

Final Report

Conference of Ministers
of Education and Those
Responsible for the Promotion
of Science and Technology
in Relation to Development
in Latin America
and the Caribbean
convened in co-operation
with ECLA and OAS

Venezuela

6-15 December 1971

Unesco

PART VII
RECOMMENDATIONS

Reform and democratization of secondary education

RECOMMENDATION No. 1

The Conference recommends to the Member States:

1. That in promoting the democratization of education, they redefine the process in terms of the following characteristics and objectives:
 - (a) life-long equality of educational opportunity for all, implying the elimination of discrimination in the provision of education, with the result that no one will be deprived of the benefits of education, of the opportunity to participate actively in the educational process and to contribute effectively to the creative cultural processes of society as a whole;
 - (b) freedom of education, which presupposes, within the legal framework of each country, the right of every person to participate fully in the educational process, not only through the schools but also through a broad range of out-of-school activities integrated into a well-structured system of education guaranteeing the universal and permanent nature of the right to educate and to be educated, to the benefit of the people and in the full exercise of their sovereignty;
 - (c) community participation, through which the full and effective representation and contribution of the main groups in society is ensured, in an educational process for which the State is responsible and in the management of educational services;
 - (d) affirmation of the cultural identity of each of our peoples, meaning full openness to and acceptance of cultural developments and forms of expression originating from any ethnic group, any segment; of the population minority, etc. at the national level, and the elimination of every form of cultural domination between nations, which is perfectly compatible with cultural exchanges between nations, a necessary component of the process of selective assimilation of cultural resources;
 - (e) effective universal access to basic education, guaranteeing educational services of optimum quality, in conformity with the policies and plans of each country in the region, aiming at a target of eight or nine years of general education and vocational training;
 - (f) education for children from infancy until school age, which requires adequate nutritional and psycho-social aid and family counselling, and opens the way to the full development of their educational potential, particularly in the underprivileged sectors of the population;
 - (g) widespread and continuing vocational training such as will open to everyone opportunities for further professional qualification and ensure the continued self-improvement of workers at all levels, while promoting the technical progress and well-being of the people;

- (h) substantial raising of the average level of education of the population, especially in the underprivileged areas, in order that they may take part in, and contribute to, the social and economic development of their respective countries.
2. That the following be considered as basic aspects of the democratization of education:
- (a) the economic and social democratization of society as a whole, through deep structural changes leading to the eradication of underdevelopment;
 - (b) close co-ordination between educational services and curricula and socio-economic development programmes at the national and district levels of each country;
 - (c) constant re-examination and adjustment of educational administration, and reform of systems for the financing of education, in order to obtain optimum use of human, material and financial resources;
 - (d) reform of educational systems, so as to enable them to meet in a constant and dynamic manner the social and economic needs of our countries, to assist the process of development and to adapt themselves to the requirements of modern pedagogical techniques.
3. That suitable activities be promoted in order to bring about:
- (a) free education, including the absence of tuition fees as well as non-payment for educational materials and books. Similarly, scholarship plans and credit assistance schemes are necessary for students who are unable to support themselves;
 - (b) the expansion of out-of-school facilities which will make it possible to bring educational services to ever larger groups of the population;
 - (c) a rational distribution of new educational facilities, so that the people of the various districts of the countries may enjoy equal educational opportunity without racial, social, economic, political or cultural distinction;
 - (d) a reorganization of curricula and a regeneration of the spirit and methods of teaching/learning, so as to foster a creative approach in students that will enable them to play an active part in the life of the national and international community, with particular emphasis on the trend toward Latin American integration, This calls for the application of educational patterns, methods and techniques such as will make possible a broader range of education, a learning process based on dialogue and awareness, and the stimulation of active vocational training, permitting true flexibility and a constant renewal of the content of education with the creative participation of students;
 - (e) social mobilization by means of service by students and graduates, community action groups and other forms of collective endeavour for the benefit of the community, encouraging in particular participation by the groups of young people, who represent a valuable force contributing to development and whose numbers are so large in our countries in relation to the total populations;
 - (f) the use of the media of social communication for public education purposes, and access of the community to the dissemination of education and culture through these media;
 - (g) educational extension to ensure life-long education throughout the community, making the latter more aware of the need for responsible and active participation in the social processes;
 - (h) the establishment of organic models of educational services in accordance with the characteristics of each country, so as to enable the community to take a direct and active part in the management of educational services, and to allow of a rational use of direct or indirect resources for education within the various territorial boundaries;
 - (i) substantial improvement in the efficiency of school systems, reducing to a minimum the number of school drop-outs and repeaters;
 - (j) the establishment of permanent research and planning bodies to be responsible for keeping secondary education up to date within the overall educational system and in line with the development of our nations' economic and social plans;

