

UNESCO

***Intergovernmental  
Conference  
on Environmental  
Education***

*organized by Unesco  
in co-operation with UNEP*

***Tbilisi (USSR)***

*14 - 26 October 1977*

**FINAL REPORT**

ED/MD/49  
PARIS, April 1978

## LIST OF OFFICERS OF THE CONFERENCE AND COMMISSION

### President

Dr. D.M. Gvishiani  
Vice-Chairman of the State Committee for  
Science and Technology of the Council of  
Ministers of the USSR

### Vice-Presidents

Mr. Iris Fays (Belgium)  
Inspecteur de l'enseignement primaire

Mr. O. Léon Sacramento (Benin)  
Président de la commission nationale  
pour l'environnement

Mr. Alfonso Lopez Reina (Colombia)  
Jefe Nacional de Planamiento y  
Evaluación Curricular  
Instituto Colombiano de Fomento de la  
Enseñanza Superior

Mr. Premysl Jagos (Czechoslovakia)  
Deputy Minister  
Ministry of Education of the Czech  
Socialist Republic  
Prague

Mr. Mahmoud Sami Abd-El-Salam (Egypt)  
Head  
Environmental Research Division  
National Research Centre

Mrs. Kirsti Wartiovaara (Finland)  
Secretary for Cultural Affairs  
Department of International Relations  
Ministry of Education

Dr. Khashi Iyada Al-Ma'athidi (Iraq)  
Dean of the Faculty of Education  
Baghdad University

Mr. Archie W. Mbogho (Kenya)  
Deputy Director of Education  
Principal of Kenya Science Teachers College  
Nairobi

Mr. Sergio Garcia-Ramirez (Mexico)  
Vice-Ministro de Educación Pública

Dr. Nart Tuntawiroon (Thailand)  
Director  
Environmental Education and Research Project  
Mahidol University  
Bangkok

### Rapporteur-General

Dr. George Francis (Canada)  
Professor  
Faculty of Environmental Studies  
University of Waterloo  
Ontario

### COMMISSION

#### Chairman

Mrs. Madhuri R. Shah (India)  
Vice-Chancellor  
SNDT Women's University  
Bombay

#### Vice-Chairmen

Mr. Stoian Shikov (Bulgaria)  
Secrétaire général du comité de  
l'environnement auprès du conseil  
des ministres

Mr. S.T. Sundram (Malaysia)  
Deputy Secretary-General  
Ministry of Science, Technology  
and Environment

Mr. Norman H. Ayodele Cole (Sierra Leone)  
Professor of Botany  
University of Sierra Leone

Dr. William Stapp (United States of America)  
University of Michigan  
Ann Arbor  
Michigan

Mrs. Maria Hortensia Hernández Luna  
(Venezuela)  
Funcionario del Ministerio del Ambiente  
y de los Recursos Naturales Renovables

#### Rapporteur

Mr. Nadir Hamada (Tunisia)  
Sous-Directeur de l'environnement  
Ministère de l'intérieur

## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION . . . . .	5
I. GENERAL REPORT . . . . .	11
Environmental problems . . . . .	11
The role of education . . . . .	12
Current efforts and achievements in environmental education . . . . .	12
Regional and international co-operation . . . . .	13
Statements by the Director-General . . . . .	16
II. REPORT OF THE COMMISSION . . . . .	19
Strategies for the development of environmental education at the national level . . . . .	19
III. DECLARATION AND RECOMMENDATIONS OF THE CONFERENCE . . . . .	24
ANNEXES	
I. Agenda . . . . .	55
II. Opening speeches . . . . .	57
III. Closing speeches . . . . .	73
IV. List of documents . . . . .	81
V. List of participants . . . . .	83



## INTRODUCTION

### Organization and scope of the Conference

1. The first Intergovernmental Conference on Environmental Education convened by Unesco was held in Tbilisi (the Georgian SSR, USSR) from 14 to 26 October 1977. The Conference was organized by Unesco in co-operation with the United Nations Environment Programme (UNEP) in accordance with resolution 1.161 adopted by the General Conference of Unesco at its nineteenth session and at the kind invitation of the Government of the Union of Soviet Socialist Republics.

2. The Conference had the following main points on its agenda: major environmental problems in contemporary society; role of education in facing the challenges of environmental problems; current efforts at the national and international levels for the development of environmental education; strategies for the development of environmental education at the national level; regional and international co-operation for the development of environmental education: needs and modalities.

3. Delegates from 66 Unesco Member States and observers from two non-Member States participated in the Conference as well as representatives and observers from eight organizations and programmes of the United Nations system, three other intergovernmental organizations, and 20 international non-governmental organizations. Altogether 265 delegates and 65 representatives and observers took part in the Conference.

### Opening of the Conference

4. The opening ceremony took place on 14 October at 11 a.m. in the Conference Hall of the Supreme Soviet of the Georgian SSR in the presence of Their Excellencies Academician V.A. Kirillin, Vice-Chairman of the Council of Ministers of the USSR and Chairman of the State Committee for Science and Technology of the Council of Ministers of the USSR, Mr. E.A. Shevardnadze, First Secretary of the Central Committee of the Communist Party of Georgia, Mr. P.G. Gilashvili, Chairman of the Presidium of the Supreme Soviet of the Georgian SSR, Mr. Z.A. Pataridze, Chairman of the Council of Ministers of the Georgian SSR.

5. The Director-General of Unesco, Mr. Amadou-Mahtar M'Bow, opened the Conference and gave the floor to H.E. Academician V.A. Kirillin who read a message of greeting to the Conference from H.E. Leonid Ilyich Brezhnev, Secretary-General of the Communist Party of the USSR and Chairman of the Presidium of the Supreme Soviet of the USSR.<sup>(1)</sup> In his message, L.I. Brezhnev stressed that further progress in the economic, scientific and cultural fields must take into account the consequences of human activity on nature; and it was clear that inculcation of a considerate and careful attitude to the environment, together with dissemination of knowledge and skills necessary for its protection and improvement, should become an integral part of the general system of education and training. In the USSR, protection of nature and improvement of the environment were regarded as highly important, nation-wide tasks of the national economy. This approach was enshrined in the new Fundamental Law recently adopted, the Constitution of the USSR, which took stock of the development of the Soviet State founded by V.I. Lenin, in the 60 years since October 1917. The message further stressed that the Soviet Union gave its active support to international action aimed at solving environmental problems and problems concerning the rational use of the natural resources, since the Soviet people were convinced that such action was conducive to the achievement of the aims set forth in the Charter of the United Nations and reasserted in the Final Act of the Conference on Security and Co-operation in Europe. L.I. Brezhnev wished the Conference full success in carrying out the noble tasks before it.

6. The Conference was welcomed by H.E. Mr. Z.A. Pataridze, Chairman of the Council of Ministers of the Georgian Soviet Socialist Republic. Understanding and solution of the eternal problem of the relationship between nature and humanity, he said in his speech, had become a topical issue for all nations. This global problem

---

(1) See annexes for full texts of the opening messages and speeches.

could not be resolved within the limits of individual countries and regions; it was a matter of world importance. That was why the purpose for which the participants of the Conference came to Tbilisi was not only very important but also a noble one, and the recommendations of the Conference should contribute to the solution of the environmental problems which the whole of humanity faces. He referred also to a number of specific measures and activities undertaken in the Georgian SSR in relation to the preservation of the environment and to environmental education.

7. In his address to the Conference the Executive Director of the United Nations Environment Programme, Dr. Mostafa K. Tolba, stressed the importance of environmental education as a means of creating awareness of the complex and urgent problems of environment as a basis for their solution. Environmental education was essential for integrating the knowledge generated by important recent conferences of the United Nations system and was also important for development issues and the establishment of a new international order. Dr. Tolba recalled the three major inseparable components of UNEP's activities: environmental assessment, environmental management, and supporting measures, indicating that the fulfilment of UNEP's mandate required a truly comprehensive view of environmental education and training out of school as well as at school, for active participation of all in the solution of environmental issues. He reminded the Conference of the guiding principles set forth by the Belgrade International Workshop on Environmental Education in 1975, noting that these were excellent rules for education as a whole. He underscored the global nature of environmental problems, stressing their close linkage with development, since they could be associated with both appropriate development or lack of development. Also all countries, developed or developing, must take into account the limitations and opportunities posed by their environment in the pursuit of development.

Dr. Tolba recalled the central and co-ordinating role of UNEP in relation to environment, and the co-operation with Unesco and other agencies of the United Nations system in relation to environmental education, as well as with non-governmental organizations (NGOs). He referred to certain specific activities in UNEP's programme. Reviewing the objectives of the Conference, Dr. Tolba hoped that it would advance the theory and practice of environmental education on the broadest possible front. He underlined the importance of actions at the national level in the field of environmental education. He ended by emphasizing the importance of the task to be undertaken, and the magnitude of the challenge.

8. The Director-General, after expressing his thanks to Mr. V.A. Kirillin, Deputy Chairman of the Council of Ministers of the USSR and to the authorities of the host country for their cordial welcome, greeted the representatives of Member States and representatives and observers of the organizations of the United Nations system and of intergovernmental and non-governmental organizations.

The Director-General paid tribute to the Soviet Union and to the spectacular results achieved since the October Revolution in all areas of economic, social and cultural life, particularly in education and science, and, more especially, in environmental education.

The Director-General then thanked Dr. M. Tolba, the Executive Director of the United Nations Environment Programme, for the contribution that UNEP had made to Unesco in the development of environmental education and training and, particularly, in the organization of the Conference, the first of its kind on a world-wide scale.

Unesco had, at a very early stage, begun to concern itself with certain environmental problems, but the concept of environment had evolved: initially confined to its physical and biological aspects, it now also covered the social, economic and technological environment. The protection of the environment was, then, a many-sided task which could not be carried out without taking account of those socio-economic factors which were the cause of environmental problems. Those problems, moreover, tied in with the ones raised by development and could not be dissociated from them. Protection of the environment was a necessary dimension of development. The objectives and strategies relating to the environment and to development had to be linked and co-ordinated. The general problem of development and of the environment had an international dimension which in no way contradicted its specific national and regional character: any rational policy for the environment involved recognition of the interdependence of human societies and the organization of a new system of relationships based on equality, sovereignty and mutual respect. The problems of development and of the environment therefore needed to be approached in a spirit of solidarity and justice.

It would be the task of education to make people aware of their responsibilities in this connection, but in order to do so it must first be reoriented and based on an ethos of the environment. This was an ambitious undertaking, which would call for some clarification of the concepts involved.

On the question of knowledge, education should promote understanding of the role of the various biological, physical and socio-economic factors on whose interaction the very nature of the environment depended, not only among specialists but also among non-specialists, children or adults, both in and out of the formal education system. Environmental education should also promote attitudes which would encourage individuals to discipline themselves in order not to impair the quality of the environment and to play a positive role in improving it. It should also help to develop in the members of every community a body of knowledge and a critical sense making them well-informed participants in the preservation and improvement of the environment. These objectives would entail substantial changes affecting various aspects of the educational process, which would become more relevant

and socially effective, more closely related to life and to the practical problems of the community. Such an education implied an interdisciplinary, problem-solving approach. It should also leave considerable room for participation, i.e. for individual and collective initiative, and be an ongoing process. Strategies must be devised for the development of environmental education at the national level. Member States had, of course, already made considerable efforts to bring subjects relating to the environment into their curricula and to create teaching aids, but such efforts were inadequate, first of all in that they did not, in general, cover the whole of the education system, and secondly in that the different levels or types of education were not by any means equally involved. Furthermore, it was not enough to make environmental education simply an adjunct to the normal curriculum. Environmental concerns must be an ever-present dimension and function of education in the broadest sense of the term, in all its forms and at all levels. One might even go further and say that environmental education should be considered a key component in policies for educational renewal and development. Environmental education must therefore be based on the coherent application of a whole series of measures: policies and legislative measures; conceptual efforts, research and experimentation; information work both among the public and among those in positions of responsibility; the initial training and in-service training of those in charge of environmental questions; the preparation of teaching materials and the use of all the audio-visual media.

The development of environmental education constituted an ideal field of action for regional and international co-operation, since the unity of purpose of all peoples and of all governments was necessary in order to forestall and solve environmental problems. Several United Nations organizations and programmes and a number of inter-governmental and non-governmental organizations had intensified their efforts to this end and Unesco, under its Medium-Term Plan, proposed to develop the action undertaken in co-operation with UNEP since the 1972 Stockholm Conference in the light of the recommendations of the present Conference, which would thus mark a decisive stage.

It would therefore appear desirable for the Conference to identify priority aspects of common interest which called for concerted action at the international and regional levels, such as the exchange of information and personnel, the development of teaching materials and research and experiment designed to foster innovation.

Such action called for effective co-ordination of activities and complementarity of efforts, having due regard for the respective fields of competence and terms of reference of the various organizations concerned.

### Work of the Conference

9. After the opening ceremony, the Conference, on the proposal of the head of the delegation of India, seconded by the head of the delegation of

the Federal Republic of Germany, elected by acclamation the head of the Soviet delegation, Dr. Djermein M. Gvishiani, Vice-Chairman of the State Committee for Science and Technology, as its President.

Dr. Gvishiani, on behalf of the Soviet delegation and on his own behalf, thanked the participants of the Intergovernmental Conference on Environmental Education for electing him President of the Conference. As President, he extended warmest thanks on his own behalf and on behalf of the participants of the Conference, to the Secretary-General of the Central Committee of the Communist Party of the Soviet Union, Chairman of the Presidium of the Supreme Soviet of the USSR, Mr. Leonid Brezhnev, for his cordial greetings and good wishes to the Conference. He also thanked the Director-General of Unesco, the Executive Director of UNEP for their addresses to the Conference and the Chairman of the Council of Ministers of the Georgian SSR on whose hospitable soil the participants of the Conference had gathered. He added that, as the scientific and technical revolution continues, the influence of human society on nature will increase still more and, in this connection, environmental education and the training of personnel assumes particular importance in the general series of measures being taken to preserve and improve the environment. He further added that, in view of the rapid and world-wide development of science and technology, the problem of preserving and improving the environment can only be solved on the basis of the broadest possible international co-operation which unites the interest of all countries, irrespective of their social systems, and contributes to the strengthening of ties between the peoples of those countries and to the strengthening of peace on earth. He went on to say that the principal tasks of the Conference were to make accumulated experience generally known and to plan recommendations about activities that could be undertaken nationally, regionally and internationally to further the development of environmental education. In conclusion, he expressed the hope that the Conference will be an important milestone in the development of international co-operation in environmental education.

10. The Conference then adopted its Rules of Procedure, after having changed the words "one or several commissions" in Article 4.1 to the words "one commission" and having introduced corresponding changes in other relevant articles and elected unanimously other members of the Steering Committee, which was constituted as follows: President: Dr. D.M. Gvishiani (USSR), Vice-Chairman of the State Committee for Science and Technology of the Council of Ministers of the USSR; Vice-Presidents: Mr. Iris Fays (Belgium), Inspecteur de l'enseignement primaire; Mr. O. Léon Sacramento (Benin), Président de la commission nationale pour l'environnement; Mr. Alfonso Lopez Reina (Colombia), Jefe Nacional de Planeamiento y Evaluación Curricular; Mr. Premysl Jagos (Czechoslovakia), Deputy Minister of Education; Mr. M.S. Abd-El-Salam (Egypt), Head, Environmental Research Division,

National Research Centre; Mrs. Kirsti Wartiovaara (Finland), Cultural Secretary, Ministry of Education; Mr. K. Iyada Al-Ma'athidi (Iraq), Dean of Education Faculty, Baghdad; Mr. Archie W. Mbogho (Kenya), Deputy Director of Education, Principal of Kenya Science Teacher College, Nairobi; Mr. S. Garcia-Ramirez (Mexico), Deputy Minister of Education; Mr. Nart Tuntawiroon (Thailand), Director, Environmental Education and Research Project, Mahidol University; Rapporteur-General: Dr. George Francis (Canada), Professor, Faculty of Environmental Studies, University of Waterloo; Chairman of the Commission: Mrs. Madhuri Shah (India), Vice-Chancellor, SNDT Women's University, Bombay.

11. At the end of its first plenary meeting, the Conference adopted its agenda after amending items 4 and 6 of the Provisional Agenda (document UNESCO/ENVED/1 Prov.) which the participants had before them.

12. Thus, one Commission was established and was assigned to consider item 10 (Strategies for the development of environmental education at the national level). The Commission considered this item from 18 to 21 October 1977 and approved its report and recommendations on the morning of 25 October 1977.

