropriate, shall recommend national and international action with respect to scientific, technological, social and economic research relating to nutrition, food and agriculture as well as the improvement of education and administration relating to nutrition, food and agriculture, and the spread of public information knowledge of nutrition and agriculture, science and practice. It shall also be the function of the Organization to furnish such technical assistance as governments may request". In this constitution the term "agriculture" and its derivatives include fisheries, marine products, forestry and primary forestry products. Activities in science and technology are inseparable from the development of food and agriculture, which constitutes the fundamental mandate of the organization.

81. The policies and programmes evolved by FAO to fulfil this mandate over a period of three decades have been strengthened and modified in the light of experience, changing conditions and above all, in response to the expressed wishes of its member nations, in accordance with policy guidelines provided by the organization's biennial governing conferences in 1976 and 1977. FAO's activities in the field of research have concentrated on assisting the developing countries to establish and improve their own research capabilities, including the application of research, results on their farms and in their fisheries and forests.

82. A quantitative illustration of FAO's involvement in research is to be found in the register of FAO activities related to agricultural research. The register provides information on current activities and supporting services related to the field of agricultural research conducted by FAO with its own funds (regular programme) or executed by the organization with funds provided by other organizations and/or donor agencies. The register is divided into the sections: part 1 - containing descriptions of individual activities related to agricultural research and part 2 - a classification of these activities by subject-matter. As of 1977 the register summarized 615 projects and subprojects involving major research assistance by FAO at the national level. These activities may be divided into three broad groupings:

(a) Establishing or strengthening national research organizations and institutions - 58 projects;

(b) Strengthening national research relating to specific development projects - 89 projects;

(c) Extension, training and related development projects designed to transfer technology and apply research results - 468 projects.

83. In addition to these broad groupings, FAO maintains two major documentation services: through the international information system for the agricultural sciences and technology (AGRIS) FAO provides research information to developing countries, and through the current agricultural research information system (CARIS)

FAO collects, organizes and disseminates basic data on current research and agriculture, animal production, forestry, inland fisheries and food. In addition, FAO operates an interlinked computerized storage and processing system (ICS), the aquatic sciences and fisheries information system (ASFIS) and a wide range of publications dealing primarily with research and technology, specifically addressed to needs of developing countries.

84. Between 1975 and 1977 it is estimated that FAO spent about $144 million on research support to areas such as crop or livestock production, post-harvest losses, irrigation, fertilizers, agriculture, tropical forests, etc. Funds came from FAO's regular budget and from extrabudgetary funds made available by Governments, non-governmental organizations and organizations in the United Nations system.

85. Activities at the international level are co-ordinated with the Consultative Group on International Agricultural Research (CGIAR) sponsored by FAO, the World Bank and UNDP. FAO provides the secretariat for the group's technical advisory committee (TAC). This brief description illustrates the way in which FAO exercises its mandate in the field of science and technology. Further details can be provided on the areas covered.

3. United Nations Educational, Scientific and Cultural Organization (UNESCO)

A. Historical

86. In 1945, at London, the Constitution of UNESCO was adopted, wherein it is stated that its purpose is the "advancing, through educational and scientific and cultural relations of the people of the world, the objectives of international peace and the common welfare of mankind for which the United Nations was established and which its Charter proclaims". To realize this purpose the organization received the mandate to: "collaborate in the work of advancing the mutual knowledge and understanding of peoples"; "give fresh impulse to popular education and to the spread of culture"; and "maintain, increase and diffuse knowledge".

B. Reaction of UNESCO to the evolving challenge of contemporary world needs

87. On this basis, UNESCO's response to the challenges posed by the contemporary world situation has been to evolve, by consensus among its member States as reached in General Conference, a comprehensive set of objectives, priorities, and programmes/projects derived therefrom. In this it has of course derived invaluable guidance from the resolutions of the General Assembly (including the special sessions thereof which have laid, in recent years, so noteworthy an emphasis on the role of science and technology in the development process); of the Economic and Social Council; and, more recently, of the latter's intergovernmental Committee on Science and Technology for Development. In addition it has taken advice from a series of regional governmental conferences, at ministerial level, on the application of science and technology (the so-called "CAST" cycle of conferences).