- (k) the regeneration of secondary education, in line with the modern approach of the active understanding of technology, and of the incorporation of study into the working world, increasing the number of options in professional training, both in academic and non-academic forms, with the aim of increasing its contribution to the preliminary and advanced training of the human resources needed for the development of the countries in the region;
- (l) radical changes in the procedures for evaluation and promotion so that educational establishments can offer all students, with the help of guidance services, the widest opportunities for individual and social advancement;
- (m) adoption of an organic policy for the pre-service training of teachers and for their continuing in-service training, with appropriate participation by universities, to ensure compliance with the qualitative and quantitative implications of changes inherent in the democratization of secondary education;
- (n) the development of methods of on-the-job learning and courses of independent study, which should be evaluated, standardized and recognized by the State;
- (o) the organization of educational centres and programmes aimed at encouraging appropriate student participation in the management of institutions and educational processes, in accordance with their degree of personal maturity, vocational leanings and social interests;
- (p) increased access to educational services for women and active participation by women in the elaboration of educational policies, not only within the family circle, but also in local, regional and national communities. To this end, the widespread introduction of co-education and the appropriate development of adult education for women are most important;
- (q) the adoption of measures tending, as far as possible, to bring the family closer to the school, so that it may be integrated into the educational process designed for children and young people;
- (r) promotion of bilingual education in those countries which have ethnic groups with different native languages and traditional cultures underlying their individuality within the larger society. In this regard it is important to train teachers in a knowledge of the indigenous languages and cultures and in the preparation of reading materials and other teaching aids adapted to the needs and special characteristics of such groups;
- (s) the full and rational use of existing facilities, whether school or communal, which can be employed in the service of education for the benefit of children, young people and adults;
- (t) provision to all educational and cultural centres of the materials and services needed for the all-round education of students, in accordance with the development requirements of their own communities.

Having established in the preceding recommendation the considerations and the conceptual and operative framework for the democratization and reform of secondary education, the Conference proceeds to approve the following specific recommendations, numbers 2 to 17.

RECOMMENDATION No. 2

The Conference recommends to the Member States:

That, with the aim of promoting cultural development in education, and of ensuring that the latter is truly democratic, their cultural activities should consist in:

- (a) the development of their own national cultural forms and values;
- (b) the study of the cultural values of the sister peoples of Latin America and the Caribbean; and
- (c) the critical assimilation of the best elements in universal culture, which should not be imposed from outside.

RECOMMENDATION No. 3

The Conference recommends to the Member States:

That, in those countries where conditions are favourable to the systematic linking up of study and work in secondary education, appropriate measures be adopted - as the best way to develop students technically and socially and to afford them the opportunity of helping to lay the economic bases of a new society - for the establishment of secondary schools in rural areas that will improve the quality of contemporary teaching methods.

RECOMMENDATION No. 4

The Conference recommends to the Member States:

- (a) that measures be adopted that are conducive to a more effective participation of secondary level students in the educational and social activities of their respective countries.
- (b) That the participation referred to in the foregoing paragraph be carried out through the student organizations that exist in the various secondary education centres.

RECOMMENDATION No. 5

The Conference recommends to the Member States:

That they support the exchange of specialists and information between agencies whose goals are:

- (a) to prepare and give advanced training to teachers, technical experts and specialists in vocational training;
- (b) to implement programmes in which new institutions at secondary level are tried out, and particularly the establishment of multivalent schools.

RECOMMENDATION No. 6

The Conference recommends to Unesco:

That, on the request of Member States, it organize missions to follow up and evaluate current reforms in the educational structures of the various countries, giving them wide publicity.

RECOMMENDATION No. 7

The Conference recommends to Unesco:

That it convene a meeting of experts in secondary education to prepare the bases for an organic regional programme of action designed to achieve a better definition and planning of secondary education, its qualitative and quantitative improvement, the further training of teachers, the training of the necessary specialists, the conduct of relevant research, and the promotion of technical meetings calculated to serve the above objectives.

RECOMMENDATION No. 8

The Conference recommends to the Member States:

1. Institute, under bilateral agreements between national centres, exchanges of personnel specialized in the retraining of teachers of science and technology;
2. Co-ordinate their separate activities for the modernization of science and technology teaching in order to avoid duplication of efforts, concentrating them upon particular areas (courses, teaching materials, bibliography, teaching aids, etc.);
3. Seek technical assistance from those national and international centres of acknowledged expertise in the improvement of science teaching; and
4. Exchange information on the different tasks being pursued by national centres or institutes, which will facilitate the planning of bilateral or regional agreements.

RECOMMENDATION No. 9

The Conference recommends to the Member States:

That they promote the organization and equipment from the higher grades of primary schools up, and particularly in secondary schools, of scientific and technical student interest groups designed to carry out programmes of theoretical and practical activities bearing any branch of science and technology on aspects related to the development of the country concerned.