13. The Conference examined in plenary sessions, items 7 (Major environmental problems in contemporary society), 8 (Role of education in facing the challenges of environmental problems) and 9 (Current efforts at the national and international levels for the development of environmental education), on 15-17 October, and item 11 (Regional and international co-operation for the development of environmental education: needs and modalities) on 22 and 24 October. The Conference also examined the draft recommendations submitted by the delegates and harmonized by a group, representing various regions, on 24-25 October.

14. At the final plenary session, 26 October 1977, the Rapporteur-General presented the draft final report, which the Conference examined. It also examined the remaining draft recommendations of the plenary sessions and those of the Commission. Lastly, the Conference unanimously adopted the report. The report and the recommendations adopted are reproduced in Part III.

### Closing session of the Conference

15. At its closing session, the Rapporteur-General presented the draft Declaration of the Tbilisi Intergovernmental Conference on Environmental Education, which the Conference adopted by acclamation.

16. In his closing address,<sup>(1)</sup> Mr. Amadou Mahtar M'Bow, Director-General of Unesco, thanked the authorities of the host country for their generous reception of the Conference and provision of facilities; he also thanked the Government and the people of the Georgian Soviet Socialist Republic for the cordial atmosphere created in Tbilisi and expressed appreciation for the message of His Excellency, Leonid Ilyich Brezhnev,

Secretary-General of the Central Committee of the Communist Party of the Soviet Union and Chairman of the Presidium of the Supreme Soviet of the USSR.

The Director-General similarly expressed his thanks to the participants for their intensive efforts and stimulating contributions as well as to the organizations and programmes of the United Nations, especially UNEP and its Executive Director, Mr. M. Tolba; and to representatives and observers of other intergovernmental organizations and international non-governmental organizations; and to the President, Vice-Presidents and Rapporteurs of the Conference for their respective shares in the success of the intergovernmental meeting.

"For one can, I am firmly convinced" said the Director-General, "speak of success". The goals, objectives and guiding principles established by the Conference for Environmental Education constituted "both a milestone and a starting point", thanks to the spirit of objectivity and conciliation shown, culminating in adoption by acclamation of the Tbilisi Declaration. The threats that humanity has created for itself and for the earth, which sustains it, can be dispelled by the exercise of human reason and the commitment of human resolve. From the very gravity of the perils, participants have drawn an optimistic conclusion: "that education can help man to triumph over himself and prepare him for the exercise of his responsibilities". In this respect, considerable conceptual progress was recorded at the Conference in defining "the role of education in meeting the challenge of environmental problems".

Participants "concurred in the belief that education, assisted by the mass media, should arouse in all, whatever their age, both inside and outside the formal education system, a broad awareness of these problems, based on objective information". Moreover, that education should help to shape the behaviour required of all, by protection and improvement of the environment, "together with the requisite knowledge and know-how to take part in action for this purpose". Thus the environmental dimension should be introduced at all levels of the educational process and become a component of the various disciplines. "Its interdisciplinarity may be regarded as the necessary educational approach for reflecting and conveying the fundamental unity and complexity of life."

As an essential element of a global, lifelong, problem-solving education which prepares people for active participation in society "environmental education follows the guiding line which, in most countries, is governing the movement of educational systems towards greater relevance, greater realism and better two-way contact with the physical and social environment in order to make people more closely involved in their surroundings". "It perhaps represents an ideal opportunity to restore to education an ethical function which

(1) For the full text of closing speeches see Annex III.

it has sometimes lost" and "can greatly contribute to the renewal of educational systems".

The body of ideas formulated and the recommendations adopted at the Conference form the equivalent of a plan of action for the development of environmental education nationally, regionally and internationally.

With regard to co-operation between nations, the very fact that environmental problems are often common to a number of countries is a major contribution to mutual support in environmental education. There is therefore the strong likelihood of a bright future ahead for regional and subregional co-operation, especially because of geographical and cultural affinities, with the active collaboration of intergovernmental organizations, established at those levels.

As for international organizations and their support of Member State activities in environmental education, many delegations made a point of recalling that Unesco, as the United Nations agency with responsibility for education, was the normal framework for such co-operative assistance. "Unesco possesses a long conceptual and operational experience in the field of education and has, in recent years particularly, undertaken in-depth reflection on overall policies and strategies for the development and renewal of educational systems, of which environmental education is one aspect" and this in "constant concertation with those responsible for education in Member States".

Unesco views education in the context of development in the broadest sense and approaches its problems in relationship with those of the exact and natural sciences, the social and human sciences and of culture and communication. This principle underlies the Medium-Term Plan which was adopted by the last General Conference and which provides for development of the Organization's action in environmental education. Work in this programme area will be intensified "in the light of the Conference's recommendations" and move into a more operational phase. This means, among other activities, "making aid from Unesco available to Member States which would like to launch pilot projects"; considering a "bank" of experts on environmental education; augmenting "work in the exchange of experience, in training and in encouraging the production of teaching materials"; and strengthening the Secretariat and Unesco's infrastructure in general for the increased promotion of environmental education, particularly the "appointment of specialists in environmental education to the various Regional Offices and the establishment of training facilities or machinery for co-operation between Member States".

Furthermore, Unesco, while increasing the resources which it might allocate for environmental education, in no way intends to isolate itself from other United Nations agencies which have an interest in education and training for different reasons, certainly not with UNEP. "Harmonization at the planning stage and at that of programme implementation seems essential if the system is to serve the community of Member

States effectively and avoid all useless duplication of effort." In like manner, Unesco considers it essential to co-operate with other intergovernmental organizations and with non-governmental organizations, notably the International Union for the Conservation of Nature and Natural Resources and the principal teachers' and university organizations.

The urgent need for "action to protect the environment and perhaps even more for education to this end" was the essential appeal of the Tbilisi Declaration - an appeal, the Director-General had no doubt, "will be heeded".

17. Speaking on behalf of UNEP's Executive Director, Dr. M. Tolba, Mr. Svene Evteev, UNEP's Assistant Executive Director, expressed his conviction that the Conference has been "an important event in the solution of environmental problems". It was the culmination of three years of effort, primarily by Unesco and UNEP "but also by a large number of specialists, experts and country representatives who took part in the Belgrade symposium and the series of regional meetings, as well as of co-operation with non-governmental organizations, in particular with the International Union for Conservation of Nature and Natural Resources". The chief thing now is practical action with the recommendations of the Tbilisi Conference suggesting the way. In the activities which will follow the Conference, the co-operation of Unesco and UNEP, demonstrated in preparations for the Conference, "will be strengthened and expanded". Mr. Evteev, on behalf of Dr. Tolba, closed with an expression of thanks to the Government of the Soviet Union and the Government and people of the Georgian Soviet Socialist Republic for their contribution to the success of the Conference.

18. Mr. O.E. Tcherkezia, Vice-President of the Council of Ministers of the Georgian SSR, seconding the Conference President, similarly saluted the work of the Conference. Its principal achievement was "the elucidation of ideas regarding environmental education and the formulation of a number of methodological bases for such education which are of interest nationally and internationally". Mr. Tcherkezia expressed his gratitude to Unesco's Director-General, for his active participation in the Conference and to UNEP's Executive Director for his organization's contribution to the intergovernmental meeting.

### Closing resolution

19. Before the President declared the meeting closed, the Conference adopted by acclamation the following resolution, proposed by the delegations of Benin, Colombia, Czechoslovakia, India, Kuwait and the United Kingdom, supported by five delegates, representing various regions.

The delegates of Member States assembled at Tbilisi for the Intergovernmental Conference on Environmental Education express their appreciation of the message addressed to the Conference by the Secretary-General of the Communist Party of the Soviet Union Central Committee and

## Introduction

Chairman of the Presidium of the Supreme Soviet of the USSR, Mr. Brezhnev, and thank him for the interest in environmental education which he has shown. In addition they wish to express their gratitude to the Governments of the USSR and the Georgian SSR for creating such an agreeable and favourable atmosphere for the holding of the Conference just before the celebration of the 60th anniversary of the Great October Socialist Revolution, and to take this opportunity of sending their

cordial greetings to the Soviet people.

They also wish to thank the Director-General of Unesco, the Secretariat, including the interpreters and all the supporting staff, for their contribution to the success of the Conference. They hope that its work carried out in the congenial atmosphere of the delightful city of Tbilisi, so rich in historical traditions, will prove to be an enduring landmark in the world-wide development of environmental education.

## I. GENERAL REPORT

### Environmental problems

1. Serious preoccupation with environmental problems is a relatively recent phenomenon in contemporary society. While there have always been certain expressions of concern for issues relating to environment, only in the last few decades, as a result of extraordinary rapid scientific progress, as well as technological and social changes, have new problems emerged and others, which existed before, taken on entirely new dimensions. It is now recognized that many human activities, collectively, have detrimental and possibly irreversible consequences. Equally new is the realization that some problems, which arise in a variety of specific forms according to the context of individual countries where they occur, may be affecting humanity as a whole. Moreover, some environmental problems can even be exported to other countries through arrangements for trade and investment. The sense of urgency about environmental problems expressed at the Stockholm Conference in 1972 still remains.

2. At the same time, there is an urgent need for development. Poverty itself is a form of environmental degradation. Viewed in this light, it is no longer possible to contrast the preservation of the environment with the necessity for development. In many of the less developed countries and particularly among the less privileged groups, which form the vast majority, the preservation of the environment requires development as its prerequisite, especially to meet the basic needs of the poorest people in the world. In fact, under these circumstances strategies for the preservation and betterment of the environment coincide with development to a large extent. Both are related and inseparable expressions of the capacity of man to improve his life, as well as provide for the well-being of future generations. People should utilize the resources of the earth in such a way that they can be transmitted to generations yet to be born as a heritage which is not only preserved but enriched. This sense of responsibility to future generations is a vital part of the awareness of environmental problems and to a large extent it remains to be created.

3. There is a wide consensus of opinion on

the gravity of the situation for humanity as a whole and on the need for urgent action. This has been reflected, for example, in the subjects of recent international conferences. However, there is not yet a clear or rational perception of the issues at stake among the greater number of those concerned - the human race in its entirety. There is often resistance to initiatives for remedying the present situation, sometimes from the groups of people most directly affected.

4. Although a number of steps have been taken and initiatives carried out at the national and international levels since the Stockholm Conference, it appears that they have not fulfilled the requirements or hopes which had been expressed in Stockholm. Serious as this is, the environmental situation should not be unduly dramatized. It has been said that human beings are the only animal not bound by their environment, so they can change it. Not only should they protect it, they should also improve it.

5. Solutions for environmental problems require first a thorough analysis of them. Too often problems have been considered in a partial manner rather than in a holistic one which examines their interrelations. Analyses should start with a classification of types of damage and threats posed to or by the environment, taking into account the degree of harmfulness to humanity. There is now agreement that the environment embraces social and cultural, as well as physical, environment and analyses therefore must take into account interrelations between the natural environment, its biological components and social and cultural factors as well. In addition, environmental problems are not just those of the detrimental or irrational use of natural resources and pollution. They include problems of underdevelopment, such as inadequate housing and shelter, bad sanitary conditions, malnutrition, defective management and production practices and, more generally, all problems which stem from poverty. They also include questions of protecting cultural and historical heritages.

6. Science and technology can no doubt provide or contribute to solutions to the problems which they may in fact have helped to cause. Nevertheless, the solutions sought should not be short-term ones nor too narrowly conceived. In

many cases, solutions have to take into account the social and cultural factors which are so often at the root of such problems. What is necessary is a re-examination of the complex and delicate relationships between people and their environment, so that they can begin to pursue environmentally sound development. Essential equilibria in the flows of matter and energy through natural ecosystems, as well as ecosystems already modified by humanity, must be re-established or preserved. This requires better knowledge of the relations between human activities and different ecosystems which in turn requires more interdisciplinary research.

7. Moreover, models of growth and development must be reconsidered. It has become necessary to distinguish between the essentials and the luxuries for environment as well as development. This is one more reason to advocate a holistic approach to the study of environmental problems which require the contribution of all natural, social and human sciences and the arts for their analysis and solution. These problems are now widely recognized to reflect a crisis of civilization in certain countries. Their ethical dimension is in no way less important than the other components.

8. The growing recognition of the consequences and implications of environmental problems must be coupled with an increasing awareness of solidarity among nations. Improved management of the environment to serve humanity should aim at reducing existing disparities and at bringing about international relations based on equity, in the perspective of a new international order. Environmental education has an evident role to play if the issues at stake are to be grasped and if all concerned are to be provided with the knowledge, skills and attitudes which can modify the existing situation for the better.

### The role of education

9. The role of education in the face of environmental problems and opportunities is therefore a crucial one. Environmental education should be integrated into the whole system of formal education at all levels to provide the necessary knowledge, understanding, values and skills needed by the general public and many occupational groups, for their participation in devising solutions to environmental questions. Non-formal education also has an extremely important role to play. The full utilization of mass media for truly educational purposes would also help create widespread awareness and understanding.

10. The ultimate aim of environmental education is to enable people to understand the complexities of the environment and the need for nations to adapt their activities and pursue their development in ways which are harmonious with the environment. In this way, it adds a new dimension to the efforts being made everywhere to improve living conditions. Environmental education must also help create an awareness of the economic, political and ecological interdependence of the modern world so as to enhance a spirit of

responsibility and solidarity among nations. This is a prerequisite for resolving serious environmental problems at the global level, as for example those relating to oceans or the contamination of the atmosphere.

11. Environmental education must adopt a holistic perspective which examines the ecological, social, cultural and other aspects of particular problems. It is therefore inherently interdisciplinary. However, the problems it addresses should be those familiar to the learners in their own home, community, and nation and it should help the learners acquire the knowledge, values and skills necessary to help solve these problems. This means that environmental education involves learning from the environment as well as about the environment, and in many situations this would require changes to be made in some well-established approaches to teaching, especially in formal education. With the adoption of this problem-oriented and action-oriented approach, environmental education thereby becomes both lifelong and forward-looking. By its interdisciplinary nature, as well as by bringing education nearer to the environment and to life, environmental education can play a considerable role in the renovation of educational systems.

12. The particular content, methods and materials for environmental education must be adapted to the needs of the learners. Distinctions have to be made in the role of education, either formal or non-formal, for developing an increased awareness and understanding of environmental problems among the general public (children, youth and adults); for preparing certain occupational groups whose responsibilities bear directly on environmental problems and opportunities (for example, engineers, planners, architects, medical personnel, teachers, administrators, industrial managers) and for training specialists for research or other work relating to the environmental sciences. There is a considerable need for innovation in approaches and methods for all of these levels and types of environmental education, and for the exchange of information and experience within and among countries.

### Current efforts and achievements in environmental education

13. A number of countries have made significant advances towards implementing environmental education programmes. This is witnessed by the national reports prepared for the Conference. Often, the development of environmental education coincided or was integrated with the establishment of new institutional arrangements for environmental protection in different countries. For the formal education systems, work is under way to introduce environmental components into the teaching of traditional subjects in the schools, and curriculum units and teaching materials are being prepared for particular environmental questions relating to both urban and rural communities. At the higher education levels, special courses, seminars and training sessions on environmental topics have been



conducted in many countries. In some countries, at universities and technical institutes, special faculties or programmes for environmental studies have been established.

14. In keeping with the nature of environmental education, many extracurricular or informal activities emphasizing participation and stimulating initiatives have been undertaken in a number of countries. These include excursions, study tours, and field studies, along with many other activities carried out by youth associations, clubs, political movements, and trade unions. Youth has been enlisted in sanitary and other self-help campaigns. Youth camps have been organized. Travelling exhibitions, competitions, lectures on environmental topics have been used in order to increase environmental consciousness. Prizes for children's literature and medals for environmental activities have been awarded. Mass media, radio, television, films and the press have played a very important role in many countries for the dissemination of environmental information. Publications have popularized recent scientific findings, and ecofilm festivals have been held. In certain cases, a council for environmental education has been set up. Environmental education programmes may not always be conducted exclusively by ministries of education but also by ministries which are concerned with environmental problems such as ministries of health, agriculture, land and mines, community development, and where it applies, by those ministries that have special responsibility for the environment.

15. Important as these efforts and achievements may be - and the Conference gave encouraging evidence to that effect - there are still a number of gaps and shortcomings. Less seems to have been achieved at the secondary level than at the primary level in the schools, both quantitatively and in terms of innovations. Little has been done for training educators for environmental activities in non-formal education. There are still far too few teachers and university professors trained for the teaching of ecology or able to participate effectively in a multidisciplinary approach to teaching. Much remains to be done in the way of a complementary education for in-service teachers. Last but even more important, there still appears to be a considerable need for developing or refining overall strategies which will define and develop, in relation to each other, the objectives, content, methods and modalities of school and out-of-school environmental education at various levels and for various groups.