C. Element of science and technology of UNESCO's current operational plan

88. The most comprehensive exposition of the current mandate of the organization in matters relating to science, technology and related activities as applied to development, is spelled out in texts approved at the nineteenth and twentieth sessions of the General Conference in 1976 and 1978; notably, in the document entitled "Medium Term Plan (1977-1982)" (doc.I9 C/4 approved, as reconfirmed and updated at the twentieth session). Several of the objectives of this Plan are of direct concern to UNCSTD.

89. The over-all budget approved by UNESCO's General Conference at its twentieth session amounts to $303 million for 1979-1980, of which approximately $40 million is earmarked for scientific and technological activities. The personnel involved in execution of these activities will be, for the same period, of the order of 140 Professionals and 160 supporting staff.

D. In terms of governmentally approved objectives

90. Under "The Application of Science and Technology for Man and Society", the objectives are:

(a) Investigations of interactions between science, technology and society, as well as of the implications of scientific and technological change for man, within the context of the long-term development of science and technology in line with social progress and changing way of life. Promotion of the formulation and application of policies and improvement of planning and financing in the fields of science and technology;

(b) Development of scientific and technological research and training and promotion of international and regional co-operation in the field of science and technology with a view to increasing the endogenous capabilities for scientific and technological creation making it possible, in particular, to work out appropriate technologies or to adapt existing technologies;

(c) Development of a better understanding of the nature of science and technology and of their role in changing society, by improving and extending their teaching in school and out-of-school education, and by promoting public information in these fields.

Under "Man and his Environment", the objectives are:

(a) Development of understanding of the processes governing the evolution of the earth's crust, particularly with regard to the origin, extent and rational use of the earth's mineral and energy resources;

(b) Improvement of knowledge of terrestrial biological resources and interrelationships between human activities and terrestrial ecosystems;

(c) Improvement of knowledge concerning water resources and development of the scientific basis for understanding interrelationships between human activities and the hydrological system and for developing the rational management of water resources;

(d) Development of the scientific basis for understanding and improving interrelationships between man and natural marine systems, oceanic and coastal;

(e) Improvement of knowledge concerning the ecological, social, moral and cultural implications of the interrelationships between man and his environment and quest for a "better design for living" in human settlements;

(f) Promotion of the preservation and presentation of the cultural and natural heritage of mankind;

(g) Contribution through general education and through public information to the improvement of individual and collective behaviour towards the human environment and to the perception of its quality.

Under "Transfer and Exchanges of Information" the objectives are:

(a) Development and promotion of information systems and services at the national, regional and international levels;

(b) Improvement in the collection and analysis of statistical data, and of methods, techniques and international comparability of statistics for use in planning, research, administration and evaluation.

Under "Man as the Centre of Development", the objectives are:

(a) Promotion of the formulation of a global, multidisciplinary interpretation of development, having regard to the interrelations between the various factors contributing to this and which are, in return, affected by it;

(b) Studies of socio-cultural conditions, systems of values, motivations and procedures for participation by the population likely to foster endogenous, diversified development processes in keeping with the practical conditions and needs of different societies;

(c) Contribution to the development of infrastructures and programmes in the social sciences with a view to increasing the different societies' ability to find ways of solving social and human problems.

Development and application of tools and methods of socio-economic analysis and development planning.

E. In terms of operational activities

91. On the basis of these objectives, UNESCO has elaborated, and is executing, a very wide range of activities. A significant share of these activities serve as a direct input to the efforts of many countries of the world toward the development of their scientific and technological capabilities. During the last two decades, hundreds of institutions of a scientific and technological nature were established or developed with the co-operation of UNESCO. These have included faculties of science and engineering, technical training institutes, research councils, science and technology policy and planning bodies, science teacher training centres and others.

92. Another mode of operation has consisted in the organization by UNESCO of a great number of international training courses in various fields of science and technology. There exist at present about 70 such courses held in universities and other scientific institutions in developed and developing countries.

93. Many of UNESCO's activities are supported by intergovernmental and national councils and committees, which, by their constitution, draw on specialized scientific and technological sources for objective advice and expertise. Cross-fertilization between the disciplines involved, and concern to pay due regard to the interplay of all relevant factors both national and sociological, is an essential feature of the prevailing UNESCO Plan and the major intergovernmental programmes and other activities derived therefrom.