The teaching of science and technology

RECOMMENDATION No. 10

The Conference recommends to the Member States:

That they co-ordinate their efforts at the national (Ministries of Education, Scientific Research Councils) and international levels for the promotion of out-of-school scientific activities;

That they adopt measures serving to institutionalize out-of-school scientific activities;

That they examine the possibility of providing training courses for teaching personnel specializing in that field.

To Unesco:

That the Organization co-operate with Member States in the establishment, elaboration and implementation of their programmes of out-of-school scientific activities, in collaboration with the United Nations, the Specialized Agencies and other suitable bodies;

That the Organization study the possibility of producing and distributing publications on out-of-school scientific activities and their development in the region;

That the Organization give financial support to the Field Science Office for Latin America commensurate with its scientific status to enable it to deal properly with the projects submitted to it as regards out-of-school scientific activities;

That the Organization designate one of its centres in Latin America to be responsible for co-ordinating science festivals, contests, expositions or fairs;

Recommendations

That the Organization promote exchange of prize winners between countries, and invite to the international events those teachers who take the most active part in the organization of science contests in each country.

RECOMMENDATION No. 11

The Conference recommends that Member States

Carry out very careful and thorough studies to determine the most adequate methods for the teaching of mathematics to children from the earliest age;

That the depth and scope of these studies be such that in their developmental perspective they consider all types and levels of instruction of the national education system;

That once the pertinent studies have been made, and subject to teachers and professors having first been duly trained, an attempt be made to introduce the most up-to-date contents, methods, etc., in those types and levels of instruction as permit of it, without waiting for the completion of the more general plan described in the preceding paragraphs;

That evaluations be made of the results of applications of the recommendation, for the progressive foregoing paragraph's adjustment as requisite alike of the general plan of the particular plan concerned;

That once the necessary preliminary trials have been carried out, the general application of the methods be genuinely universal taking into account the urban and rural sectors of education; and

That there be fairly regular exchanges of experiences with other countries of the region.

RECOMMENDATION No. 12

The Conference recommends that Unesco

Adopt the necessary measures to provide the Organization's financial support to permit of the holding of the third Inter-American Conference on the Teaching of Mathematics in Buenos Aires in December 1972.

RECOMMENDATION No. 13

The Conference recommends to the Member States:

That they take the necessary steps to introduce meteorological education into secondary school courses, both general and specialized. The climatology courses, normally given today, should also include, in addition to the elements of the phenomenology and of the atmospheric processes, the applications of meteorology for the community's development and economy.

RECOMMENDATION No. 14

The Conference recommends to the Member States:

1. That, separately or in groups, they revise the education being given in educational programmes and rural areas for the rural environment in the light of the changes taking place in structures and land tenure, as an essential requirement for the improvement of the present situation of the peasant population, so that they may be included in the processes of development and may enjoy the benefits thereof;
2. That they go beyond the purely functional training to serve the demands of the labour market by providing an agricultural education which shall make it possible to free the rural population as a prerequisite for conquering underdevelopment;
3. That they promote the inclusion in all rural schools of agricultural courses based on the advances of science and technology, increasing their rural education budgets for this purpose.
4. That each country make every effort to provide agricultural institutes and schools, at the secondary level with qualified teachers. To that end, teacher-training programmes and centres should be established in some secondary agricultural institutes and at the university level, slanted to education for development in general and agricultural training in particular;
5. That they step up the in-service training of the primary teachers working in rural areas to enable them to give their pupils a better initial agricultural education; this should be supplemented by the provision in all schools of the facilities to enable students to grasp and experience concretely the value which the agricultural activities represent;
6. That training centres be provided with practice units where students may gain experience in human relations, apply their agricultural knowledge and at the same time understand the socio-economic significance of the activities they are taught;
7. That each country co-ordinate the activities in education with those of other fundamental sectors so as to raise the overall standard of living of rural communities;
8. That they provide the means to establish in-service training programmes and incentives which, by bettering the lot of the agricultural teachers, will contribute to keeping them in their profession;

That Unesco:

1. In co-ordination with other interested international organizations, provide countries with the specific co-operation which the national, multinational and regional projects necessitate with the object of accomplishing the tasks essential for achieving the renewal of agricultural education;
2. That its co-operation be directed primarily to the following:
 - (a) study of the structure of agricultural education in relation to agricultural development needs;
 - (b) identification of the investments in intellectual aspects at all levels of agricultural education;
 - (c) strengthening of the institutes for training instructors of agricultural subjects;
 - (d) recasting of syllabi and curricula for secondary and higher level professional qualifications in agriculture and animal husbandry;
 - (e) backing of national or regional experiments in the training of agricultural instructors and qualified experts;
 - (f) introduction into the training of the teachers of the basic sciences of pedagogic elements tying it in with agriculture and agricultural development;
3. That, during the United Nations Second Development Decade, it give this subject high priority, operationally and financially, to the improvement of agricultural education to meet the serious problem of the backwardness of the peasant population and the limited social and economic development of the countries in the region;

4. That, with other international development agencies, it lend support to national projects for investments in this sector:
5. That, in its fellowship programme, it give the highest priority possible to professors of agricultural education.