16. Nevertheless, as the Conference debate amply demonstrated from the experience already gained and the results already achieved, it would appear timely to increase exchanges of information, based on bilateral or multilateral agreements, both at the regional and at the international level. This should be an important aspect of the international co-operation which has been developing, in particular since the Stockholm Conference in 1972, notably with the support of Unesco and UNEP, and also of other Specialized Agencies and programmes of the United Nations system. There was a consensus in favour of such

co-operation being further developed. Several delegations were of the opinion that the fruitful collaboration initiated between Unesco and UNEP, whose catalytic role in the field of environment was clearly recognized, should be continued and intensified. Special reference was made to Unesco's Man and the Biosphere Programme as a source for much needed sound scientific information on the environment for use in education. In addition, bilateral co-operation programmes, and other intergovernmental and non-governmental organizations had important contributions to make towards furthering environmental education. Several delegations expressed the opinion that existing structures should be utilized to the fullest possible extent and if need be, strengthened for the purpose of increased international and regional co-operation.

17. Apart from the gathering, analysis and exchange of information on experiments, innovations, research findings and new methodologies, in which Unesco's Regional Offices for Education and innovation networks have an important role to play, such co-operation from Unesco could take various forms: expanding the MAB Programme; granting fellowships to teachers and specialists and stimulating training in environmental studies; organizing seminars and workshops; publishing a journal on environmental education; organizing competitions for the production of instructional materials; helping universities set up chairs in environmental studies; promoting the use of mass media; promoting the preparation of glossaries of environmental terms; assisting in acquainting leaders, including religious ones, in environmental principles; and providing assistance to developing countries in the field of environmental education. In addition, UNEP through its catalytic role could become an increasingly important source for environmental data and information for use in the preparation of teaching materials.

18. In view of the magnitude of the challenge and of the scope of the task ahead, a major effort of international and regional co-operation would appear indispensable. There was a strong feeling that the Conference should launch an appeal to the international community so that its recommendations could be implemented and the solidarity of nations thereby appropriately expressed.

#### Regional and international co-operation

19. The Intergovernmental Conference devoted its seventh and eighth plenary meetings to the consideration of item 11 of the agenda "Regional and international co-operation for the development of environmental education: needs and modalities".

20. The discussions covered the problems set forth in Chapter V of the main working document (UNESCO/ENVED/4). The Conference expressed its appreciation of the quality of this document which gives an overview of the problems of the environment in modern society and

emphasizes a certain number of essential questions concerning environmental education and the role of regional and international co-operation in its development.

21. The delegates of the various regions considered that, if, as stated above, one of the aims of environmental education was that of inculcating the spirit of responsibility and solidarity between nations, an awareness of economic, political and ecological interdependence, then overall co-operation at regional and international levels was certainly essential, but that there was an equally essential need for subregional co-operation almost as everyday practice, since ecological and geographical proximity, linguistic and cultural affinities, similarities of socio-economic situations and community of views and interests provided a practical and effective basis for joint action. These were the considerations which lay at the basis of the subregional co-operation practised by certain countries, e.g. the Scandinavian countries which, in addition to joint examination of the aims and methods of environmental education, had achieved such positive results as the preparation and dissemination of teaching materials, the organization of common courses for teachers, and the preparation of a teachers' guide. ALECSO is conducting, for the group of Arab countries, an important environmental education programme in close liaison with Unesco. Other examples of fruitful co-operation cited were those of the Latin American countries and the countries bordering on the Baltic.

22. The same delegates stressed the need to go further in this direction, since subregional co-operation activities could only be disseminated by means of wider regional co-operation. Co-operation between countries should not therefore be confined to the subregional level but should be extended, especially at the regional and international levels. Both the developing and the industrialized countries should benefit from increased international co-operation in environmental education. Unesco's work in this field was considered to be of capital importance and the delegates expressed the hope that, pursuant to the precise recommendations of the Tbilisi Conference, the Director-General would put before the General Conference of Unesco proposals for specific steps to strengthen the Organization's activities for the promotion of environmental education, and more especially to include environmental education problems in the agenda of all conferences of Ministers of Education convened by Unesco.

23. Among the main fields where regional and international co-operation could and should make an effective contribution to the development of environmental education, all the delegates who spoke referred to information, training, research and experimentation on content, methods and teaching materials. As regards the main modalities for action, those which seemed to lend themselves most easily to co-operative action and which related to the various steps taken by governmental and non-governmental organizations were: exchanges of all kinds, at all levels, and taking various forms, such as meetings, exhibitions,

festivals, etc.; studies and surveys on innovations and activities for the general promotion of environmental education; projects, in particular pilot projects intended for national groups or institutions working in both the formal and the non-formal fields and aiming to test and develop environmental education innovations.

24. Delegates considered the question of means and instruments for the execution, in accordance with the main modalities indicated above, of regional and international co-operation activities. All delegates considered that effective co-ordination should be exercised at the international level to encourage, support and organize efforts and initiatives in the fields of exchanges of information, training activities for young and adult personnel or the preparation and testing of environmental education materials. It was unanimously considered that Unesco, by virtue of its mission, its structures and certain of the procedures which it employs, was the international organization best suited for fulfilling this basic co-ordinating role and for giving a lead in international co-operation in environmental education.

25. Furthermore, with the conceptual framework of its Medium-Term Plan for 1977-1982 (document 19 C/4), which introduces programming by objectives corresponding to specific problems, Unesco offers a structure for integrating the various disciplines related to education, the natural and social sciences and culture. Against this background, several delegates invited Unesco to integrate certain of the activities of the Programme on Man and the Biosphere (MAB) with those of the environmental education programme, in which it was acknowledged that Unesco played a crucial role.

26. This role of co-ordinating international co-operation in environmental education which the Tbilisi Conference has entrusted to Unesco requires that the Organization pursue and develop its own co-operation with the other agencies and programmes of the United Nations system, more especially the United Nations Environment Programme, whose functions in international co-operation in relation to the environment mark it out for primacy in this respect. The representative of the government of one Asian Member State, made an urgent appeal in this connection to UNEP to give full support to Unesco's environmental education programme so as to give that programme greater dynamism and force.

27. As regards the question of structures, the great majority of delegates were, however, firmly opposed to the creation of new bodies, the need for and usefulness of which seemed doubtful in their view, for the implementation of international co-operation. They invited Unesco, in co-operation with UNEP, to use existing structures including, more especially its Regional Offices and centres as well as the International Bureau of Education and the International Institute for Educational Planning.

28. One delegate referred to the creation in 1975 of an International Centre for Environmental Sciences Education for Spanish-speaking countries, with its headquarters in Madrid,

following an agreement between the Spanish Government and UNEP.

29. The delegates considered that, as a means of encouraging activities and innovations in environmental education, Unesco should consider the possibility of creating a special prize that some of them referred to as the "Tbilisi Prize"; in the same way as the literacy prize created by the Shah of Iran, this would be designed to recompense the most outstanding activities and contributions, in this case in furthering the advancement of environmental education.

30. The UNEP representative wished to specify the role and terms of reference of his organization, emphasizing that along with environmental assessment and environmental management operations, environmental education was accorded the greatest attention by UNEP. He also drew attention to the existence of co-ordinating bodies at the highest level and the excellent co-operation with Unesco, which would extend to a joint planning exercise to avoid any duplication and parallelism and to fill any gaps. He referred to the creation, on an experimental basis, of a Programme Activity Centre on Environmental Education and Training in Africa and the publication of a glossary of environmental terminology to which UNEP had contributed financially.

31. In their statements, the delegates unanimously stressed the need and importance of co-operation as regards information designed to promote and develop environmental education. From the statements made, it emerged that efforts to stimulate awareness and inform every sector of the public, in school and out of school, had taken the form of a great variety of activities in individual Member States and also at the level of the various subregional, regional and international groups. These campaigns to develop awareness and provide information concerned not only the problems of protecting and improving the environment but also the more specific questions of environmental education. The strategic fact that emerged from all these activities was that an established conceptual basis was now being created which would make it possible to forge ahead and reach a more operational stage of action for the development of environmental education.

32. As several delegates pointed out, exchanges of partial and fragmentary information and knowledge were no longer enough. What was now needed was actually to put the process of environmental education into effect. In this undertaking, co-operation at all levels was marked out for a highly important function in the organizing and facilitating of exchanges of information and experience between countries or groups of countries. In this connection, mention was made several times of the role of an intergovernmental conference like that of Tbilisi the preparation of which, involving regional meetings, and the actual proceedings of which provided a setting and an opportunity for a broad exchange of views and information between countries of various parts of the world.

33. The delegates expressed the hope that the dissemination among Unesco's Member States

of information on national and regional experience in, and policies and strategies for, environmental education would be intensified; they also considered that information exchange channels should be organized not only at all levels but, as far as possible, between the various levels themselves. An appeal was made to the international organizations, and more particularly to Unesco, to encourage and assist the initiatives of Member States aimed at organizing environmental education campaigns using the mass media and social organizations. Reference was made to the usefulness, with regard to environmental education, of disseminating concrete, vivid and objective information. While emphasizing the value for education purposes of the UNEP reports on the state of the environment, the delegates suggested that Unesco consider establishing a specialized journal which might serve as a medium for the exchange of information and experience among Member States.

34. Certain delegates expressed the hope that Unesco and UNEP would, in their programme of co-operation, carry out activities aiming to facilitate the transfer of technology, particularly to the developing countries, in order to enable the latter to make their contribution to the development of environmental education. It was pointed out that this transfer of technology might, preferably, take place at the level of programmes for the exchange of teachers and for the training of technical staff specializing, for example, in hydrology, nature conservation, general education and the production of teaching materials. There was a considerable demand, in this connection, for the strengthening of Unesco's system of fellowships or higher scientific and technical studies, in order, among other things, to enable nationals of developing countries to attend certain special courses.

35. Several countries pointed out that they organized, alone or with the help of UNEP, a variety of environmental education courses which were open to foreign students. The delegates expressed the wish that Unesco, in co-operation with UNEP, examine the possibility of reaching larger and larger numbers of young people, particularly by means of "summer schools". It would also be desirable for Unesco to provide support for certain national or subregional training and research centres, which were points of reference and poles around which further efforts could be organized. One suggestion was that Unesco should consider setting up a kind of "world bank of specialists and teachers" with a view to assisting Member States, at their request, in the implementation of environmental education activities and in providing supplementary training for teachers, the importance of whose role was repeatedly emphasized. It was also suggested that specialists in environmental education should be appointed to Unesco's Regional Offices.

36. The training of staff for environmental education should also enjoy the benefit of bilateral co-operation programmes such as those which several industrialized countries had organized within the framework of their technical assistance

to developing countries. Some of these programmes might, indeed, receive international support. In this connection, the delegation of one country mentioned that its government had organized, in co-operation with UNEP and Unesco, a yearly ten-month post-graduate training course on ecosystem management, and would organize a four-week course as a follow-up measure to the International Symposium on Eutrophication and Rehabilitation of Surface Waters, starting in 1978.

37. Unesco was asked to assist, with the help of UNEP, in the introduction of specialized courses in higher educational institutions in order to provide technical training for staff, and to organize seminars and working groups devoted to training for environmental education.

38. Several delegates said that their countries were conducting research and experiments with others, with a view to the preparation of teaching materials for use in environmental education. The need to design curricula and to prepare textbooks and guides for teachers was referred to several times, and Unesco was invited to pay particular attention to this point, with the assistance of UNEP and the relevant non-governmental organizations. The suggestion was made, in this connection, that Unesco should consider organizing a very wide competition in order to encourage proposals; these would then go through a selection process and the drafting would be submitted to a panel of high-level specialists. Finally, the delegates asked that Unesco and UNEP should join forces in the production and dissemination of certain teaching materials.

39. The importance of pilot projects to try out innovations and teaching materials was strongly emphasized, as was the impact of such projects on the environment and on the illiterate masses of certain countries. In regard to international projects implemented at national level, those conducted under the MAB Programme were singled out for the attention of the Conference by several speakers as examples to be followed. It was also asked that the possibility of a system for environmental education research - similar to that carried out by Unesco for the studies conducted by several countries on a joint basis in the field of culture - be considered.

#### Statements by the Director-General

40. Twice during discussion of item 11 of the agenda, Mr. Amadou-Mahtar M'Bow, Director-General of Unesco, made statements on the main questions raised in connection with international and regional co-operation. The text of these statements is as follows:

"I should like to tell the representative of the International Union for Conservation of Nature and Natural Resources (IUCN) how much we appreciate the co-operation which has always existed between Unesco and IUCN. We at Unesco consider, indeed, that it is of the greatest importance to work with professional groups and scientists of the whole world in the Organization's spheres of

competence. I can thus assure the representative of IUCN that we shall see that our co-operation is further extended, and I take this opportunity of thanking IUCN and the other international non-governmental organizations with which we co-operate once more.

Unesco might indeed envisage the possibility of forming a 'bank of experts', as it has done in other areas of its competence in order to make available to Member States the expertise which they may need. On the other hand, Unesco is ready to co-operate with the Organization dealing with environmental education problems in the Arab States, whose headquarters are in Kuwait. All that is needed is for co-operation to be established by means of the usual procedures, and I shall ask my colleagues to study with the Member States concerned how we may introduce such co-operation and develop it to the utmost.

As for the need to strengthen international and regional co-operation in various spheres, we shall take due account of the recommendations adopted by the Conference. Similarly, we shall take certain wishes expressed by the Conference into consideration in the draft programme now being drawn up for 1979-1980. We intend not only to submit the results of this Conference to the General Conference, but also to suggest that it adopt new activities in line with your recommendations. This means that as soon as your work has been completed we shall see what we can include in the Draft Programme and Budget for 1979-1980, as provided in the Medium-Term Plan. We did not wish to go any further in respect of environmental education than we did when drafting this Plan, as we felt we should wait for the results of this Conference.

For we consider that international action, like international co-operation, can only proceed from the clearly expressed will of those involved in the co-operation, that is to say of the international community. As your Conference was imminent we felt it preferable to await the results of your deliberations before going any further. The recommendations which you have adopted so far undoubtedly enable us to undertake much more systematic and wide-ranging action than was possible previously, subject, of course, to the resources which the General Conference will be willing to grant us.

But I should like to draw attention to another aspect of the question. In general, we create new bodies and centres in Unesco only in response to requests expressly formulated by the Member States themselves. For we feel that the maximum use should be made of existing machinery in order to avoid unnecessary additional expenditure. A new centre or body should only be created if it can serve Member States in meeting needs which they themselves have clearly expressed. Hence the need for wide-ranging preliminary consultations with the Member States concerned. Once such consultations have been held, we often bring specialists of these Member States together in order to define with them the programme and the operating and financing arrangements for the proposed centre. It is on

the basis of the agreement thus established that we propose to the General Conference, in the Draft Programme and Budget, that the centre should be established. In addition, we generally provide such centres with an advisory committee composed of experts who, although not appointed by their governments, come from the different Member States to advise us on the programme, the way in which it should be implemented and its evaluation, in order to enable us to advance along the lines desired by the Member States.

However, Unesco was not associated in the establishment of the centre in Spain, a case to which I shall refer again, not because it did not wish to be, but because it was not consulted, although it is ready to provide assistance for any centre which complies with the criteria which I have described.

There are, of course, instances in which we co-operate with centres which are not established on the same basis, but these are national centres which are likely to assume a regional role. We then discuss with the Member State on whose territory the centre is located the conditions governing the participation of other interested States. This was the case in Mexico of the Regional Centre for Adult Education and Functional Literacy for Latin America (CREFAL). This was an international centre which became a national centre. The Mexican Government concluded an agreement with Unesco to enable the Organization to continue its aid and, although it assumed the heaviest financial responsibility itself, it agreed to form a Board composed of all the Member States concerned in the Centre's operation. Unesco, which makes a modest contribution to the Centre's financing, provides technical co-operation with the full agreement of the Government. The Centre operates to the satisfaction of all the Latin American and Caribbean States interested in the training of literacy workers and in the preparation of teaching methods and materials for use in functional literacy work and rural development.

I repeat that we are, of course, ready to examine any facilities and machinery that you might wish to be established on the conditions I have just outlined. It would, as some delegations have suggested, be possible to envisage using for regional co-operation the system currently employed for cultural studies, or, again, a system similar to that of the regional programmes for educational innovation. One of these is the Asian Programme of Educational Innovation which comes under our Regional Office in Bangkok. It consists of a network of national institutions whose representatives meet to study experiments conducted in Asia and to recommend measures to strengthen action taken by Unesco and the Member States. The programme of action is partly financed from Unesco's Regular Budget. Drawn up in conjunction with representatives of the different Member States, it is applied under the responsibility of the Regional Office for Education in Asia in Bangkok.