94. Illustrative examples of major aspects of UNESCO activity to be cited in this respect are (to mention only five): the International Geological Correlation Programme (IGCP); the Programme on Man and the Biosphere (MAB); the International Hydrological Programme (IHP); the Intergovernmental Oceanographic Commission (IOC); and UNISIST programme (World Science Information System). All these, and others, have played a significant part in the preparations for recent United Nations conferences highlighting the use of science and technology for development; e.g. Human Environment (1972); Food (1974); Human Settlements (1976); Water (1977); and Desertification (1977). They serve moreover as encouraging examples of interagency co-operation, stimulating the pursuit of systematic basis scientific studies closely related to the appropriate applied sciences.

F. National and regional science and technology policy making through the "CAST" - cycle of regional, ministerial-level conference

95. It is an integral part of UNESCO's mandate to promote the study and development of science and technology policy not only nationally but also regionally. For this purpose, UNESCO has organized the "CAST"-cycle of regional, ministerial-level conference; and has at the same time used them to improve by means of the various texts adopted by these conferences, its own operational programme. There have been, so far, six such conferences: CASTALA (1965) for Latin America; CASTASIA (1968) for Asia; MINESPOL I (1970) and II (1978) for Europe and North America; CASTAFRICA (1974) for Africa; CASTARAB (1976) for the Arab States; as well as 11 related preparatory meetings at the expert level. The over-all result of this entire cycle of meetings, seen as an international governmental mechanism of a highly specialized kind, has been the formulation of a number of seminally important governmental texts dealing, at both the national and the regional levels, with the concrete problems of policy making, organizational as well as methodological. As the need for purposeful application of science and technology to development has on all sides received greater recognition, the "CAST" conferences have thus provided a valuable framework for the progressive refinement of governmental thinking. The central message of this cycle of ministerial conferences, spanning the better part of two decades, has in fact been the ineluctable need to incorporate appropriate provision for the planning, financing and budgeting, the co-ordination, and the management of science and technology, into the machinery of governmental policy making.

G. UNESCO regional offices

96. With a view to the effective execution of the various intergovernmental programmes etc., evoked above, and with a view to translating declared objectives into terms of concrete governmental action at both national and regional levels, UNESCO has carried out, over recent years, a considerable effort of decentralization, designed to come closer to the realities of member States' needs and to ensure that planning and real life execution go hand-in-hand.

97. UNESCO has in recent years built up, and is progressively strengthening, a series of regional offices for Science and Technology (ROST's), working in close collaboration with the relevant regional Economic Commissions of the Economic and Social Council. These offices provide the organization with a specialized and up-to-date service in evaluating the widely varying local needs and possibilities of its member States in the different world regions. Increasingly, UNESCO's science and technology-related activities are being decentralized to these "on-the-spot" executing agencies. These offices are currently situated in Cairo for the Arab States, Jakarta for South-East Asia, Montevideo for Latin America and the Caribbean, Nairobi (with a unit in Dakar) for Africa, and New Delhi for South and Central Asia.

4. World Health Organization (WHO)

98. A principal objective of WHO, as laid down by the World Health Assembly, is the attainment for all by the year 2000 of a health level conducive to high social and economic productivity. In working towards this goal WHO gives great emphasis to the development of the health components in the evolution of a new international economic order as outlined in General Assembly resolution 3362 (S-VII) and the objectives of the Conference on Science and Technology for Development.

99. By the nature of its work, WHO's programmes and activities are permeated at all levels with scientific and technological components. These activities include the choice and transfer of technology appropriate to needs of developing countries, and research and development of new technologies and their application in these countries. In implementing the activities bearing on these problems a primordial consideration is the development of an indigenous infrastructure so that countries should attain the greatest possible self-sufficiency on a self-reliant basis, assisted by technical co-operation with both developed and developing countries.

100. World Health Assembly and Executive Board resolutions over the past few years have resulted in an increase in technical co-operation with countries through activities relevant to the needs of Member States, directed towards defined health goals, and likely to contribute directly and significantly to the improvement of the health status of their under-served populations. Since research is an integral part of the organization's programme, these resolutions are of direct relevance to the promotion and development of biomedical and health services research which is one of the six major areas of concern for the organization's medium-term programme (1978-1983) and which is being directed towards developing national self-reliance in matters of health. The policy of integration of WHO efforts at national, regional and global levels is fully applicable to WHO research activities and

entails vigorous development of national capabilities and international mechanisms for the co-ordination of research, particularly at the regional and global levels. The application of existing and new knowledge to the solution of health problems of the countries is a central concern in these efforts.