Miscellaneous

RECOMMENDATION No. 15

The Conference recommends to the Member States:

That the Ministries of Education establish educational documentation and information centres in those countries which do not have an institution of that kind;

To Unesco:

That it take the necessary measures for the provision of financial support from the Organization to allow of the holding in 1972 or in the 1973-1974 biennium, of a course for the specialized staff of national centres in Latin America and the Caribbean, bearing upon the various aspects of documentation and information handling; and that it also organize a meeting of the directors of Latin American educational information and documentation centres; both events to be convened in Buenos Aires, Argentina.

RECOMMENDATION No. 16

The Conference recommends to the Member States:

That they give particular attention to the Third International Conference on Adult Education to be held in Japan in July 1972;

To Unesco:

That in preparing the working documents for this conference, due prominence be given to the interest shown and efforts made by the countries of Latin America and the Caribbean in the field of adult education, on the basis of the reports they have from time to time submitted to the Secretariat of the Organization.

RECOMMENDATION No. 17

The Conference recommends

That Unesco, OAS, the World Bank, IDB and the agencies and bodies providing international educational aid, offer greater and more effective technical and financial assistance to the educationally underdeveloped countries.

Regional co-operation in higher education and scientific research in the university

RECOMMENDATION No. 18

Exchange of professors

The Conference,

Taking into account the importance of scientific and technological development for the progress of the peoples, and the immense economic effort that each State will have to make in order to carry out such programmes,

Considering the need for a quantitative and a qualitative improvement in the staffing of university-level institutions and that this can and, as far as possible, should be done through post-graduate studies (master's and doctorate degrees),

Considering that there are in the region a good number of institutes already offering post-graduate courses in various fields and that use of such centres to develop human resources of the region would be efficient, rapid, inexpensive and highly productive,

Considering the advisability of fostering the exchange of teachers and scientists,

Recommends that Member States,

Through their organs for co-ordinating scientific and technological research step up, as far as possible:

- (a) the pursuit of programmes for the exchange of teachers and scientists;
- (b) the exchange of data and information concerning scientific and technological research of common interest including meeting requests of individual teachers and scientists; and
- (c) the sponsorship of research of common interest with researchers from different countries in fields of special interest to the region;

That Unesco

Include the necessary measures, in the Programme and Budget for 1973-1974 and in the long-term programme; to set up the requisite machinery for:

- (a) identifying the high-level university centres in the region offering regular master's and doctorate courses, and arranging for the publication and periodic revision of the list of such centres;
- (b) promoting the exchange of teachers and scientists between university-level centres in the region; and
- (c) making the national bodies for co-ordinating teaching and research activities to be also the co-ordinators in the regional ambit of the tasks proposed.

Establishment of, and support to, post-graduate study centres

RECOMMENDATION No. 19

The Conference,

Considering that it is necessary to promote and accelerate the development of science, technology and education with a view to achieving the total independence of the countries of the region,

Considering that in order to achieve development it is necessary to increase and improve the teaching of science and technology and to train the required qualified personnel,

Considering that in order to attain these objectives it is essential for the teaching to be given in high-grade centres of post-graduate studies,

Considering that the high standards and specialized resources which the creation of these centres require mean a pooling of effort by the countries in the region and the participation and support of the international agencies,

1. Recommends to Unesco and the States of the region the creation of centres for post-graduate studies, and the support of those already existing to serve the following ends:
 - (a) promoting scientific and technological research in the priority areas for the development of the region or which is an essential complement for the teaching;
 - (b) promoting the giving of specialized professional courses to qualify high-grade personnel in the critical areas for the developing nations;
 - (c) promoting the updating of scientific knowledge in the most important fields of applied science and technology;
 - (d) pooling and exploiting regional resources for the expansion of the above centres;
 - (e) taking on periodically staff from the States in the region, to centralize knowledge with a view to reinforcing the nuclei already existing in the countries from which they come;
 - (f) exploiting and exchanging knowledge and information in the fields of science and technology;
 - (g) achieving, through the cultivation of science and technology the spiritual and intellectual independence of the countries in the region, strengthening their historical personality and forwarding regional co-operation;
2. Requests Unesco to appoint a committee of experts which, having regard to existing post-graduate courses in the countries of the region, shall, within a period of six months, submit a report covering the following points:
 - (i) evaluation of these courses;
 - (ii) selection of those centres and programmes that might receive support from Unesco in co-ordination with other international bodies;
3. Requests that one of these centres be located in Venezuela, in view of the offer made by that country to place its human and material resources at the service of the project.