Thus, there are in my opinion various possibilities open to us, whether we follow the system

established for our cultural projects, each of which has an advisory committee composed of specialists from the various Member States, or the system used in our educational innovation networks such as the Asian network, which seems to me more appropriate, or, again, proceed along the lines of another experiment which we are conducting in Latin America in higher education. We are in the process of creating a higher education centre at the request of the Latin American countries which will operate from Caracas and will be provided with an advisory committee similar to that of the European Centre for Higher Education in Bucharest.

At the same time, it would be possible, as was suggested in the course of the debate, for Unesco's Regional Offices to play a more important role. I refer in this connection to the example of our co-operation with the United Nations Fund for Population Activities. This Fund finances many activities conducted by our various Regional Offices, for we wished to avoid creating new bureaucratic machinery for that purpose. The posts of population experts are financed by the Fund in Unesco's Regional Offices, and the experts, who implement the programme which we have worked out with the agreement of the Fund and in co-operation with the Member States concerned, are able to make use of the infrastructures of the Regional Offices, which employ specialists in the various branches of education: educational planners and administrators, those responsible for training educational planners, administrators and teaching staff, specialists on curriculum content, educational structures, literacy, adult education, education for rural development, or communication, social sciences or culture. In all the Regional Offices for Education we have opted for an interdisciplinary approach. The different experts form a team led by the head of the Regional Office. Unesco's Executive Board periodically evaluates the activities of the Regional Offices and gives us additional instructions.

The question of regional co-ordination of legislation is no doubt important, but it is also very complex. All the same, in regions where the preservation of the environment entails a number of legislative measures, it would not perhaps be a bad idea for the Member States concerned to be able to take concerted action.

In any case, whether international co-operation operates at regional or subregional level or whether it involves all the Member States, I can assure you that the Secretariat of Unesco, in co-operation, of course, with UNEP, will implement your recommendations as faithfully as it can, bearing in mind the resources available. It will not fail to give active assistance to the national committees which have been set up for environmental education.

There is no doubt, on the other hand, that the implementation of your recommendations, whether they are addressed to the Member States, to Unesco or to other United Nations agencies, must be followed by evaluation. It is as yet too early to say how often this evaluation would be carried out or in what form its results could be

communicated to the Member States. However, I can give you my word now that periodic evaluation will be carried out in co-operation with the Member States and all the organizations concerned in order, first, to ensure the effective implementation of your recommendations and, secondly, to allow for the possibility of preparing a further conference on environmental education.

As for the possibility of creating a prize to reward work in environmental education, it could be a useful stimulus, and if the Conference adopts a recommendation to this effect I am willing to follow it up and to propose procedures for the establishment and award of the prize.

I now come to what is, in my view, the crucial question of co-ordination within the United Nations system. As my colleague from the United Nations Environment Programme so forcefully emphasized, resolution 2997 adopted on 15 December 1972 by the United Nations General Assembly at its twenty-seventh session, which established UNEP, does indeed provide for an Environment Co-ordination Board under the auspices and within the framework of the United Nations Administrative Committee on Co-ordination. This Board, which is chaired by the Executive Director of the United Nations Environment Programme, is composed of representatives of the various United Nations agencies concerned with environment questions. These do indeed go far beyond the scope of a single agency of the United Nations, calling, in fact, for action from almost all the United Nations organizations.

Even in respect of education, although Unesco obviously has a key role to play within the system, it must nevertheless co-operate with other agencies, not only UNEP, but also, for example, with the International Labour Organisation, as a draft recommendation has been submitted on the working environment, with FAO, as the agricultural environment is one of the essential features of the environment, and with the World Health Organization.

In the same way, celebration of the International Year of the Child, in 1979, for which Unicef is responsible in co-operation with the other agencies, will require attention as regards

aspects of environmental education which particularly concern children.

Without dwelling on the other problems of co-ordination within the United Nations system, I must point out that this co-ordination is not always organized in the best possible way, either in its planning or in its implementation.

In Unesco we try to obtain the widest measure of agreement within the whole United Nations system on the planning of our activities. This is a task to which I am devoting particular attention. I have already explained to the United Nations Economic and Social Council the reasons why co-ordination of planning seems to me essential, in that it avoids duplication of effort and makes for more effective action in the United Nations system as a whole. I can therefore assure you that Unesco will never complain about co-ordination, but rather about the lack of co-ordination. Unfortunately, I must say that there has sometimes been a lack of co-ordination in relationships between Unesco and UNEP, as demonstrated in the case of the establishment by UNEP of the Programme Activity Centre on Environmental Education and Training in Africa. There were, in fact, no previous consultations between Unesco and UNEP on the establishment of this Centre. Similarly, as I have already stated, there was no previous joint discussion between Unesco and UNEP either on the establishment in Spain of the centre for training in the environmental sciences, which is also of interest to the Latin American countries. But, I repeat, these are problems between ourselves which I should not have raised if my colleague from UNEP had not referred to them. At all events, they are problems that we are endeavouring to solve either by direct contact between heads of agencies or within the framework of the Environment Co-ordination Board established by resolution 2997.

I wish, therefore, to assure you that after the adoption of your recommendations we shall see that co-ordination and co-operation between the agencies concerned is strengthened, for this is how we can most usefully assist the Member States themselves and take the recommendations which they have made into account."

## II. REPORT OF THE COMMISSION

### Strategies for the development of environmental education at the national level

In the course of discussion, various delegations spoke of the efforts made in their countries to promote environmental education. These efforts cover a vast range of activities undertaken at various levels and in various types of education. Considerable efforts have, in particular, been made by numerous countries to incorporate environmental education into primary and secondary school curricula. These efforts are especially concerned with pre- and in-service training of educators in subjects linked to the environmental education and with the development of syllabuses and teaching materials combining theoretical knowledge and practical experiments in local environments.

In respect of non-formal education of the general public, most countries give special attention to the education of young people and adults, particularly the illiterate, in the form of programmes suited to the characteristics and requirements of the various population groups concerned.

Some countries have also taken an interest, as part of in-service training activities, in the environmental education of various social and occupational categories of the population, such as factory workers, farmers, civil servants, etc. Marked progress has been made in the preparation of audio-visual and printed teaching materials concerning the environment, and the mass media are being increasingly used for sensitizing and informing broad sectors of the public about the environment.

Other countries have concentrated more on developing environmental education at the university and post-graduate levels for specialists and professionals, such as engineers, educators, planners and natural scientists or social scientists. The courses provided for them generally endeavour to establish structures and systems which allow subjects corresponding to different branches of knowledge, particularly the natural sciences and the social sciences, to converge.

While referring to past efforts, the countries acknowledge the magnitude of the task ahead and the need to step up their efforts, in particular

by making full use of their existing public and private resources and institutions for education and information activities to develop environmental education.

From the statements made by the various delegations, the following ideas and proposals emerged:

(1) Environmental education is an integral part of the education process. It should be centred on practical problems and be of an interdisciplinary character. It should aim at building up a sense of values, contribute to public well-being and concern itself with the survival of the human species. Its force should reside mainly in the initiative of the learners and their involvement in action and it should be guided by both immediate and future subjects of concern.

(2) Environmental education is a lifelong process and should not remain confined within the formal system. The integration of environmental education with other forms of education, in particular with education concerning the working environment, for the pupil at school, the worker in the factory or in the fields, and for the consumer in his surroundings, and with education related to economic development, represents an urgent need. Its subject-matter should permeate every part of formal and non-formal programmes and constitute one and the same continuous, organic process in which none of the phases essential to integration must ever be overlooked.

(3) In formal education, at all levels, account should be taken of all the ingredients of the education process (programmes and curricula, books and textbooks, teaching aids and resources, methods, etc.) and interdisciplinarity gradually achieved. The requirement is, without repudiating the existence and individual character of each traditional discipline, to avoid the over-analytical nature of subject disciplines and the differences stemming from their respective methodologies, which make it difficult for the learner to apprehend the environment: he often lacks a proper framework and, moreover, the usual approach by successive abstractions sets him at a certain remove from the subject under study. The solutions are thus:

to introduce into each subject the essential environmental dimension;



to have curricula prepared by interdisciplinary teams;  
to study practical problems, that is, the reality surrounding pupils and teachers.

(4) Environmental education should not be just one more subject to add to existing programmes but should be incorporated into programmes intended for all learners, whatever their age. A new joint pattern of work must be drawn up, involving home, community and school, to introduce young people to environmental issues. Environmental education should serve as a catalyst or common denominator in the renewal of contemporary education. Clear and functional relations must be established and maintained between needs, goals, objectives, the curriculum proper and evaluation methods.

(5) The central idea is to attain, by means of growing interdisciplinarity and of prior co-ordination of disciplines, a practical education oriented toward a solution of the problems of the environment, or at least to make pupils better equipped for their solution by teaching them to participate in decision-making.

(6) The determination of bases for a strategy, at all educational and governmental levels, constitutes the first stage needed for the introduction of environmental education into education in general.

(7) It may be considered that the success of environmental education will not lie merely in bringing about a number of changes in the system and methods of education. This task requires the application of new concepts, new methods and new techniques as part of an overall effort stressing the social role of educational institutions and the establishment of a new relationship between all those engaged together in the education process. To this end, legislative measures may be taken providing the State with a legal framework in which to draw up an environmental education system for the entire community.

(8) Special priority should be given to the various most disadvantaged social groups such as, in many nations, the illiterate, who are nevertheless producers. Educational resources should therefore be mobilized for them in the form of functional literacy teaching incorporating an environmental dimension (the dimension first of their social background and then of their occupation). Emphasis was laid on the potential role in this respect of political organizations, associations of students, citizens and consumers, and associations for the protection of the food chain and of nature in general.

(9) Environmental education should not give rise to "competition" with the various subjects at present on the curriculum; it should represent a means of introducing a certain unity into the education process in the minds of pupils and enable them to manage the environment in which they live through the judicious use of resources.

(10) The training of qualified personnel was considered to be a priority activity. This holds good for both initial and in-service training, for the purpose of familiarizing teachers in formal education, organizers of non-formal activities

for young people and adults, administrative personnel and educational planners and researchers with environment-linked subject-matter and educational and methodological guidelines.

(11) Some delegates thought that community participation in environmental education was necessary, as the absence of such participation would make the programmes concerned ineffectual. Such education could be strengthened through the mobilization of public services, local communities, local, and in some countries, religious and tribal leaders. Parents should receive this education to help them in bringing up children to respect nature.

(12) The basic training of all environmental specialists will need to include study of the principles of environmental education, sociology and ecology which are necessary to enable the learners to foresee the consequences of their environmental work and not simply make do with temporary expedients.

(13) The variety of aims, institutions, traditions and manners of perceiving problems, combined with the frequent vagueness of the terminology used, is such that no attempt should be made, even where it is feasible, to cast environmental education for specialists in a series of universally valid moulds. What is needed, on the contrary, is to fit training programmes to the particular socio-economic situation in each of the regions or each of the countries with which the specialists will be concerned.

(14) Some environmental problems lie outside the direct experience of young people, and even for experienced students, an understanding of environmental problems requires the study of concepts and an ability to interpret from relatively abstract symbols. The main rule is that educational resources should be adapted to the mental and physical situation of the consumer/student and that all the other important educational laws should be observed, particularly the specific principles of environmental education. Furthermore, the techniques used for the production of educational materials for environmental education should be fully in accord with environmental needs and requirements. It is thus urgent to produce teaching materials for environmental education which take account of national or even local facilities.

(15) Although environmental education should constitute one single organic and continuous process, each stage of this process has its own particular educative value.

(16) In primary school, for instance, a few useful directions for the promotion of environmental education would be: programmes of visits, the use of free time for activities in close contact with the environment, the development of a critical faculty and ability to see things in the round, and the transcending of cultural and scientific levels so as to gain an awareness of relations with the community and move towards solutions.

(17) Secondary schooling should take the pupil on to a more ecologically, socially, politically and economically based application of ideas about



the environment. University-level education should see the introduction, as a basis for all specialized courses (for engineers, architects, planners, economists, etc.), of thorough knowledge of the functioning of ecosystems and an insight into the socio-economic factors governing the relations between people and the environment, together with knowledge of the characteristics, limits and possibilities of the scientific and technical revolution.

(18) It is noteworthy that, in certain countries, many secondary schools are in urban surroundings and the pupils are cut off from any contact with nature. The distinction sometimes drawn between rural schools and urban schools should be discarded, for young people both in towns and in rural areas should have the benefit of an ecologically based education.

(19) In non-formal, out-of-school education, strategies for the introduction, promotion and development of environmental education depend on particular situations (e.g. rural setting or urban setting, occupations, socio-cultural background, etc.). They should be based on channels of social communication, on the mass media and on the various movements or associations. In addition to their special educational role, these activities are of vital importance since they make it possible to overcome many of the administrative or bureaucratic difficulties associated with formal education.

(20) It is probably in the field of adult education that the most important developments will occur. Here the mass media play an important role in the promotion of environmental education: press, radio, films and television (and, similarly, competitions, festivals or even "environment days"), which constitute ideal media for reaching the widest possible audience. The media can and should prepare, launch and conduct a whole series of campaigns in support of environmental education. Cleaning-up campaigns, the systematic removal of domestic refuse, demonstration campaigns, etc. are calculated to attract people's attention and thus stimulate their environmental awareness.

(21) All these educational activities call for research on the use of methods of instruction that will facilitate the learning, teaching and assessment of environmental education.

(22) In their statements on item 10, delegates from the majority of Member States laid special stress on the importance of environmental education, including in-service training, for particular professional groups whose activities and decisions have an impact on the environment. Attention was drawn, as regards professional groups, to the special qualifications of personnel trained for various technical activities (technicians, skilled workers, engineers, etc.) and the vital need was also recognized to develop awareness of the environment and the necessary proficiency among decision-makers and those responsible for development planning, designers, engineers, administrators, industrial managers, architects and town-planners as well as those trained for the health, legal and economic professions.

(23) Mention was made, more especially, of the role of engineers and members of allied professions in the transformation of the physical environment, particularly during the processes of urbanization and industrialization. Reference was made, in this respect, to the second session of the International Multidisciplinary Working Group on the Training of Environmental Engineers recently organized by Unesco, the recommendations of which were seen to have a very close connection with the subject of item 10 (b) of the Conference agenda. The reorganization of engineering schools and the incorporation of environmental education in the training of engineers was called an urgent need; the ecological repercussions of the design of a project might be considerable if the design engineers and decision-makers lacked such training.

(24) The Commission laid great stress on the development of environmental education for apprentices and adults in technical occupations and more particularly agriculture. These constituted a priority group in many countries because of their numbers and their role in society. It was at this technical and occupational level that environmental education could really be provided in contact with the actual conditions of working life.

(25) Stress was also laid on the need to develop this education not merely for university-level professionals but also for those of the post-secondary technical education level. These technicians have a vital role to play in the implementation of development projects compatible with the need for conservation of the environment (sanitary technician, environmental technician, agricultural technician).

(26) There was acknowledgement of the diversity of the elements which were required for an interdisciplinary perception of the environment and were involved in the skills that professional groups needed, emphasis being laid on the essential role of the social sciences and humanities in the education of the latter. Reference was made to the inclusion of cultural and historical factors within the context of this education, and to the need to promote rational conduct among professional groups with a view to the protection of society's cultural heritage (e.g. in urbanization process, the preservation of architectural sites and landscapes of historical, artistic and ecological importance).

(27) There was recognition of the need to develop new methods for the environmental education of professional groups. Education focused on the solution of specific problems was seen to be of particular relevance to professionals for developing an understanding of the environment and acquiring those skills which would enable solution of problems that arose in management of the environment.

(28) Attention was drawn to the inadequacy of environmental education programmes intended for professional groups in various countries. These programmes often failed to make sufficient allowance for the multifaceted character of environmental problems. Many teachers were

often inclined to convey an extremely abstract conception of the environment to the point that their teaching lacked relevance and realism. The need for combined efforts and for closer co-operation between teachers (in all disciplines) and curriculum designers was recognized as a prerequisite for the improvement of environmental education, particularly for particular professional groups.

(29) Special emphasis was laid on the urgent need to develop, on an ongoing basis, suitable educational methods which would include case studies and training in systems analysis and social cost-benefit analysis techniques in the study of environmental problems.

(30) The organization of educational experiments in which professionals from different backgrounds might participate was advocated. Active participation would thus replace intellectual conjecture. Moreover, the varied origin of participants, which, in conventional education might be regarded as a difficulty, would then become an advantage, since it would be possible to achieve the spontaneous integration of different disciplines and different ways of thinking in a joint experience directed towards the solution of problems.