101. The principal specific mandates guiding the actions of WHO in research and the application of science and technology for development are the following:

(a) The Constitution of WHO adopted in 1946, with amendments incorporated in 1975 and 1977 (WHO, Basic Documents, Geneva, 1977). In working towards the objectives of WHO - the attainment by all peoples of the highest possible level of health - science and technology are involved in almost all of the functions of the organization, as established in the Constitution;

(b) Subsequent resolutions of the World Health Assembly (WHA) and Executive Board (EB) cited below. 5/ These resolutions aim:

(i) To promote international co-operation in the field of research (WHA30.40, 1977) and, to that end, establish or maintain close contacts with national and international bodies dealing with similar programmes (WHA28.70, 1975);

(ii) To ensure the appropriate transfer of existing and new scientific knowledge to those who need it (WHA30.40, 1977);

(iii) To promote the application of such knowledge (WHA29.64, 1976), in particular by collecting and transmitting to the Member States information and the results of experience regarding the most rational ways of making practical use in health programmes of scientific advances (WHA25.60, 1972);

(iv) To provide guidance for the effective co-ordination of national research efforts (WHA29.64, 1976), particularly those of research institutions in countries that show a readiness to participate and to provide appropriate facilities and manpower to collaborate on problems of prime importance to WHO (WHA25.60, 1972; WHA28.70, 1975);

(v) To strengthen national research capabilities, particularly in developing countries (WHA29.64, 1976; WHA31.35, 1978) with regard both to the strengthening of research and training centres (WHA27.61, 1974) and to the training of research workers (WHA15.52, 1962), especially young staff, who wish to work in biomedical research (WHA25.60, 1972), WHO has an important role to play in increasing the general potential of the world in terms of qualified scientists (WHA12.17, 1959);

5/ Resolutions bearing on specific fields (e.g. communicable diseases, environmental health, drugs, etc.), are not included; these can be found in the Handbook of Resolutions and Decisions of the World Health Assembly and the Executive Board, vols. I and II, Geneva, 1977.

(vi) To give proper emphasis in regard to research on those aspects which are peculiarly international in character (EB13.R78, 1954), e.g., the development and elaboration inter alia of: (a) opportunities and methods for international co-operation in the biomedical sciences; (b) standardization of research techniques, when feasible; and (c) standardization of nomenclature and terminology to ensure the comparability of results (WHA25.60, 1972);

(vii) To encourage effective biomedical and health services research activities aimed at the solution of major health problems of Member States, especially of developing countries (WHA30.40, 1977; WHA31.35, 1978);

(viii) To promote the use of available appropriate technology and develop new technology needed for the better implementation of health care, particularly of primary health care (WHA31.34, 1978);

(ix) To guide the formulation of strategies for health for all by the year 2000 (EB63.R21).

5. The World Bank (IBRD)

102. The broad mandate of the World Bank in the field of science and technology is derived from Article I of its Articles of Agreement which states inter alia that the purpose of the Bank is the encouragement of the development of productive facilities and resources in less developed countries. This general mandate is the basis for the broad range of Bank operations in education, industry, transport, agriculture, energy, water, telecommunications, etc.

103. Under Bank lending policies adopted by its Board of Directors, the Bank functions in science and technology through:

(a) The choice and transfer of technology and the building of human and institutional resources and technological capability through projects on the basis of careful project preparation and sector and country analyses;

(b) Project lending specifically concerned with scientific and technological research and innovation, particularly in the agriculture and industrial sectors;

(c) Marshalling finance for international research organizations and programmes;

(d) Providing policy advice to Governments aimed at removing constraints to and encouraging technological innovation and the adoption of appropriate technology;

(e) Carrying out research on the choice and impact of technology.