Support for regional centres

RECOMMENDATION No. 20

The Conference,

Considering the great importance of the Regional Centres for the scientific development of the countries of the region,

Recommends to the General Conference of Unesco:

1. That in the Programme and Budget for 1973-1974 the Regional Mathematics Centre for Latin America, located in Argentina, be included among the centres that are to receive financial aid from Unesco, to give it the necessary funds to extend its activities in Latin America and the Caribbean;
2. That once the agreement is signed between Unesco and the Government of Venezuela for the functioning of the Latin American Centre for Biological Sciences, the Programme and Budget for 1973-1974 include this Centre among those that are to receive technical and financial aid from Unesco so that it may have the necessary means to extend its activities in Latin America and the Caribbean;

3. That Unesco consider the possibility of expanding the programme of the technical assistance for the Research Centre for Marine Sciences in the University of Panama and for other oceanographic research centres of the region.

Teaching of and research in the marine sciences

RECOMMENDATION No. 21

The Conference,

Considering that the development of scientific and technological research in the area of the marine sciences is of the deepest interest by reason alike of their intrinsic value and of their relevance for the production and the utilization of foods for the growing population of the continent; as also for non-renewable resources, and for shipping, weather forecasting, coast guard services, etc.

Considering that such research is particularly well suited to integrated research programmes for specific areas,

Recommends that the appropriate authorities in the Latin American and Caribbean countries place special emphasis on research and the training of multinational personnel, at all levels, particularly the post-graduate in the marine sciences, either in the existing educational institutions or by establishing new specialized centres;

That Unesco carry out the necessary studies to ascertain what educational, scientific and technological resources exist in the various countries of the region, with a view to exploiting the natural resources of such areas as the Caribbean, the Atlantic and the North and South Pacific; and, in collaboration with FAO and other international organizations, promote multinational programmes which, by intensifying and co-ordinating the work of the existing scientific and technological research institutions, will conduce to achieving a degree of development in marine sciences consonant with the massive needs and great possibilities of the different zones of the continent.

Teaching and research in food technology

RECOMMENDATION No. 22

The Conference,

Mindful of the nutritional problems of the basic segment of the Latin American population and especially of marginal groups,

Considering that it is urgently necessary to consolidate efforts throughout the region for the better progress of the scientific and technological knowledge which will permit of the training of specialized technicians in the nutritional branch of scientific and technological research, and

Aiming at pooling the efforts in this matter, both in respect of the transfer of this knowledge to the countries of Latin America and the Caribbean and of co-ordinated co-operation by international bodies such as the United Nations, Unesco, FAO and others,

Recognizing that the development of post-university teaching for the training of high-level technical and scientific personnel cannot neglect one of the most critical problems facing the Latin American people, namely malnutrition,

Recommends:

- (a) that the Member States of the region include in their: educational systems, at the university, post-university and polytechnical levels, the training of research specialists in agricultural, marine synthetic and big-synthetic food technologies;
- (b) that the Director-General of Unesco, in consultation and co-operation with the United Nations, FAO, and other international bodies, prepare a report on the co-ordinated action which the aforesaid bodies might carry out in support of the training of specialists in food technologies.

Post-graduate studies in the fields of science and technology

RECOMMENDATION No. 23

The Conference,

Considering the ever-increasing importance of post-graduate studies for the expansion and improvement of high-level personnel,

The existence in countries of the region of university-level institutions that offer opportunities for postgraduate studies, including courses leading to a master's degree or a doctorate,

The desirability of offering to an ever-greater number of professionals from the countries of the region the possibility of taking advantage of these opportunities, especially as regards advanced training for higher education teachers,

Bearing in mind the priority character of the modernization of science teaching at the secondary level in today's highly scientific and technological society,

The urgent need to enlist scientific and technological research as a regional development factor and the importance of post-graduate education in the training of research workers.

Convinced of the need to concentrate efforts on those high-level centres whose effectiveness and reliability are recognized in the area,

Recommends to Unesco:

That a special fund be found for Latin America and the Caribbean to provide fellowships for participation in courses of instruction and research programmes at post-graduate level. Voluntary contributions from Member States, and grants from international organizations or other sources could provide the finance for the fund;

And also addresses the following recommendations to Member States:

I. On university teaching courses

1. That the permanent education of graduates be promoted by steps to keep them in the fullest possible contact with the universities or with para-university centres of advanced studies;
2. That such permanent education be provided at refresher and an advanced or specialization level;
3. That the possibility be studied of promoting the periodical retraining of professionals, particularly those far removed from the major centres of learning or advanced studies, either by sending out travelling teams of highly qualified professionals, or by transferring them periodically to centres of advanced studies;
4. That steps be taken to promote the introduction of planned teaching courses in the universities to give the teacher complementary education and pedagogic training in his speciality.