(31) The Commission confirmed the need to establish in-service education and more especially to provide urgently required refresher training and a range of specialized courses, designed for professionals, enabling them to cope better with new problems of the environment and with changes in knowledge and legislation.

(32) Several delegates referred to their national experiences in regard to the in-service training of various professional groups. Refresher training for teaching staff in universities and other institutions was considered to be of vital importance. Furthermore, the enactment of new legislation on the environment, which was increasing rapidly in many countries, was creating an urgent need for this type of in-service education of professional groups, particularly in the fields of public administration and industrial management.

(33) It was obvious that the present trend toward the inclusion of environmental education and training for these professionals consisted in the reorientation of programmes of study as a whole, rather than in the mere super-imposition of isolated courses concerning the environment. Such a reform of programmes meant that teaching staffs in these institutions had to be constantly brought up to date in their training.

(34) In several countries, the development of legislation and regulations for protection of environmental quality went hand in hand with legislative measures for the provision of appropriate environmental education, particularly for professional groups. These measures had led in several instances to the improvement of environmental education and to its extension in universities and other institutions for professional training.

(35) In some countries, exercise of a number of professions was beginning to become subject to prior requirements concerning knowledge of the effects of the professional activity on the environment.

(36) The Commission stressed the need to undertake educational research in order to find the most effective methods and content for this type of education for professionals. Such research, and the dissemination of its findings, should be developed to the greatest possible extent through co-operation between countries of one region sharing similar environmental problems, and between different regions as well.

(37) In conclusion, and in the light of the Commission's discussions, certain points appeared to call for special attention:

the need to integrate environmental education in its different forms (education of the public, of particular social and professional groups and of specialists, on specific aspects of the environment) into national policies, environmental management and development plans and educational reform as part of their objectives and as a suitable field for innovation. This implies that the various bodies responsible for educational management and planning at the national, regional and local levels should give environmental education the importance and attention that it warrants as one of the essential means of adapting education to the objectives and requirements of national development;

the establishment or reinforcement of interdisciplinary or inter-institutional arrangements bringing together teachers, scientists and specialists concerned with environmental problems in order to provide those responsible for education with criteria and guidelines enabling them to take environmental considerations into account in both formal and non-formal education at their various levels and in their different forms;

the need for constant evaluation of the many, although still insufficient, innovations which have been introduced into environmental education in many Member States in order to encourage and improve them and to extend them to other educational institutions and programmes. The educational research institutions already existing in various countries should play a leading role in this respect;

the establishment, at the national level, of a programme of action with the aim, on the one hand, of familiarizing teachers and educational administrators and planners with different aspects and problems of the environment and, on the other, of giving them a basis of training which would enable them to incorporate environmental education effectively into their respective activities. This action should take the form of both pre- and in-service training;

the preparation and use of suitable teaching materials through the implementation of specific, adequately funded projects but also within the framework of an overall strategy ensuring that various environmental problems are taken into consideration in the preparation of printed and audio-visual instructional aids;

some simple measures which could be introduced immediately in formal education and used as a basis for more ambitious action and which might include: the incorporation or reinforcement of the environmental content in traditional

subjects; the development of educational schemes integrating various disciplines related to the environment; closer co-ordination and co-operation among teachers whose subjects present certain difficulties; the elaboration of more flexible curricula and forms of school organization which would encourage adaptation of the education process to the realities and problems of various ecological areas and facilitate teaching/learning experience outside school;

crucial roles to be assigned in non-formal environmental education to the various types of programmes and activities already being implemented in most Member States for young people and adults (literacy programmes, vocational training or retraining, family education, etc.). In this connection, ways could be examined of establishing closer collaboration between the authorities responsible for education and the various private organizations which conduct educational activities for young people and adults (industry, trade unions and other groups). It also seems important to encourage participation in the development of environmental education by all public authorities concerned with the natural, socio-economic and cultural environments. Similarly, various types of co-ordination between non-formal education activities, conducted by Ministries of Education, and those for which other ministries and public agencies are responsible, might also be considered;

measures to be taken in countries where it is possible to ensure more effective use of the mass media (press, radio and television) for the education and information of the general public: the preparation of mass media programmes, co-ordination between Ministries of Education and ministries or agencies responsible for communications; active participation by those responsible for the production and implementation of media programmes in the preparation of policies for environmental education, with a view to co-ordinating such programmes with formal and non-formal education programmes;

the reinforcement or establishment of a body to co-ordinate the various ministerial departments involved in any programme concerning the environment or environmental training;

the reinforcement of research and experimentation on the lines of emphasis, content, methods and instruments necessary for environmental education. No doubt the most appropriate framework for the development of such research would be that of specific programmes and activities conducted by individual Member States to ensure conservation and improvement of the environment.

It would be advisable to associate with these efforts, not only educational research institutions but also universities, scientific research centres and other institutions concerned with research into various aspects of the environment.

### III. DECLARATION AND RECOMMENDATIONS OF THE CONFERENCE

#### A. DECLARATION OF THE TBILISI INTERGOVERNMENTAL CONFERENCE ON ENVIRONMENTAL EDUCATION

The Intergovernmental Conference on Environmental Education, organized by Unesco in co-operation with UNEP, convened in the City of Tbilisi reflecting the harmony and consensus achieved there, solemnly adopts the following Declaration.

In the last few decades, man has, through his power to transform his environment, wrought accelerated changes in the balance of nature. The result is frequent exposure of living species to dangers which may prove irreversible.

The Declaration of the United Nations Conference on Human Environment organized in Stockholm in 1972 proclaimed: "to defend and improve the environment for present and future generations has become an imperative goal for mankind". This undertaking urgently calls for new strategies, incorporated into development, which particularly in the developing countries is a prerequisite for any such improvement. Solidarity and equity in the relations between nations should constitute the basis of a new international order, and bring together, as soon as possible, all available resources. Education utilizing the findings of science and technology should play a leading role in creating an awareness and a better understanding of environmental problems. It must foster positive patterns of conduct towards the environment and the nations' use of their resources.

Environmental education should be provided for all ages, at all levels and in both formal and non-formal education. The mass media have a great responsibility to make their immense resources available for this educational mission. Environmental specialists as well as those whose actions and decisions can have a marked effect on the environment, should be provided in the course of their training with the necessary knowledge and skills and be given a full sense of their responsibilities in this respect.

Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent. It helps reveal the enduring continuity which links the acts of today to the consequences for tomorrow. It demonstrates the interdependencies among national communities and the need for solidarity among all mankind.

Environmental education must look outward to the community. It should involve the individual in an active problem-solving process within the context of specific realities, and it should encourage initiative, a sense of responsibility and commitment to build a better tomorrow. By its very nature, environmental education can make a powerful contribution to the renovation of the educational process.

In order to achieve these goals, environmental education requires a number of specific actions to fill the gaps that, despite outstanding endeavours, continue to exist in our present education systems.

Accordingly, the Tbilisi Conference:

Appeals to Member States to include in their educational policies measures designed to introduce environmental concerns, activities and contents into their education systems, on the basis of the above objectives and characteristics;

Invites educational authorities to promote and intensify thinking, research and innovation in regard to environmental education;

Urges Member States to collaborate in this field, in particular by exchanging experiences, research findings, documentation and materials and by making their training facilities widely available to teachers and specialists from other countries; and

Appeals, lastly, to the international community to give generously of its aid in order to strengthen this collaboration in a field which symbolizes the need for solidarity of all peoples and may be regarded as particularly conducive to the promotion of international understanding and to the cause of peace.

## B. RECOMMENDATIONS

### THE ROLE, OBJECTIVES AND GUIDING PRINCIPLES OF ENVIRONMENTAL EDUCATION

#### Recommendation No.1

The Conference,

Considering the challenge that environmental problems present to contemporary society and having regard for the role that education can and must play in solving such problems,

Recommends the adoption of certain criteria which will help to guide efforts to develop environmental education at the national, regional and international levels.

1. Whereas it is a fact that biological and physical features constitute the natural basis of the human environment, its ethical, social, cultural and economic dimensions also play their part in determining the lines of approach and the instruments whereby people may understand and make better use of natural resources in satisfying their needs.
2. Environmental education is the result of the reorientation and dovetailing of different disciplines and educational experiences which facilitate an integrated perception of the problems of the environment, enabling more rational action, capable of meeting social needs, to be taken.
3. A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and the management of the quality of the environment.
4. A further basic aim of environmental education is clearly to show the economic, political and ecological interdependence of the modern world, in which decisions and actions by the different countries can have international repercussions. Environment should, in this regard, help to develop a sense of responsibility and solidarity among countries and regions as the foundation for a new international order which will guarantee the conservation and improvement of the environment.
5. Special attention should be paid to understanding the complex relations between socio-economic development and the improvement of the environment.
6. For this purpose, environmental education should provide the necessary knowledge for interpretation of the complex phenomena that shape the environment, encourage those ethical, economic and aesthetic values which, constituting the basis of self-discipline, will further the development of conduct compatible with the preservation and improvement of the environment; it should also provide a wide range of practical skills required in the devising and application of effective solutions to environmental problems.
7. To carry out these tasks, environmental education should bring about a closer link between educational processes and real life, building its activities around the environmental problems that are

## Declaration and Recommendations

- faced by particular communities and focusing analysis on these by means of an interdisciplinary, comprehensive approach which will permit a proper understanding of environmental problems.
8. Environmental education should be regarded as a continuing process providing its recipients, through the constant renewal of its approach, content and methods, with knowledge that is always attuned to the changing conditions of the environment.
  9. Environmental education should cater to all ages and socio-professional groups in the population. It should be addressed to (a) the general non-specialist public of young people and adults whose daily conduct has a decisive influence on the preservation and improvements of the environment; (b) to particular social groups whose professional activities affect the quality of the environment; and (c) to scientists and technicians whose specialized research and work will lay the foundations of knowledge on which education, training and efficient management of the environment should be based.
  10. To achieve the effective development of environmental education, full advantage must be taken of all public and private facilities available to society for the education of the population; the formal education system, different forms of non-formal education, and the mass media.
  11. To make an effective contribution towards improving the environment, educational action must be linked with legislation, policies, measures of control and the decisions that governments may adopt in relation to the human environment.

### Recommendation No.2

The Conference,

Recognizing that environmental education should promote the strengthening of peace, the further relaxation of international tensions and mutual understanding among States and be a real instrument for international solidarity and for elimination of all forms of racial, political and economic discrimination,

Noting that the concept of "the environment" includes a complex of natural, built and social components in the life of humanity and that the social components constitute a set of cultural, moral, personal values and interrelations of people in the spheres of labour and leisure activities,

Taking note of document UNESCO/ENVED/4 "Education and the challenge of environmental problems", and in particular of the principles contained in Chapter II,

Having furthermore noted the Synthetic Report of the Regional Meeting of Experts on Environmental Education (ENVED/7, Chapter III, paragraphs 15-26),

Pursuant to the working document UNESCO/ENVED/4, paragraph 67, in which the Conference is invited to formulate goals, objectives and guiding principles which environmental education should have in order to fulfil its functions most effectively,

Considering that it should be a right of every citizen to receive environmental education,

Endorses the following goals, objectives and guiding principles for environmental education:

1. The goals of environmental education are:
  - (a) to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
  - (b) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
  - (c) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment;
2. The categories of environmental education objectives:

Awareness: to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.

Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

3. Some guiding principles for environmental education:

Environmental education should:

- consider the environment in its totality - natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);
- be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
- be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- focus on current and potential environmental situations, while taking into account the historical perspective;
- promote the value and necessity of local, national and international co-operation in the prevention and solution of environmental problems;
- explicitly consider environmental aspects in plans for development and growth;
- enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- help learners discover the symptoms and real causes of environmental problems;
- emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
- utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.

Recommendation No.3

The Conference,

Considering that the broader conception of development to which all people now subscribe includes the environment as one of its basic components,

Considering that environmental questions would accordingly be best approached and dealt with in relation to the overall policies applied by governments in regard to national development and in regard to international relations in the attempt to establish a new international order,

## Declaration and Recommendations

Considering that the environment concerns all men and women in every country and that its preservation and improvement require the support and active participation of the population of those countries,

Believing that education at all levels is necessary to this end,

Recommends to Member States:

That they integrate environmental education into their general policy and, in accordance with their national structure, take appropriate measures in order, more especially to:

- sensitize public opinion to environmental problems and to major projects in course of execution or being planned;
- develop more detailed general information which will give an overview of major problems, the possibility of dealing with them and the respective urgency of the various measures taken or to be taken;
- encourage action within the family and in associations concerned with pre-primary education for the environmental education of young children, of pre-school age in particular;
- assign a central role to the school in the whole system of environmental education and organize, for this purpose, systematic action in primary and secondary education;
- expand environmental studies at the higher education level;
- establish the means and methods for an in-service training policy which will provide the additional and, more especially, practical training that may be required by those who, in different capacities, exercise responsibility in the public or private sectors in regard to the environment;
- seek, by means of environmental education, gradually to transform attitudes and behaviour so that all members of the community may be made aware of their responsibilities in the thinking through formulation and application of national or international environmental programmes;
- contribute thereby to the search for a new ethic based on respect for nature, for people and for their dignity, and for the future, and on the need for a quality of life to which all will have access and in which all will feel themselves involved.

Recommends to the Director-General of Unesco:

That he should provide technical aid to those Member States which are as yet without national environmental education structures, with a view to the formulation and execution of a suitable programme concerning this problem;

That he should foster the gradual incorporation of the system thus created into the framework of regional and international co-operation.

### Recommendation No.4

The Conference,

Considering the need to stress not only the socio-economic aspects suitably set forth in the Unesco document but also the ecological aspects of the natural and human environment, which are of the utmost importance for both theoretical and practical environmental education,

Considering that the environment constitutes a system,

Considering that the human environment, like any other ecosystem, has its own structure, operation and history,

Considering that the causes of the ecological crisis must be sought at a deeper level, in certain aspects of these same socio-economic factors, namely:

- in a mistaken ethical conception of the relationship between humanity and nature,
- in a diminution, due to an extreme positivism, of the unitary nature of the scientific vision of reality,



Recommends to the Member States that, in respect to formal and non-formal environmental education, they:

- promote deeper understanding of the natural aspects of the environment;
- develop a systems approach to the analysis and management of natural and human ecosystems;
- take into consideration the temporal (past, present and future) dimension of each environment.

Recommendation No.5

The Conference,

Recommends that governments systematically evaluate the environmental impact of development activities, and requests that development assistance strategies and programmes provide opportunities for countries to establish environmental training programmes which include the evaluation of development from the standpoint of the human environment.

STRATEGIES FOR THE DEVELOPMENT OF ENVIRONMENTAL EDUCATION  
AT THE NATIONAL LEVEL

Organizational structure

Recommendation No.6

It is recommended to Member States that, as far as possible, each country strengthen or set up the appropriate organizational structures which among others should have the functions listed below. It would be up to each government to decide as to the membership of the structure which might include representatives of educational and environmental protection authorities, practising teachers at different levels, organizations concerned nationally with environmental education and the mass media. Among the functions would be:

- to facilitate relationships with Unesco, UNEP and other organizations involved in environmental education;
- to co-ordinate initiatives in environmental education;
- to serve as a consultative body in environmental education at the governmental level;
- to play a role as a clearing-house and information centre in environmental education and training;
- to develop in various social and occupational groups an awareness and knowledge about the issues associated with environmental education in the country;
- to promote collaborative relationships among environmental education associations, citizen groups, and the scientific, research and education communities;
- to provide more frequent opportunities for meetings of those with political and administrative responsibilities with such groups and associations;
- to provide frameworks and guidelines for the establishment of environmental education action committees within the country;
- to assess the need for research, development and evaluation in environmental education;
- to encourage and facilitate the contribution to environmental education programmes of non-governmental organizations, including voluntary bodies.

The aim of the structure would be to adapt the recommendations of the Unesco Intergovernmental Conference on Environmental Education to national and local conditions, and to aid governments to implement the recommendations.

## Declaration and Recommendations

It is further recommended that Unesco, in co-operation with UNEP, give assistance, if necessary, in setting up such a structure to those countries which do not already have one.