6. International Civil Aviation Organization (ICAO)

104. The Constitutional Mandate of ICAO in the field of science and technology lies essentially in article 44 of the 1944 Convention on International Civil Aviation

which reads, "The aims and objectives of the organization are to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport so as to:

"(a) Insure the safe and orderly growth of international civil aviation throughout the world;

"(b) Encourage the arts of aircraft design and operation for peaceful purposes;

"(c) Encourage the development of airways, airports, and air navigation facilities for international civil aviation;

"(d) Meet the needs of the peoples of the world for safe, regular, efficient and economical air transport;

"(e) Prevent economic waste caused by unreasonable competition;

"(f) Insure that the rights of contracting States are fully respected and that every contracting State has a fair opportunity to operate international airlines;

"(g) Avoid discrimination between contracting States;

"(h) Promote safety of flight in international air navigation;

"(i) Promote generally the development of all aspects of international civil aeronautics."

105. The broad functions of ICAO in the field of science and technology are adoption of uniform technical standards and evaluation of new techniques and procedures in aviation technology notably in the fields of aircraft airworthiness, aircraft operations aerodrome design, communications, aeronautical meteorology environmental problems relating to aircraft noise and aircraft engine emissions and related implementation and training activities. Related legislative authority lies in the aforementioned provisions of the convention and in relevant resolutions of the ICAO Assembly. Continuous co-ordination on technical matters takes place with the ITU regarding aeronautical telecommunications with WMO regarding aeronautical meteorology and with IMCO regarding matters pertaining to search and rescue.

7. International Telecommunication Union (ITU)

Constitutional Mandate of ITU in the field of Science and Technology

106. The International Telecommunication Convention states:

"Article 4: Purposes of the Union

"1. (a) to maintain and extend international co-operation for the improvement and rational use of telecommunications of all kinds;

"(b) to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunications services, increasing their usefulness and making them, so far as possible, generally available to the public;

"(c) to harmonize the actions of nations in the attainment of those ends.

"2. To this end, the Union shall in particular:

"(a) effect allocation of the radio frequency spectrum and registration of radio frequency assignments in order to avoid harmful interference between radio stations of different countries;

"(b) co-ordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio frequency spectrum;

"(c) co-ordinate efforts with a view to harmonizing the development of telecommunications facilities, notably those using space techniques, with a view to full advantage being taken of their possibilities;

"(d) foster the creation, development and improvement of telecommunication equipment and networks in developing countries by every means at its disposal, especially its participation in the appropriate programmes of the United Nations."

107. Resolution 18 of the ITU Plenipotentiary Conference, held in Malaga, Torremolinos, Spain in 1973 states:

"Application of Science and Telecommunication Technology in the Interest of Developing Countries

"The Plenipotentiary Conference of the International Telecommunication Union (Malaga-Torremolinos, 1973),

"In view of the provisions of various resolutions adopted by the Economic and Social Council and by the General Assembly of the United Nations for the purpose of expediting the application of science and technology in the interest of developing countries;

"Considering that the International Telecommunication Union should, in its own field, associate itself in every way possible with efforts being thus undertaken by the organizations of the United Nations family;

"Instructs the International Radio Consultative Committee to pursue as a matter of urgency its studies of technical and operational questions leading up to the establishment of low-capacity earth stations and associated satellite systems in order to satisfy the urgent needs of the least developed countries and to enable such countries to be connected by high-quality circuits to the international telecommunication network;

"Instructs the Administrative Council to take the necessary measures, within the limit of the available resources, to ensure that the Union:

"1. Co-operates to the greatest extent possible with the appropriate organs of the United Nations;

"2. Contributes to the greatest extent possible to expediting the transfer to, and assimilation in, the developing countries of the scientific knowledge and technological experience in telecommunication, which are available in technically more advanced countries by the publication of appropriate handbooks and other documents;

"3. Bears this resolution in mind in its technical co-operation activities in general".

108. Reference to relevant legislative authorities includes the following:

"Article 11: International Consultative Committees

"(1) The duties of the International Radio Consultative Committee (C.C.I.R.) shall be to study technical and operating questions relating specifically to radio communication and to issue recommendations on them.

"(2) The duties of the International Telegraph and Telephone Consultative Committee (C.C.I.T.T.) shall be to study technical, operating and tariff questions relating to telegraphy and telephony and to issue recommendations on them.

"(3) In the performance of its studies, each Consultative Committee shall pay due attention to the study of questions and to the formulation of recommendations directly connected with the establishment, development and improvement of telecommunication in developing countries in both the regional and international fields".