II. On science teaching

1. That a system be established through bilateral agreements between national centres in the region for exchanges of personnel specialized in giving refresher courses to science teachers;
2. That they co-ordinate specific activities towards the modernization of science teaching, to avoid duplication of efforts and to concentrate them upon selected areas (courses, teaching materials, bibliography, teaching aids, etc.);
3. That they seek technical assistance-of those national centres of acknowledged standing in the specific field of the improvement of science teaching.

III On the promotion of post-graduate studies and the training of teachers for the university level

The Conference,

(a) Recommends to Member States

That the competent authorities give special importance to the establishment of planned systems of postgraduate study on the teachers of science, the social and human sciences, technology and agriculture;

That they encourage the adoption of integrated measures to achieve a concerted effort on requisite study plans and the training and advanced training of personnel for the university level.

That they co-ordinate their efforts at the region level with the aim of establishing the bases of a Latin American system of post-graduate education and teacher training with a view to facilitating studies in highly-specialized fields where enrolments would otherwise be very limited because of the high cost.

(b) Recommends to Unesco that, in so far as available resources permit:

It actively support Member States in the preparation, execution and evaluation of national and regional projects for establishing the bases of systems or institutions of post-graduate education in science, the social and human sciences, engineering and agronomy, in co-operation with the United Nations Development Programme, the Specialized Agencies and other appropriate bodies;

It study the possibility of establishing and/or re-enforcing high-level centres in the universities of Member States at post-graduate level, for training and research in specialized areas of science and technology and of the social and human sciences;

It give special attention to the exchange of post-graduate students, supporting and developing the machinery that already exists for this purpose or setting up new machinery where necessary.

IV. On the establishment and development of high-level centres in national basic sciences and technologies and planning at post-graduate level

That encouragement be given to the development or creation of high-level centres in national basic sciences and technologies, using as a basis the local university or national and/or regional centres for applied research in those convergent multidisciplinary fields where no teaching is done.

Information and publications in the field of science and technology and of higher education

RECOMMENDATION No. 24

The Conference,

Considering that the World Science Information System (UNISIST) has features of particular interest to the developing countries, given the vital importance to them of full, rapid and effective access to the scientific data that are part of the heritage of mankind, and bearing in mind the recommendation adopted by the Unesco-sponsored intergovernmental conference on the setting up of UNISIST,

Convinced that UNISIST can only furnish the Member States with the assistance expected of it provided that they themselves have national, scientific information systems or centres,

Considering also the urgent need for a system of a regional nature to facilitate exchange of experiences, stimulate innovations and help to develop relations between the institutes in the matter of higher education,

I. Regarding scientific information:

Recommends that the Member States of Latin America and the Caribbean set up national scientific and technological information and documentation centres capable of fulfilling the characteristic functions of such centres serving the Member States especially and taking into account the following aspects in addition:

- (a) the exchange of scientific and technological information between the specialized organizations of the countries of the region, including service to specific research of common interest and to inquiries from individual professors and researchers;
- (b) the dissemination of information on extra-academic scientific activities and their development in the region;
- (c) information on modernization in science teaching, at secondary and higher level, and on work being done in national centres and institutes to that end;
- (d) incorporation and utilization of the Scientific and Technological Documentation and Information Centres as elements in the World Science Information System (UNISIST), through active co-operation on the part of Member States and international organizations;
- (e) economic and technical aid from Unesco to permit of a course for staff specialists in documentation and information procedures, including educational documentation and information.

II. Recommends to Unesco, with regard to information on higher education

The establishment of a Regional Centre for information on available resources in higher education, to serve the following purposes:

- (a) to facilitate the application of a regional policy on higher education;
- (b) to collect from all the States in the region up-to-date information about higher education;
- (c) to carry out comparative studies in the matter, with awards of points;
- (d) to process and publish information about higher education and to study the possibility of circulating the resultant publications throughout the region;
- (e) to exchange experiences with other similar bodies;
- (f) to provide guidance nationally and internationally on the system of compilation and statistical processing of information and publications;
- (g) to circulate to all Member States the particulars concerning existing post-graduate study programmes already evaluated and to encourage the exchange of information and experiences in this field between the countries of Latin America and the Caribbean.

The Centre will carry out the following preliminary activities:

- (a) working out the general lines of the organization and operation of the centre;
- (b) urging on the countries of the region the need for generous collaboration for the creation and operation of the Centre;
- (c) informing the States of the region about the basic objectives of the Centre;
- (d) establishing the priority areas for information at the regional level;
- (e) recommending each State in the region to carry out the work of collecting data about higher education and about legal instruments on the subject;
- (f) examining the resources in qualified personnel and the finance necessary for the functioning of the centre;
- (g) seeking the co-operation of international bodies on the technical and economic aspects;
- (h) making an inventory of the existing information centres in the region.