### Recommendation No.7

1. Since environmental education may promote the preservation and improvement of the living environment, thus improving the quality of human life as well as preserving ecological systems, the Conference recommends to Member States that: environmental education should aim at creating awareness, behavioural attitudes and values directed towards preserving the biosphere, improving the quality of life everywhere as well as safeguarding ethical values and the cultural and natural heritage, including, holy places, historical landmarks, works of art, monuments and sites, human and natural environment, including fauna and flora and human settlements.
2. In order to achieve the above-mentioned objectives, the Conference recommends to Member States, the creation of a specialized unit, by the appropriate authorities, to serve environmental education with terms of reference including:
  - training of leaders in the environmental fields;
  - development of school curricula compatible with the needs of the environment at the local, regional and world levels;
  - preparation of books and scientific reference works necessary for the improved curricula;
  - determining educational methods and media, including the audio-visual aids needed for the purpose of explaining and popularizing environmental curricula and programmes.
3. The Conference recommends to Member States that they refrain from actions that would disfigure the environment or threaten man's life, health or economic conditions.
4. The Conference recommends that Member States be encouraged to create local societies which would promote protection of the environment and participate in environmental education programmes at the various social and professional levels as well as at the level of decision-making.
5. In recognition of the fact that a common language is needed to facilitate communication in dealing with matters concerning the environment, the Conference recommends that Unesco with the co-operation of UNEP and other organizations promote the standardization of environmental terminology through the compilation of a multilingual glossary to be published in the working languages of the United Nations and its Specialized Agencies.
6. Considering that it is necessary to conserve the human and cultural heritage as well as the distinguishing features of civilizations, the Conference recommends to Member States that every effort should be made to preserve these heritages, including the teaching of cultural heritage in environmental education.
7. The Conference recommends to Member States that the positive and enriching influence of ethical values should be taken into account in developing environmental education programmes.

### Target populations for environmental education

#### Recommendation No.8

The Conference,

Recommends to Member States that consideration should be given to:

Education of the general public: this education should be provided at every age and at all levels of formal education, for pupils and teachers, and in the various non-formal education activities for young people and adults, including the handicapped. In this education, voluntary organizations may play an important role.

- Education of specific occupational or social groups: this education is focused on those whose activity and influence have an important bearing on the environment, for instance, engineers, architects, administrators and planners, industrialists, trade unionists, policy-makers and agriculturalists. Various levels in formal and non-formal education should contribute to this training.
- Training of certain professionals and scientists: this training is for those working on specific problems of the environment, such as biologists, ecologists, hydrologists, toxicologists, soil scientists, agronomists, foresters, landscape architects, oceanographers, limnologists, meteorologists and sanitary engineers. It is important that the training of scientists include an interdisciplinary component.

#### Environmental education for the general public

##### Recommendation No.9

The Conference,

Considering the need for environmental education programmes which introduce awareness among the general public of its own environment and the dangers to which it may be exposed,

Realizing the importance of active participation of the general public in solving the environmental problems of contemporary society,

Invites the Director-General of Unesco to work out model programmes of environmental education for the general public with a view to providing citizens with adequate background of knowledge and information, enabling them to take part in decisions concerning their environment; and

Recommends to Member States that environmental education strategies in their countries include the preparation of programmes which provide information on present or planned activities with major potential impact on the environment. Such programmes should stress the importance of participation by the general public and non-governmental organizations in the relevant decision-making process. The programmes should present possible solutions to the problems in question and aim at developing a responsible attitude in participants.

#### Environmental education of professionals

##### Recommendation No.10

The Conference recommends to Member States that the training of professionals, such as economists, business administrators, architects, planners, forest managers, engineers, technicians and others whose activities, while not specifically in the field of environmental planning and management, nevertheless directly or indirectly have a major impact on the environment, include a common core of interdisciplinary environmental studies dealing with both the natural and human environments and related to their professions. In addition, special attention should be given to the development of suitable methodologies and organizational arrangements.

##### Recommendation No.11

The Conference,

Considering that the work of many professionals (such as engineers, architects, administrators and planners of all types) has a great effect on the environment,

Recommends to Member States that incentives should be provided for such professionals to undertake further environmental education which will need to be of at least two types:

## Declaration and Recommendations

1. In-depth supplementary and in-service training, or continuing education programmes, which enable them to relate more adequately to each other on an interdisciplinary basis (the methodology for which will need further elaboration as well as appropriate institutional arrangements);
2. Post-graduate programmes for people already specialized in some disciplines. It is considered that a problem-solving approach on an integrated multidisciplinary team basis is an effective method of training, since it develops professionals who, while retaining their original expertise, thus acquire an interdisciplinary training and ability to work as members of multidisciplinary teams. They may be appropriately described as environmental integrators or integrationists as distinct from generalists or specialists.

### Content and methods

#### Recommendation No.12

The Conference,

#### Considering:

- that the separate disciplines which may bear on environmental issues are often taught in isolation from each other and may tend to neglect or pay insufficient attention to environmental problems,
- that separate as well as interdisciplinary approaches both have important parts to play, depending on situations, learning groups and age levels,
- that teaching methods for either type of approach are still in the process of development,
- that the incorporation of environmental education into existing curricula or teaching programmes is often slow,
- that the criteria on which to base the content of environmental education programmes and curricula are also in need of further development,
- that socio-economic conditions determine different educational aspects,
- that historic and cultural landscapes and situations also demand special consideration,
- that particular sections of the community, such as farmers, rural inhabitants, managers, industrial workers and parents, need specially adapted environmental education programmes,
- that in most if not all programmes and curricula, the teaching of ecological concepts plays a fundamentally important role,
- that interdisciplinary approaches are essential for the enhancement of environmental education,
- that interdisciplinary approaches cannot be achieved without the active participation of teachers,
- that the interdisciplinary or integrated approaches cannot be effectively implemented without the simultaneous development of instructional materials,
- that environmental education should preferably be oriented towards the solution of problems (problem-solving approach) and be concerned with opportunities for action (action-oriented approach),
- that research relevant to these different approaches, aspects and methods is needed, to provide a sound basis for the development of environmental curricula and programmes,
- that institutions for such research variously require establishment, development or support,

#### Recommends to Member States:

- that the relevant authorities initiate, continue and strengthen - as circumstances may require - their efforts for incorporation of environmental issues in the various disciplines and subjects of the formal education system;

- that educational and training institutions should have the necessary flexibility to enable them to include appropriate aspects of environmental education within existing curricula and to create new environmental curricula that meet the requirements of an interdisciplinary approach and methodology;
- that relevant authorities work out criteria on which to base the environmental content of the curricula to be offered to pupils and students according to individual needs and taking into account local, social, occupational and other factors;
- that within the framework of individual systems, encouragement and support might be provided for subject disciplines to identify and give priority to their special contribution to environmental education; and for those responsible for the planning and carrying out of programmes of general and vocational education to encourage that through interdepartmental collaboration and co-ordination, environmental aims and objectives are adequately served;
- that they examine the potential of appropriate institutions to carry out research into the development of curricula and programmes in environmental education and encourage necessary initiatives, including institutional co-operation;
- that responsible authorities support curriculum development as it relates to particular situations such as exist in urban areas, rural areas and areas of social, historical and cultural importance, and to the needs of particular groups such as farmers, industrial workers and parents;
- that institutions engaged in the development of curricula, teaching programmes and materials for environmental education study the problems linked with single subject, multidisciplinary and interdisciplinary approaches respectively; consider the suitability of each approach to different situations and learning groups; and identify the potentially most effective contributions of, for example, the natural sciences, the social sciences and technology;
- that in all approaches full and adequate emphasis is given to the teaching of ecological concepts, to the systems of the atmosphere, lithosphere, hydrosphere and biosphere and to relevant socio-economic aspects;
- that relevant institutions be encouraged to concern themselves with programmes of initial and in-service training for teachers, in the production of materials and the dissemination of information;
- that research and development programmes should preferably be problem- and action-oriented;
- that in areas of special significance for the historical and cultural heritage, policies of environmental education should be accompanied by positive strategies for socio-economic development.

#### Recommendation No.13

The Conference,

#### Considering:

- that universities - as centres for research, teaching and training of qualified personnel for the nation - must be increasingly available to undertake research concerning environmental education and to train experts in formal and non-formal education, and
- that environmental education in colleges and universities will become increasingly different from traditional education and will teach students essential basic knowledge for work in their future profession, which will benefit their environment,

#### Recommends to Member States:

- to review the present potential of the universities for conducting research, especially fundamental research, concerning environmental education;
- to encourage acceptance of the fact that, besides subject-oriented environmental education, interdisciplinary treatment of the basic problems of the interrelationships between people and their environment is necessary for students in all fields, not only natural and technical sciences but also social sciences and arts, because the relationships between nature, technology and society mark and determine the development of a society;

## Declaration and Recommendations

- to develop different teaching aids and textbooks on the theoretical bases of environmental protection for all special fields to be written by leading scientists as soon as possible;
- to develop close co-operation between different university institutions (departments, faculties, etc.) with the specific objective of training experts in environmental education;
- such co-operation might assume different forms in line with the structure of university education in each country, but should combine contributions from physics, chemistry, biology, ecology, geography, socio-economic studies, ethics, education sciences, and aesthetic education, etc.

### Recommendation No.14

The Conference,

Recommends to Member States:

That curricula for those undertaking vocational technical education should include information about the environmental changes which result from the sort of work they will do. Vocational education so modified should promote increased awareness of the relationship between people and their social, physical and cultural environment, and foster a desire to improve the environment through influencing decision-making processes;

That emphasis should be given in vocational technical education to:

- environmental implications for workers in each vocation;
- the collective effects of related vocations upon the environment.

These objectives could be achieved:

- by incorporating environmental objectives into in-service training for those already at work; and
- by fully integrating environmental issues from the beginning of vocational technical education.

Invites Unesco:

To undertake, in co-operation with UNEP and other relevant United Nations bodies, appropriate measures to ensure that environmental education will receive adequate attention in the field of vocational training, particularly in the preparation of their programmes.

### Recommendation No.15

The Conference,

Considering that the work environment constitutes a local environment, influencing those affected by it physically as well as socially and psychologically,

Regarding the work environment as a natural learning situation for a major part of the adult population and consequently as an excellent starting point for adult environmental education,

Considering that the universal importance of the work environment makes it desirable to introduce this aspect of environmental education in primary and secondary schools as well as in further and adult education,

Recalling the work already done by the International Labour Organisation in this field,

Recommends that Member States adopt the following objectives as guidelines for their policies concerning education on the work environment:

- students in primary and secondary education should be provided with a general knowledge of the work environment and its problems;

- education for specific trades and professions should include education concerning the work environment of the particular trade or profession, including information about medical standards for permissible levels of environmental pollution, noise, vibration, radiation and other factors affecting people and also about the system of measures for monitoring their enforcement. Continuing education on this aspect should also be made available;
- decision-makers, consultants and other key persons influencing the working environment should be educated so as to become aware of the problems of the work environment, suggest solutions and ways to implement them. They, too, should be given the possibility of specialization and further education;
- education should be offered to workers, giving them the possibility of acquiring such knowledge about the work environment as is relevant to their job;
- persons assigned to teaching others about the problems of the work environment should be given an appropriate education.

Recommendation No.16

The Conference,

Considering the great potential of consumers to influence indirectly through their individual and collective consumption behaviour the impact of consumption on the environment and on the use of the world's natural resources,

Considering further that those who produce and advertise goods are responsible for direct and indirect impact on the environment,

Recognizing the great influence of the mass media on consumer behaviour, especially through commercial programmes and advertisements,

Considering, lastly, the growing interest shown by consumers' organizations and the important role they can have in educating consumers about environmentally detrimental behaviour and wasteful use of consumer goods,

Recommends to Member States:

- that they encourage national consumer organizations and producers and consumers in general to give more attention to environmentally detrimental consumption behaviour and the possible harmful and wasteful use of consumer goods; in particular consumers should be made conscious of the mechanisms available for influencing the production of such goods;
- that they encourage the mass media to be conscious of their educational role in forming consumption behaviour, so as to avoid encouraging the consumption of goods which are detrimental to the environment;
- that the appropriate educational authorities encourage the inclusion of such aspects in the programmes of formal and non-formal education.

Training of personnel

Recommendation No.17

The Conference,

Considering the need for all teachers to understand the importance of environmental emphasis in their teaching,

Recommends to Member States:

- that environmental sciences and environmental education be included in curricula for pre-service teacher education;

## Declaration and Recommendations

- that the staffs of teacher education institutions be assisted in this respect; and
- that teachers should get appropriate environmental training relating to the area, either urban or rural, where they are going to work.

### Recommendation No.18

The Conference,

Considering that the importance of in-service training is underlined by the fact that a great majority of present-day teachers were graduated from teacher-training colleges at a time when environmental education was largely neglected and thus did not receive sufficient education in environmental issues and the methodology of environmental education,

Recommends to Member States:

- that they take the necessary steps to make in-service training of teachers in environmental education available for all who need it;
- that the implementation and development of in-service training, including practical training, in environmental education be made in close co-operation with professional organizations of teachers, both at the international and national levels;
- that in-service training take account of the area, either urban or rural, where the teachers are working;

Recommends to Unesco:

To promote the dissemination of ideas, programmes and instructional material relevant to the promotion of in-service training in environmental education.

### Teaching - learning materials

### Recommendation No.19

The Conference,

Considering that environmental education becomes more effective when adequate teaching aids and materials are made available,

Recommends to Member States that:

- basic principles should be formulated for the preparation of model textbooks and reading materials for use at all levels within formal and non-formal education systems;
- in developing low-cost teaching aids and materials, the fullest use should be made of existing documentation, educational research findings should be drawn upon, the value of existing teaching materials should be assessed and new teaching aids for environmental education should be developed as necessary;
- teachers and learners should be involved in the preparation and adaptation of instructional materials for environmental education;
- teachers in training should be given an understanding of the widest possible range of educational materials and aids, with special reference to low-cost materials and to opportunities for adaptation and improvisation according to local circumstances.



Dissemination of information

Recommendation No.20

The Conference,

Considering it beyond doubt that the dissemination of specialized and general knowledge on the environment and the development of public awareness of the need for a correct approach to the complex problems of the environment are of tremendous and possibly crucial importance, both for further economic development and rational use of the earth's resources for the good of individual nations and of humanity as a whole,

Recognizing the important role of governments in many countries in the design, execution and development of environmental education programmes,

Recognizing the importance of the mass media for environmental education in both formal and non-formal education,

(a) Environmental information programmes and strategies

Recommends to Member States that they envisage a public information campaign on nationally and regionally relevant environmental problems, such as fresh water, to promote the general education of the public, and to be conducted over the next few years by the various Member States acting as far as possible in a concerted fashion;

Recommends that governments support non-formal environmental education activities conducted by institutions and associations, including youth organizations;

Recommends that governments set up or encourage the setting up of formal and non-formal environmental education programmes, and in so doing use existing bodies and organizations if possible (both public and private); develop the exchange of relevant material and information between public bodies and private organizations concerned with environmental education in the formal and non-formal education sector;

Recommends that Member States implement and develop environmental education programmes for all sectors of the population, associating in them, as appropriate, the non-governmental organizations concerned;

Recommends to Unesco that it take initiative with other Specialized Agencies of the United Nations system involved in environmental education programmes to establish procedures for achieving greater co-ordination in this field;

Recommends to the Member States that they encourage and develop the organization of museums and exhibitions in order to increase public awareness of environmental issues and environmental education;

Invites the Director-General of Unesco to encourage more effective dissemination among Member States of information about environmental education activities, the results achieved and the possibilities for putting them into effect;

(b) Environmental information through mass media

Recommends to Member States that they encourage the dissemination of knowledge about the protection and improvement of the environment by means of press, radio and television;

Recommends that Member States organize training courses for journalists, newspaper editors, radio and television producers and other appropriate mass media personnel, which will enable them to deal properly with environmental issues and education, and to exchange among countries, programmes and films dealing with environmental issues;

Recommends to Member States that the planning and co-ordination of environmental education programmes provide for suitable measures to ensure their reaching broad sectors of the urban and rural population not included in formal education, by means, for example, of the mass media and with the participation of social organizations;

Recommends to Unesco, in co-operation with UNEP, that it encourage national, regional and international organizations to establish a network for the exchange of information on mass media materials for environmental education for each region.