8. World Meteorological Organization (WMO)

109. The aims and purposes of WMO are summarized succinctly in article 2 of its Convention, as follows:

(a) To facilitate world-wide co-operation in the establishment of networks of stations for the making of meteorological observations as well as hydrological and other geophysical observations related to meteorology, and to promote the establishment and maintenance of centres charged with the provision of meteorological and related services;

(b) To promote the establishment and maintenance of systems for the rapid exchange of meteorological and related information;

(c) To promote standardization of meteorological and related observations and to ensure the uniform publication of observations and statistics;

(d) To further the application of meteorology to aviation, shipping, water problems, agriculture and other human activities;

(e) To promote activities in operational hydrology and to further close co-operation between Meteorological and Hydrological Services;

(f) To encourage research and training in meteorology and, as appropriate, in related fields and to assist in co-ordinating the international aspects of such research and training.

110. In this sense, therefore, all activities of WMO are directed towards the application of the science and technology of meteorology and operational hydrology to economic and social development.

9. Inter-Governmental Maritime Consultative Organization (IMCO)

111. Within its sphere of competence, IMCO pursues on a continuing and day to day basis the development and transfer of science and technology as regards shipping and the prevention of pollution from ships. In fact, both the purposes of the organization, as defined in the IMCO Convention, and the mandates and methods of work of IMCO's technical organs make it a suitable institution for international co-operation in this field in which both developed and developing countries take an active part. The Committees of IMCO provide for the acquisition of scientific, technical and any other practical information relating to the safety of shipping and the prevention and control of marine pollution from ships for dissemination to States, in particular to developing countries.

112. In pursuance of its mandate, IMCO establishes and encourages the implementation of global standards relating to all the technical and specialized aspects of shipping, including the prevention and control of marine pollution. It has been the consistent view and practice of the organs of IMCO that standard setting for international shipping must be global and cannot be decentralized without detriment to the highest standards concerning the safety of shipping and efficiency of navigation. This special responsibility of IMCO at the global level has been recognized by the Committee for Programme and Co-ordination at its seventeenth session and subsequently endorsed by the Economic and Social Council.

113. In addition to the formulation of global standards land dissemination of related technical information through the work of its committees, IMCO assists developing countries in specific projects on any matter related to the organization's activities including, in particular, training. IMCO has made a special effort to expand its technical assistance programme with a view to helping developing countries to increase their shipping programmes, to establish regional and national training facilities, to have access to specialized advice through regional and interregional maritime advisers and to acquire specialized equipment, etc.

10. World Intellectual Property Organization (WIPO)

114. The objectives set out in the Convention Establishing WIPO, which entered into force in 1970, are to promote the protection of intellectual property throughout the world through the co-operation among States, and to ensure administrative co-operation among various "Unions", each founded on a multilateral treaty and dealing with the legal and administrative aspects of intellectual property.

115. Intellectual property is made up of two main branches, "industrial property", chiefly in inventions, trade marks and designs, and "copyright", chiefly in literary, musical, artistic, photographic and cinematographic works. So far as science and technology are concerned, the rights included in "intellectual property" which are most directly relevant are those, among the rights listed in the WIPO Convention, which relate to "scientific works", "inventions in all fields of human endeavour", "scientific discoveries" and "industrial designs". Protection of the relevant aspects of industrial property is not an end in itself: it is a means to encourage, through industrialization and investment, the application of technology to economic progress.

116. The agreement between WIPO and the United Nations, approved by the General Assemblies of the two organizations in 1974, recognizes WIPO "as being responsible for taking appropriate action in accordance with its basic instrument, treaties and agreements administered by it, inter alia, for promoting creative intellectual activity and for facilitating the transfer of technology related to industrial property to the developing countries in order to accelerate economic, social and cultural development, subject to the competence and responsibilities of the United Nations and its Organs, ... as well as of the ... agencies within the United Nations system".

117. The objectives of the WIPO Permanent Programme for Development Co-operation Related to Industrial Property, revised by the WIPO Conference in 1976 in order, inter alia, to take into account the objectives set out in General Assembly resolution 3362 (S-VII) on development and international economic co-operation, are to promote in favour of developing countries, by all means within the competence of WIPO:

(a) Inventive and innovative activity in developing countries with a view to strengthening their technological capacities;

(b) The acquisition by developing countries, under fair and reasonable terms and conditions, of technology related to industrial property;

(c) The development of legislation and institutions in the field of industrial property in developing countries.