Requests Unesco to make, as rapidly as possible, a study covering the various aspects relating to the creation of the centre;

The Union of Latin American Universities (UDUAL) and the Association of Caribbean University and Research Institutes (UNICA) could co-operate with Unesco in this task, as well as the Unesco Field Science Office for Latin America (Montevideo) and the Regional Office of Education (Santiago, Chile).

III. Recommends the establishment of a Latin American Centre for Scientific and Technological Translation and Publications, to be situated in the Member State offering the best facilities for that purpose.

Association of the universities with the socio-economic development of their countries

RECOMMENDATION No. 25

The Conference,

Considering that the teaching of science and technology, including agriculture, at university level does not meet the real needs of the countries of the region,

That the principal causes of this are the dissociation of the universities from the production and service sectors, the improper use of examples taken from foreign textbooks and the performance of experiments and exercises that have no bearing on real conditions in our countries,

That this situation has a decisive effect on both undergraduate and post-graduate training and is the reason for graduates non-adaptation to the socio-economic realities of their respective countries,

Recommends to the States of Latin America and the Caribbean,

That they associate the universities with the life of their countries, procuring the systematic integration of professors and students in production and social service activities connected with their respective disciplines, in factories, hospitals, schools and farms, combining theory and practice, etc., which will contribute notably to the all-round training of the student body, to the up-dating of the professorate's knowledge and to the preparation of textbooks and curricula that meet the real needs of our countries.

On the inclusion of the-workers in studies of university level

RECOMMENDATION No. 26

The Conference,

Considering that it is a social obligation and a developmental necessity for the countries of the region to provide genuine possibilities of access to education for the broad masses of the people, with no restriction other than the required standard of knowledge,

Considering that in the working masses of our peoples there is a considerable human potential traditionally disregarded, together with the ability and the will to achieve higher cultural and technical standards that would enable them to make a greater contribution to the creation of the material and spiritual wealth of the society,

Considering that workers' education has been a major concern of the most advanced and patriotic elements of the student body in our countries and of the highest representatives of the national cultures,

Recommends that the States of Latin America and the Caribbean,

Take steps to provide genuine access to higher education for all workers for which it is essential to ensure: close links between education and production centres, the use of the mass media, free enrolment and textbooks, organization of night classes, flexibility in admission standards and attendance at classes and development of an education appropriate to the concrete situation of the adult population.

Retrieval of students who abandon university studies

RECOMMENDATION No. 27

The Conference,

Considering that in those countries where the high drop-out rate at all levels of education and particularly at the higher level represents an appreciable loss of intellectual potential to each country,

Considering that this is one of the sources, perhaps the essential source, of the frustration of the young,

Recognizing the necessity for the States of Latin America and the Caribbean to make use of all their human resources, even those elements that may have been unable to complete their formal education for the achievement of economic and social development, and their moral duty to retrieve for society those young people who, for reasons beyond their control, have been forced to cut their studies short,

Recommends to Member States:

1. That their universities and teaching institutions study the possibility of modifying their curricula at the various levels, making them sufficiently flexible to cover the possibility of lateral outlets for students: for example, by introducing short courses, so that even if the student is unable to complete the professional course originally chosen, he can make use of his knowledge and fit into the community as a useful element;
2. That, in order to put this recommendation into proper effect multidisciplinary teams should be formed, comprising representatives of all the sectors concerned, to collaborate in the preparation and implementation of curricula which will meet the specific needs of these students.

Recommends to Unesco:

Support the requests made by Member States in connection with the solution of this important social problem.

Scientific and technological policy

RECOMMENDATION No. 28

The Conference,

Considering that the countries of Latin America and of the Caribbean are feeling the impact of science and technology on their economic and social development, and that situations of cultural, scientific and technological dependence are thus created,

That it is appropriate that the countries of the region increase their effort in science and technology to achieve economic and social development,

That there are priority calls for joint research programmes, which shall permit the achievement of significant technological, economic and social impacts,

That there are certain considerations - such as the need to concentrate human and material resources, and to establish a genuine science policy in the said countries which shall contribute to triggering economic and social development,

That it is necessary to adopt a concerted position in the face of underdevelopment and of the other more powerful nations of the world, to constitute a scientifically and technologically-integrated region, of a level and quality unreservedly justifying such combined action,

That the international bodies should co-ordinate their endeavours and agree on programmes supporting the Latin American and Caribbean countries' desire for integration, and should identify areas and short- and medium-term objectives according to levels of priority for development,

Resolves:

1. To urge the countries of Latin America and of the Caribbean, in face of the challenge represented by the development of other more advanced countries and regions of the world, to adopt a policy of action in concert as a means of achieving their scientific, technological and cultural independence;
2. To invite the States of Latin America and of the Caribbean to allocate the resources needful and adequate for the advancement of science and technology in their respective countries and throughout the region, and to take priority steps to facilitate co-operation;
3. To recommend that Unesco, in conjunction with UNDP, increase its technical and financial assistance to support the pursuit of scientific and technological activities in the countries of Latin America and the Caribbean and that it contribute to facilitating the co-operation mentioned as an imperious necessity for the union of our nations.