Research

Recommendation No.21

The Conference,

Considering that the institutional and educational changes required for the incorporation of environmental education into national education systems should be based not only on experience but also on research and evaluation aimed at improving educational policy decisions,

Recommends to all Member States:

- that they develop national policies and strategies furthering environmental education research projects incorporating their findings into the general educational process through appropriate courses;
- that they carry out research concerning: (1) the goals and objectives of environmental education; (2) the epistemological and institutional structures that affect consideration of environment demands; and (3) the knowledge and attitudes of individuals, in order to identify more precisely the most effective educational conditions, types of action by teachers and processes of assimilation of knowledge by pupils, as well as obstacles to the modification of concepts, values and attitudes which are held by individuals and are involved in environmental behaviour;
- that they undertake research concerning the conditions which foster development of environmental education, directed more particularly towards: (1) identification of content, taking into consideration specific national and local features which might constitute an effective basis for educational programmes for those in and out of the formal education system as well as for specialists; (2) the establishment of methodologies for the effective acquisition of the relevant concepts, values and attitudes by the various population groups, young and adult, receiving formal and non-formal education; and (3) innovation in learning environments;
- that they undertake research in the development of educational methods and curricula for sensitizing the general public, particularly with regard to the use of mass media and the preparation of evaluation tools for assessing the impact of such curricula;
- that they include in courses for the pre- and in-service training of teachers, research methodologies for designing and developing methods and instruments which enable them to effectively fulfil the objectives of environmental education;
- that they undertake research, taking into account the audiences, with a view to the design and development of mechanisms, methods and materials enabling interdisciplinary environmental curricula to be developed. With this in mind, the possibility of using elements of the natural and social sciences and of the arts as a basis for integration, should be studied;
- that they undertake research in order to develop low-cost educational methods and materials for educators, to train or retrain themselves on their own;
- that they take steps to promote exchanges of information among national educational research bodies, broad dissemination of research findings and evaluation in the educational system;
- that they undertake systematic analysis of educational experience materials of other countries, in order to determine their educational relevance and to adapt them to local socio-economic, ecological and cultural conditions.

International and regional co-operation

General Recommendations

Recommendation No.22

The Conference,

Considering the need to increase the role and improve the quality of environmental education as a factor in national economic and social development,

Considering that environmental education can become one of the factors in improving mutual understanding and strengthening trust between nations, and can contribute to the development of friendly relations between States and to the maintenance of peace and international security,

Considering that there is a great need for international co-operation in environmental education for all countries, especially developing countries,

Recommends:

- that approval and support be given to the initiative of Unesco regarding the problems of environmental education, and invites the Director-General to continue in co-operation with UNEP the efforts with regard to the further extension of international co-operation in developing environmental education;
- that the results of research carried out under the Programme on Man and the Biosphere and other programmes relating to the problem of the environment be used in the planning and implementation of activities in the field of environmental education;

Recommends to Unesco:

- that it extend the framework of its activities in the field of environmental education and give greater attention to these questions in its future activities, linking them with the whole of its educational activity;
- that it adopt the necessary measures to study the role of international governmental and non-governmental organizations in the solution of the problems discussed at the present Conference;
- that it study the possibility of organizing periodic conferences among Member States of responsible officials and specialists in the field of environmental education in the form of international and regional conferences and seminars;
- that, in co-operation with other international organizations, it take steps and work out organizational methods to contribute to the development of environmental education;

Recommends to the Director-General of Unesco:

- that he study the possibility of establishing a Unesco prize to reward outstanding work in environmental education;
- that he provide technical aid to those Member States which are as yet without national environmental education structures, with a view to the formulation and execution of a suitable programme concerning this problem;
- that he foster the gradual incorporation of the system thus created into the framework of regional and international co-operation;
- that, with the assistance of UNEP, he consider the possibilities of further development of the International Environmental Education Programme. The following measures, among others, might be taken in the framework of this Programme:
  1. the preparation of textbooks and other teaching aids, as well as popular scientific books on environmental problems on the basis of an international competition, in which leading world scientists and educators would be invited to participate, with a view to the preparation of textbooks

## Declaration and Recommendations

for schools and higher educational institutions, and also of visual aids and popular scientific books relating to the environment, to be published subsequently in all languages, using a standardized terminology and concepts;

2. the award of Unesco fellowships with the assistance of the Environment Fund in educational institutions in developing countries; the provision of textbooks and teaching aids free of charge; and the provision of assistance in the development of environmental education programmes and experimental projects. Extra-budgetary funds might be used for this purpose, for the pre- and in-service training of staff engaged in environmental education, and basic training with research centres at the same time designated to accept and train these specialists. The award of such fellowships on behalf of Unesco and UNEP at the expense of the host country would also be welcomed;

Realizing moreover, the specialized nature of environmental education and the limited number of educators in the field in the developing countries, recommends to the Director-General of Unesco that the General Conference provide, under one of its programmes, training fellowships in environmental education for those from developing countries;

Recommends to Unesco in co-operation with UNEP:

- that assistance be given, especially in developing countries, for the initiation and expansion of pilot programmes in environmental education, methodology and curriculum development;
- that suitable attention be given, in co-operation also with ILO and other appropriate United Nations agencies, to urban problems, including the exchange of experience between countries and the support of formal and non-formal initiatives in urban environmental education; and that pressing needs for environmental education of the world's rural populations receive equivalent attention;
- that consideration be given to the support of courses, seminars and workshops for curriculum development in environmental education;
- that Member States be helped to establish research programmes in environmental education in colleges and universities.

### Recommendation No.23

The Conference,

Having in mind the global impacts of the present, past and future evolution of all nations on our planet closely connected with a sound and healthy environment for all now as well as for the generations to come,

Bearing in mind the unprecedented economic growth and technological progress together with its inevitable changes, improvements, but also environmental hazards,

Being aware that only co-operation, understanding and mutual help, goodwill, and systematically prepared, planned and implemented actions are able to solve present and future environmental problems in the conditions of peace,

Finds that environmental education gives people throughout the world the necessary knowledge to use nature and natural resources, to control the quality of the environment so that it is not impaired, but wisely improved - and to have the knowledge, attitudes, motivation, commitment and skills to work individually and collectively toward a solution of current problems and prevention of new ones since at present humanity has the means as well as skills to do so;

States that the documents prepared for the Tbilisi Conference, together with the suggestions and experiences presented and forwarded to this Conference, give a global, practicable and useful framework for environmental education;

Recommends to Member States:

- to take all necessary action to implement in the broadest possible way and in accordance with the needs and possibilities of each nation concerned - the results of this Conference on environmental education, and in this respect to draw up action-oriented plans and timetables for the actions:

1. to foster bilateral, regional and international co-operation within all branches of environmental education, based upon scientific research and a broad exchange of information and experience, co-operation on programmes, etc.;
  2. to facilitate comprehensive approaches to the solution of environmental problems within the jurisdiction of each country concerned by the safeguarding of the necessary prerequisites for environmental education - comprehensive or co-ordinated legislation, financial, organizational and other measures;
- to inform other Member States as well as the Secretariat of Unesco about the time schedules, results, methods, etc., concerning environmental education and to forward to the Secretariat of Unesco all materials in this respect which they would wish to be used on a large scale;
  - to extend the necessary advice in environmental education to other Member States or their organizations;
  - to include an environmental education component in all national educational projects receiving funding from international sources;

Recommends to the General Conference of Unesco:

- to take into account the Recommendations of the Tbilisi Conference;
- to decide on the convening of a second conference on environmental education at an appropriate time;
- to recommend to Member States application of the results of the Tbilisi Conference on environmental education and close co-operation on a bilateral, regional and international basis as well;

Recommends to the Director-General of Unesco:

- to establish a regular information bulletin or service, aimed mainly at informing Member States about all actions on environmental education prepared for a given period by the Secretariat of Unesco, by the Member States or by organizations, and about new publications, research work, methods, experiences, etc., in close co-operation with the International Referral System (IRS) and other United Nations agencies;
- to request any contribution which may be necessary for this purpose from the Environment Fund;
- to facilitate a practical exchange of information in this respect;
- to foster international symposia, seminars, filmshows, etc. aimed at environmental education;
- to request the Executive Director of UNEP to support Unesco's actions in implementation of recommendations adopted by the Tbilisi Conference;
- to promote standing implementation of the Plan of Action adopted by the United Nations Stockholm Conference on Human Environment, with further emphasis on environmental education;
- to recommend to future regional conferences on human environment held in Europe and North America that the Final Act of the Helsinki Conference on Security and Co-operation in Europe, in particular the section on environment in Part II, Section 5, should be kept in view, and priority be given to environmental education as well.

Recommendation No.24

The Conference,

Acknowledging that the Recommendations of the Tbilisi Conference show the importance of strengthening co-operation in environmental education and provide a sound basis for further developing environmental education at all levels,

Considering that environmental education is a relatively new and complex area which covers a wide range of disciplines, and that it must be adapted to the particular circumstances of different socio-cultural systems,

## Declaration and Recommendations

Recognizing that while environmental education is inseparable from educational systems it also constitutes an important feature of general activity relating to the environment,

Further considering that the Conference should assist the international community in introducing a new environmental dimension and drive into education,

Recommends that the Director-General and the General Conference of Unesco and the Executive Director and Governing Council of UNEP take the following considerations into account:

- In view of its special responsibility for education and science and its contacts with the educational authorities of its Member States, Unesco should in future play a major role in the preparation of environmental education programmes. The Conference invites Unesco to continue to promote and assist in the development of formal and non-formal programmes of environmental education, making use of the institutions and machinery existing at the regional and subregional levels.
- The Conference appeals for more use to be made of Unesco's Regional Offices for Education in order to assist Member States in preparing environmental education programmes. Within the general context of the decentralization of Unesco's activities, the Conference recommends that greater use be made of these Regional Offices for Education in connection with environmental education, and that they be allocated additional resources, including specialized staff. The Conference also appeals to Unesco to draw on the work of all its sectors, and in particular on work done under the Man and the Biosphere Programme, in the elaboration of materials for environmental education.
- The Conference considers that the greatest possible advantage should be taken of existing machinery and institutions for the implementation of recommendations concerning environmental education. It notes with satisfaction UNEP's statement that its programme activity centres for environmental education and training would be experimental in nature and play a catalysing role.
- Given its role in environmental matters and its contacts with the authorities of Member States responsible for them, UNEP should ensure co-ordination of the environmental activities of the whole United Nations system by establishing co-operation with the other agencies (particularly within the framework of the Environment Co-ordination Board and other organizations) in order to ensure consistent and harmonious planning. The Conference invites UNEP to continue to play its role of co-ordinator of environmental programmes.
- UNEP and Unesco should continue and extend their collaboration when carrying out the Recommendations of the Tbilisi Conference. The Conference recommends that the General Conference and Executive Board of Unesco and the Governing Council of UNEP take all measures which they consider appropriate to ensure that practical and co-ordinated action is taken on the Recommendations of the Conference, with allowance made for the areas of competence of each of the United Nations agencies or bodies and their respective potential for providing support for environmental education.
- The Conference recommends that Unesco, in collaboration with UNEP, encourage and support the important work being done for environmental education by the relevant regional and subregional organizations.
- The Conference welcomes the important work being done in the sphere of environmental education by intergovernmental and non-governmental organizations such as FAO, ILO, WMO, IUCN, ICSU and WCOTP. The various bodies and Specialized Agencies of the United Nations system should continue and expand their efforts in the field of environmental education, and should be encouraged and supported by UNEP and Unesco through co-ordinated and harmonious planning of the activities included in the different programmes. Unesco and UNEP should encourage international non-governmental organizations to intensify their action in the sphere of environmental education.

### Recommendation No.25

The Conference,

Considering that Unesco's Medium-Term Plan for 1977-1982 includes in Chapter VII "Man and his Environment", an objective relating particularly to the development and promotion of environmental education and training,

Considering that the Tbilisi Intergovernmental Conference on Environmental Education marks the end of the research and co-ordination phase and the beginning of the actual operational phase of Unesco's Medium-Term Plan,

Recommends to the Director-General that, as far as possible in the planning of future programme actions, starting with preparation of the budget for the next biennium (1979-1980), he ensure that the Recommendations adopted at the Intergovernmental Conference on Environmental Education are taken into account.

Recommendation No.26

The Conference,

Recognizing that it is necessary to establish priorities for activities within the area of environmental education and that Unesco works in concert with national authorities and regional centres of learning,

Recommends to Unesco:

1. That it expand the functions of its Regional Offices to enable them, in co-operation with National Commissions, to help:
  - develop or adapt instructional materials related to local environmental problems for use in the formal and non-formal education of primary and secondary school-age students;
  - create regional source books for environmental education that will foster and facilitate development of locally appropriate instructional materials;
  - encourage activities of youth groups and non-governmental organizations geared to improving and understanding of local ecosystems and environmental problems, taking into account urban as well as natural environments;
  - identify new and promising approaches to environmental education; conduct and evaluate pilot projects. These aspects of projects which are applicable to other locations should be systematically disseminated to other potential users;
  - provide educational opportunities to teachers and school administrators;
  - supply environmental educational materials for use by the mass media;
  - conduct an expanded programme of pilot research, documentation and evaluation in environmental education and give wide dissemination to the results of these projects and similar activities through Unesco's environmental education publication (Connect);
2. That it utilize existing institutions to receive, catalogue and disseminate materials useful in environmental education;
3. That, in co-operation with UNEP, it develop model training courses, seminars, etc., on environmental and developmental issues for use by United Nations organizations and others in the training of officials of the developing countries and those concerned with assistance to them. Existing international training institutes and programmes should expand their training curriculum to include subjects on basic ecological relationships, impact assessment and establishment of effective institutional and regulatory mechanisms;
4. That it place more emphasis on the sharing of environmental experience and remedial measures between developing countries. Unesco should work with UNDP to ensure that such an exchange can take place at the 1978 UNDP-sponsored Conference on Technical Co-operation among Developing Countries;
5. That it issue, on a regular basis, world-wide directories of environmental education organizations and personnel from existing information collected and compiled by Unesco. Those directories would describe the organizational structure, objectives, functions and procedures for requesting support services. It is further recommended that the format be co-ordinated with the UNEP-International Referral System and that the information regarding the directories be published in Connect;
6. That, in co-operation with UNEP, it proclaim a specific environmental topic to be treated on a world-wide scale at appropriate intervals, in consultation with relevant regional and international organizations.

Recommendation No.27

The Conference,

Taking into account that the success of any action in the field of environmental education depends on organizing, providing and displaying information at all levels,

Considering therefore that there is a special need to improve the information infrastructure in the field of environmental education, thus making possible within an international information network the dissemination of information on important actions taken at the local, regional and national levels,

Considering that the effectiveness of any international information network is based on the effectiveness of existing national information centres, and on co-operation between them at subregional and regional levels, and with the appropriate international organizations,

Assuming utilization of the already existing international information services, such as the International Bureau of Education (IBE), UNEP's International Referral System (IRS), Unesco's UNISIST, etc., and with reference to UNESCO/ENVED/4, 231 "Education and the challenge of environmental problems" and UNESCO/ENVED/7, 72 "Regional meetings of experts on environmental education - a synthetic report",

Recommends to Member States:

1. To identify as a matter of high priority, in co-operation with National Commissions for Unesco, an institution with extensive competence in the field of environmental education and to nominate it as a national information centre for the dissemination of information and experience at the national as well as at the regional and international levels;
2. To collect and circulate, in co-operation with the appropriate governmental and non-governmental organizations, information relevant to environmental education, including information about rural and urban institutions and centres, and key staff within their territories with special knowledge or experience, and information about available teaching and reference material;

Recommends to the Director-General of Unesco to support the establishment and operation of such an international network by:

- maintaining, in liaison with National Commissions for Unesco, close and regular contacts with national centres;
- disseminating information and advice which may not otherwise be available to Member States and which will assist and support them in the implementation of programmes of environmental education;
- promoting exchanges of staff, sharing of experience and participation in meetings and conferences on a regional or subregional basis where desirable, in collaboration with intergovernmental or non-governmental agencies;
- promoting the development and publication of common terminology to facilitate international communication on the subject of environmental education;
- requesting the Executive Director of UNEP to issue the annual reports on the state of the environment prepared by UNEP, so far as possible, in a form and in quantities which will enable them to be used as source material for environmental education;

Recommends to Member States to make maximum use of the annual reports of UNEP on the state of the environment for purposes of environmental education and to encourage the popularization of knowledge about the environment.

Recommendation No.28

The Conference,

Considering the value of international co-operation in the field of educational research,

Recommends to Unesco that it stimulate international co-operation in order to promote research which might serve as a basis for the design, development, application and evaluation:



- of written or audio-visual documentation for use by the general public, teachers and students;
- of low-cost research material;
- of instruments of interdisciplinary methodology for the training of organizers and teachers.

To this end, priority emphasis should be laid on:

- determining the objectives of environmental education;
- determining the obstacles (epistemological, cultural or social) restricting access to educational messages and to their utilization;
- determining qualification requirements and ways in which they may be met.

This co-operation could be illustrated by a number of pilot projects taking into account experience already gained in this field.

#### Recommendation No.29

The Conference,

Being aware of the determining influence of social, cultural and psychological factors on environmental awareness,

Considering that these factors may hamper or strengthen the intended results of environmental education,

Recognizing the need for an evaluation of these factors,

Recommends:

- that the Director-General of Unesco, with the assistance of the Executive Director of UNEP, work further on the definition of the framework of environmental education, the state of the environment and their interrelationship;
- that international organizations, responsible authorities and non-governmental organizations promote and develop relevant studies and research within their programmes, thus increasing the involvement of the social and human sciences in environmental education;
- that international organizations, responsible authorities and non-governmental organizations utilize the results of these studies with regard to the formulation of specific goals and the selection of appropriate means for environmental education programmes.