118. The Permanent Programme is kept under review by an intergovernmental Permanent Committee, open to all members of WIPO. The Permanent Committee makes proposals for the future triennial and annual programmes and budgets of WIPO, and recommendations on the implementation of the current programme.

11. International Atomic Energy Agency (IAEA)

119. A principal twofold objective of the IAEA, as defined by its Statute is to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world" and of ensuring as far as it would be able that any assistance provided by it or with which it was associated "should not be used in such a way as to further any military purpose". Under the article III (A) (2), the agency is authorized:

> "To make provision, in accordance with this Statute, for materials, services, equipment and facilities to meet the needs of research on, and development, and practical application of atomic energy for peaceful purposes, including the production of electric power, with due consideration for the needs of the underdeveloped areas of the world".

120. The importance of this function as it related to the developing countries of the world has grown considerably, partly due to expanding of the applications of nuclear technology to economic and social development. It is not feasible here to describe adequately the wide range of the agency's activities. They may be found in the agency programme for 1979-84 and budget for 1979 (GC(XXII)/600). The relevant activities of interest are as follows:

(a) Technical assistance and training: the agency aims to promote the transfer of skills and knowledge relating to the use of nuclear energy for peaceful purposes, to support efforts to carry out nuclear energy activities more effectively and to ensure that the skills and knowledge transferred can continue to be applied after the provision of such assistance by the agency has been completed. It co-operates with the United Nations and UNDP in this area;

(b) Food and agriculture: the broad objective is to foster applications of isotopes and radiation in food and agriculture within a joint programme of FAO and the agency, supported by the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture;

(c) Life sciences: the objective is to foster the development of methods and techniques for the application of radio-isotopes in medicine and biology, special emphasis being placed on meeting the needs of developing countries. There is co-operation with UNESCO, FAO and UNEP, and in some joint programmes with WHO;

(d) Physical sciences: the objective is to stimulate research, to foster information and data exchange, and to co-ordinate the efforts of scientists from different countries in physics, industrial applications of isotopes, chemistry, nuclear data and isotope hydrology. There is co-operation with the United Nations, FAO, UNESCO, WHO, WMO, and UNEP;

(e) IAEA laboratories: these provide support for the various technical programmes. The agency operates three laboratories: one at Seibersdorf, near Vienna, one at the agency headquarters, and one in Monaco. The Monaco laboratory carries out studies of radio-activity in the marine environment and also conducts several projects in co-operation with UNEP. One of the important functions of the

Seibersdorf laboratory is training. Under the agency's fellowship programme, fellows from developing countries work with staff members and receive "in-service" training which can last from a few months to two or three years;

(f) International Centre for Theoretical Physics (Trieste): the objective is to foster, through research and training, the advancement of theoretical physics with special regard to the needs of developing countries. The Centre is operated jointly by the agency and UNESCO, with finance from UNDP and the Swedish International Development Authority (SIDA);

(g) Nuclear power and reactors: the objective is to provide integrated assistance to Member States in the planning and implementation of nuclear power programmes for electricity generation and other purposes. There is co-operation with the United Nations and the regional commissions, IBRD, UNDP, UNEP;

(h) Nuclear safety and environmental protection: the objective is to ensure the safe utilization of nuclear energy and the protection of man and his environment from the harmful effects of nuclear radiation and radio-active and non-radio-active releases from nuclear facilities. There is co-operation with ILO, FAO, WHO, WMO, UNEP, ECE, ICAO, IMCO, UNSCEAR, UNESCO;

(i) Information and technical services: the objective is to foster the exchange of scientific and technical information on peaceful uses of atomic energy. The agency serves as both a collector and a disseminator of information and publishes, on average, 70 scientific books per year, or about 40,000 printed pages. In 1970, the IAEA established the International Nuclear Information System (INIS). At present 50 countries and 13 international organizations participate in INIS. Developing countries in particular receive through INIS information on new developments in nuclear science and technology to which they might not otherwise have access. Through the INIS training programme the staff of information centres in developing countries are trained in the most up-to-date technique in information handling;

(j) Safeguards: the objective is to apply safeguards under the agreements to which the agency is a party. The Treaty on Non-Proliferation of Nuclear Weapons which came into force on 5 March 1970 has given a boost to an international safeguards system developed by the agency and enhanced its role in helping to stop the spread of nuclear weapons.