RECOMMENDATION No. 29

The Conference,

Considering that it is necessary for the countries to study carefully the desirability of according primary importance to science and technology in the development process, which should be reflected in a clearly defined scientific and technological policy within a government's overall policy,

That countries' scientific and technological policies should rest on the basic principle of creating national awareness of the importance of research for our economic and social development, laying the foundations so as to promote the requisite conditions for scientific research and technological innovation and to optimize the exploitation of the resources which exist,

That the establishment of a science policy requires the existence of a special organ to prepare it at the highest government level, empowered to take political decisions, and enjoying complete freedom for the discharge of its functions,

That the scientific activities carried out in isolation in institutes, laboratories and universities are not providing society with the hoped for benefits, inasmuch as they have not been considered in the context of a complete system in which a diversity of sectors are represented,

That the training of technicians and scientists needed for the development of our countries requires far-reaching changes in the higher levels of education and automatically creates the need for adjustments in all stages of the educational process,

Recommends to Member States:

1. That countries' scientific and technological policy should be oriented towards escape from economic dependence and affording dynamic participation in national development, and it should likewise create the conditions for preventing any action against national sovereignty or security;
2. That the countries of the region which have not already done so, should establish, at the highest level in the State system, national organs in close touch with the bodies responsible for economic development planning, and with the required resources and adequate autonomy for orienting scientific and technological development by establishing priorities;
3. That the countries of the region effect the necessary transformations of the educational structure for adequate training of technicians and scientists, matching the dynamic changes in the country and the urgent necessity of promoting innovation;
4. That the countries of the region establish national systems of science and technology which shall constitute the sum total of scientific and technological activities planned and carried out by organizations and institutions in line with national policies;
5. That the indiscriminate transference of technology should be replaced by a policy of creation, utilization and selective assimilation of technology which shall contribute to the development of the nations.

University research and its contribution to development

RECOMMENDATION No. 30

The Conference,

Considering that research is essential for the furthering of knowledge, which is one of the universities' basic responsibilities towards society;

Considering that research is a necessary condition for countries' socio-economic development,

Considering that a large part of the scientific and technical potential of the countries of the region is concentrated in the universities,

Considering that research, to be really effective for the purposes of raising the scientific and technical level of universities and representing an important contributory factor to the creation of the material and intellectual products for the community's enjoyment should be closely tied in with the real problems of the production and service areas such as factories, farms, hospitals, schools, etc., as well as, in general, with the economic development plans of their respective countries,

Recommends to the States of Latin America and the Caribbean:

1. That they endorse the requests made by the universities and give them effective support to afford a real possibility of maximum development of their enormous potential as regards scientific and technical research, encouraging the formation of research nuclei in order to provide the infrastructure essential for the scientific and technological advancement of the countries of the region;
2. That they create the conditions to permit of an effective linkage of university research with production and services sectors, encouraging full student participation;
3. That they lend their support to agreements between universities and/or scientific and technological research institutes in the region.

Regional co-operation in the field of science policy

RECOMMENDATION No. 31

The Conference,

Considering the importance, for Member States of Latin America and the Caribbean, of achieving scientific and technological independence through the establishment of science policies drawn up in terms of the respective countries' social and economic development,

Taking into account that this will only be achieved through strengthening the controlling bodies for science policy and research where they exist or through creating such bodies in countries that do not yet possess them,

Considering that intra-regional exchanges of information in this field are particularly important for establishing policies which, by promoting internal scientific development shall contrive to meet the needs of the countries concerned,

Considering also that the three meetings already held by the Standing Conference of Directors of National Councils for Science Policy and Research in Latin America showed that these activities offered ample opportunity for making scientific and technical co-operation more effective, at the international, regional, sub-regional and bilateral levels; and noting that, during the third meeting held in Chile in 1971, the Mexican Government offered to host the fourth meeting of the Standing Conference envisaged for 1973,

Recommends that Member States of Latin America and the Caribbean give their full support for the continuation of the work of the Standing Conference of Directors of National Councils for Science Policy and Research in Latin America and the Caribbean, and in particular for the holding of its fourth meeting;

Recommends that Unesco make the necessary dispositions for including this activity in its Programme and Budget for the coming two-year period.