#### Recommendations on regional co-operation

#### Recommendation No.30

The Conference,

In order to strengthen environmental education activities at the subregional and regional levels,

Recommends:

- that the Director-General of Unesco take the necessary measures to ensure that the Regional Offices of Unesco serve as co-ordinating agencies for development of environmental education programmes at the subregional and regional levels, as they are doing already in other intergovernmental programmes co-ordinated by Unesco, such as the Man and the Biosphere Programme (MAB) and population education programmes;
- that Unesco have an environmental education specialist at each Regional Office and make available more funds for training programmes at the regional and subregional levels.

## Declaration and Recommendations

### Recommendation No.31

The Conference,

Considering that great potential collective efforts can generate in the development of environmental education in Member States,

Recommends to Unesco, with the assistance of UNEP and in co-operation with other United Nations organizations:

- that groups of Member States consider the need to encourage a network approach in dealing with environmental education;
- that where a collective effort among countries in curriculum development in environmental education exists in a given region, as in the African Social Studies Programme (ASSP), the Science Education Programme for Africa (SEPA), the African Curriculum Organization (ACO), existing materials be enriched to incorporate such environmental education content areas as might be missing in such materials;
- that such regional centres serve as resource centres and clearing-houses for Member States in environmental education;
- that assistance be extended to such regional organizations, ASSP, ACO and SEPA, where the need arises for the exchange of specialists in environmental education to enable constituent Member States to benefit mutually;
- that environmental education documentation be provided to such regional organizations as ASSP, ACO and SEPA to enrich the resources on which Member States depend for environmental education activities;
- that research and training facilities be extended to such regional organizations through workshops, seminars, conferences, etc., at regional, subregional and national levels;
- that funds be sought by the Director-General from bilateral and multilateral sources for this purpose.

### Recommendation No.32

The Conference,

Recognizing the fact that there is a need for greater collaboration among the member countries of the Asia region,

Recommends to the Director-General of Unesco:

- that he study the possibility of establishing a consultative committee to co-ordinate the activities of environmental education in the Asia region;
- that in order to help the consultative committee it would be desirable to have committees at national level, which in turn may form links with other organizations involved with environmental education programmes.

### Recommendation No.33

The Conference,

Taking note of the Belgrade Workshop's recommendation for concerted effort in environmental education activity at national and regional levels,

Taking further note of the Brazzaville (African Region) Workshop's re-emphasis on the crucial importance of integrated programming in the Africa region,

Recognizing that at both national and regional levels in Africa, environmental education organizations and institutions act in isolation from each other and that most are faced with inadequacies of human and material resources and communication facilities;

Cognizant of the enormous benefits which could accrue at all levels of environmental education programming activities from the collective participation of all such organizations and institutions,

Realizing that the creation of machinery for regional co-operation in Africa would be likely to contribute to the development of environmental education,

Recommends:

- that each Member State consider setting up national centres of environmental education for the co-ordination of national environmental education activities;
- that Unesco, with the assistance of UNEP, set up as a matter of urgency a regional working party for the Africa region to organize the pooling together of energies and expertise to assist African governments in the implementation of the Tbilisi Recommendations;
- that Unesco, with the assistance of UNEP and other United Nations agencies, ensure the development of co-operation in environmental education at regional and international levels in accordance with the suggestions contained in paragraphs 84, 85 and 86 of document UNESCO/ENVED/7.

Recommendation No.34

The Conference,

Realizing that there is a great need in the Africa region to:

- strengthen existing projects on environmental education,
- organize environmental education training courses, workshops and seminars,
- assist in evaluation and research environmental education in the region,
- disseminate environmental education materials and information within the region according to local conditions,
- co-ordinate both formal and non-formal environmental education projects,

Being aware that there are individual countries which have environmental education programmes and materials which could be useful to other countries in the Africa region,

Realizing that there are already existing centres with programmes which have been involved to some extent in environmental education in the region, such as SEPA, ASSP and other African organizations responsible for curricula, and

Being aware that regional Member States are already contributing to these programmes,

Recommends to the Director-General of Unesco that he consider the setting up, with the support of UNEP and in collaboration with Member States, of an environmental education resource, material development and dissemination centre in the forthcoming 1978-1979 biennium or to make use of existing education programmes which are already involved in environmental education in Africa. This centre would carry out and implement the Tbilisi Recommendations at the regional level. It is further recommended that the Director-General seek funds from bilateral and multilateral sources for this purpose;

Appreciating the work already being carried out by UNEP,

Recommends that UNEP provide the necessary funding to Unesco to enable it to extend its environmental education programme to Member States in Africa, especially to those not already having a national co-ordinated programme.

Recommendation No.35

The Conference,

Considering the nature of environmental problems in Africa which arise from low levels of literacy, lack of trained personnel and training facilities, the high cost of introducing curricula or revising existing ones and other media which would stimulate environmental awareness, motivation and commitment to the conservation and the enhancement of the environment,

Bearing in mind that environmental education programmes in Africa at all levels are in embryonic stages of development,

Realizing the significance of the conclusions of the Belgrade Workshop on Environmental Education and the subsequent Regional Conference on Environmental Education held in Brazzaville in 1976 for the Africa region,

Taking into account recognition by African delegates to the Tbilisi Conference of the importance of the Brazzaville report and the commitments of the recommendations contained therein,

Being aware of the role of Unesco and UNEP in assisting Member States as well as regions to initiate and to strengthen environmental education programmes,

Recommends to Unesco:

- that, in collaboration with UNEP and other organizations of the United Nations system, it assist African regional organizations already in existence as well as Unesco Regional Offices in implementation of the Recommendations of the Tbilisi Conference;
- that, in collaboration with UNEP and the other organizations of the United Nations system, national, regional and international co-operation in environmental education be developed.

Recommendation No.36

The Conference,

Recommends to Unesco, in collaboration with FAO, ILO and UNEP, and to Member States that co-operative efforts be undertaken to help increase and intensify efforts to train farmers in environmental issues so as to improve their quality of life through increased but ecologically sound agricultural production, and through social development; that information concerning these experiences be exchanged to ensure that new ideas are circulated, promoted and adapted to local conditions;

Recommends that Unesco with aid from UNEP provide assistance as soon as possible to establish regional training programmes in the ESCAP region, based on suitable existing national institutions, for the post-graduate training of environmental integrationists of the type that have been defined in the Report of the Asian Regional Conference on Environmental Education;

Recommends to Member States that they begin or continue to co-operate with each other in fields of training which will facilitate the formation of national pluridisciplinary teams of doctors, sanitation and hygiene engineers and technicians capable of taking a comprehensive approach to public health problems in connection with those of the environment.

Recommendation No.37

The Conference,

Recommends that Unesco, with support from UNEP, and through responsible Regional Offices and national agencies, and non-governmental organizations, include in environmental education programmes:

- education on the cultural heritage, wherever it is relevant to the human environment;
- education dealing with the improvement of human settlements, particularly in developing countries, so that people in deprived human settlements can improve their surroundings;

Recommends:

- that Unesco, in collaboration with the International Labour Organisation and other bodies, particularly the relevant United Nations organizations, pay due attention to urban problems, encouraging countries to compare experience in this area and supporting any initiative, whether official or not, taken with regard to general education on the urban environment;
- that the Member States study in greater depth, in the light of their own experience, the place of urban problems in their national programmes and in general environmental education.

Recommendation No.38

The Conference,

Considering that education and training are indispensable instruments for the achievement of general and specific objectives of environmental education,

Convinced of the fact that formulation of curricula and reorientation of educational systems are not sufficient, but that there must be an appeal to the feelings of individuals and to their ethical and cultural awareness so as to lead them to protect, improve and enrich their natural environment on an enduring basis,

Convinced of the importance of linking educational processes to the real problems of preserving the environment and of the need to make educators aware of such issues, both within the context of human development in general and in the economic, social and cultural development of each country,

Conscious of the considerable receptiveness of the school-age child, but equally conscious of the fact that to stimulate his or her responsiveness to the environment, he or she must be brought into direct contact with the natural elements, through systematic programmes which will have regard, in their implementation, for specific circumstances, such as location in urban, rural or coastal zones,

Recommends to Unesco that it submit to its General Conference a draft educational programme that, under the general title: "The child and the environment", will set out the main lines for the formulation and implementation of a systematic plan of action to bring the child into contact with, and give him or her awareness of, the elements that form his or her natural milieu, such as, more especially, the sea, woods, desert, mountains, forest, city, lakes, rivers and other ecosystems;

Requests the Director-General to study the advisability of setting up a working group to examine the various components of this programme;

Agrees that, should the project be adopted by Unesco, collaboration in its execution be requested from Unicef, UNEP and other international and regional organizations linked with environmental education and the specific aims of the project.

Recommendation No.39

The Conference,

Recognizing the importance of utilizing film and television production as well as other audio-visual techniques for the purpose of environmental education,

Taking note of the report presented by the Czechoslovak governmental delegation on the international film festival, dedicated to environment, known as EKOFILM, which is being held regularly every year in Czechoslovakia, the first country in Europe to do so,

Believing that this international festival might serve as a world instrument for the exchange of experience among specialists in the education of youth and adults for the purpose of protection and improvement of the environment,

Believing equally that this festival might be a good stimulus for further film and television production in the field of environmental education and could thus contribute to its higher level and efficiency,

## Declaration and Recommendations

Considering it purposeful to provide this festival with a concrete platform for the exchange of experience among specialists by means of an interrogational symposium,

Invites the Director-General:

- to study the possibility of a Unesco sponsorship of the annual EKOFILM film festival in Czechoslovakia;
- to consider the possibility of granting assistance to this festival and of awarding a prize for the best film.

### Recommendation No.40

The Conference,

Having learned with interest of the activities and role of youth associations and non-governmental organizations in the field of environmental education,

Noting that many international gatherings of young people have made it possible to prepare specific programmes of co-operation in the field of environmental education,

Mindful of the fact that it is largely through young people that the non-formal education of young people should be undertaken,

Conscious that international youth meetings allow an exchange of constructive ideas and experience and strengthen solidarity between the countries of the world,

Recommends to Unesco, with the assistance of UNEP:

- that they continue to give their material and moral support to international youth gatherings;
- that they make provision in their future programmes for necessary resources for these types of meetings;
- that they ensure the presence of responsible officials from these youth associations and non-governmental organizations at intergovernmental meetings and meetings of experts organized by Unesco or UNEP;
- that they ensure the proper distribution to all Member States of resolutions, recommendations and documents emanating from such meetings;
- that they provide assistance and administrative facilities for the efficient organization of such meetings;

Recommends to Member States:

- that they provide assistance for the organization of these meetings and facilitate the sending of youth delegations;
- that they attach due importance to the conclusions of such meetings.

### Recommendation No.41

The Conference,

Considering the important role of non-governmental organizations and voluntary bodies in the field of environmental education at the local, national, regional and international levels,

Stressing the desirability of enlarging the opportunities for democratic participation in the formulation and execution of programmes in the field of environmental education,

Bearing in mind that the efficacy of the work of all intergovernmental organizations is enhanced by the activities of non-governmental organizations and voluntary bodies,

Recommends to Member States that they encourage and support non-governmental organizations and voluntary bodies at the local, national, regional and subregional level to make best use of their capabilities and activities;

Recommends to national governments that they create and encourage environmental awareness among organizations, such as professional teachers' and other non-governmental organizations, which deal directly with children and youth, so as to get such organizations involved in the formulation and execution of national education strategies;

Recommends to non-governmental organizations that they incorporate environmental education activities into their existing programmes;

Recommends to Unesco that it co-operate closely with non-governmental organizations and support their relevant activities in the field of environmental education.

## ANNEXES

- I. Agenda
- II. Opening speeches
- III. Closing speeches
- IV. List of documents
- V. List of participants



## ANNEX I

### AGENDA

1. Opening of the Conference
2. Election of the President
3. Adoption of the Rules of Procedure
4. Election of Vice-Presidents and Rapporteur-General
5. Adoption of the agenda
6. Establishment of Commissions and election of Officers
7. Major environmental problems in contemporary society
8. Role of education in facing the challenges of environmental problems
9. Current efforts at the national and international levels for the development of environmental education
10. Strategies for the development of environmental education at the national level:
  - (a) general environmental education of the public through formal and non-formal education
  - (b) environmental education (including in-service education) of particular professional groups whose actions and decisions have implications for the environment
11. Regional and international co-operation for the development of environmental education: needs and modalities
12. Adoption of Final Report and Recommendations
13. Closure of the Conference

## ANNEX II

### OPENING SPEECHES

Message from  
H.E. Leonid Ilyich Brezhnev  
Secretary-General of the Communist Party of the USSR  
and Chairman of the Presidium of the Supreme Soviet of the USSR  
read by  
H.E. Academician V.A. Kirillin, Vice-Chairman of the USSR  
and Chairman of the State Committee for Science and Technology  
of the Council of Ministers of the USSR  
at the opening of the Conference

I extend cordial greetings to all those taking part in the Intergovernmental Conference on Environmental Education, the first meeting for the exchange of experience on this highly important problem to be organized on so widely representative a basis.

Further progress in the economic, scientific and cultural fields must take into account the consequences of human activity on nature; and it is clear that forming a considerate and careful attitude to the environment, together with dissemination of the knowledge and skills necessary for its protection and improvement, should become an integral part of the general system of education and training.

In our country, protection of nature and improvement of the environment are regarded as

highly important, nation-wide tasks of the national economy. This approach is enshrined in the new fundamental law recently adopted, the Constitution of the USSR, which takes stock of the development of the Soviet State founded by V.I. Lenin, in the 60 years since October 1917.

The Soviet Union gives its active support to international action aimed at solving environmental problems and problems concerning the rational use of natural resources, since we are convinced that such action is conducive to the achievement of the aims set forth in the Charter of the United Nations and reasserted in the Final Act of the Conference on Security and Co-operation in Europe.

May I wish your Conference success in carrying out the noble tasks before it.

Statement by Mr. Z.A. Pataridze  
at the opening of the Conference

Mr. Director-General,  
Ladies and Gentlemen,  
Dear Comrades,

We have just heard the greeting extended to participants in the Conference by the Chairman of the Presidium of the Supreme Soviet of the USSR, Secretary-General of the Communist Party of the Soviet Union, Leonid Ilyich Brezhnev.

This message of greeting most conclusively emphasizes the role of international co-operation in securing progress in the field of science, culture and education - for the benefit of all mankind.

The message is clear evidence of the great interest taken by our State in finding effective solutions to the vital problems of our times, and those problems which are to be discussed at this Conference.

Mr. Director-General,  
Ladies and Gentlemen,  
Dear Comrades,

The signal honour has fallen to me of welcoming you - representatives of Unesco Member States and of international organizations - who are taking part in the Intergovernmental Conference on Environmental Education, on behalf of the Government of the Georgian Soviet Socialist Republic in the capital of our republic, the city of Tbilisi.

The high level of development of modern science and technology, the constantly increasing impact of human economic activity on the environment and the danger of its deterioration have made the problem of ensuring an acceptable quality of life for man more acute than ever before. Solving the eternal problem of the relations between nature and man and comprehending this problem have become a vital concern of all the peoples of our planet. And this global problem obviously cannot be dealt with properly within the confines of individual regions and States; it is a crucial issue of world-wide significance.

Hence the task that lies before you here in Tbilisi is not only extremely responsible but noble as well.

Our country, which this year is celebrating its sixtieth anniversary, possesses a wealth of

tradition regarding the protection of nature. The founder of the Soviet State, V.I. Lenin, gave a great deal of attention to these matters. A few days ago, the Supreme Soviet of the USSR adopted the new Constitution of the Soviet Union. This fundamental law of our State stipulates, in particular, that in the interests of present and future generations the State shall take the necessary steps "to protect and make scientific, rational use of the land and its mineral and water resources and the plant and animal kingdoms, to preserve the purity of air and water, ensure reproduction of natural wealth, and improve the human environment".

In these times, when the entire planet has become the setting for human activity, the global and many-sided character of the problem of controlling the quality of the environment makes it essential that concerted action be taken by States the world over, as well as scientists and specialists from the most varied walks of life.

In tackling this problem of prime importance to mankind, a special place rightly belongs to environmental education.

We greatly appreciate the fruitful work of Unesco in conjunction with UNEP in establishing and executing in the field of environmental education an international programme which is interdisciplinary in its approach, covers all levels and is intended for a broad public.

In our Soviet land, environmental education, alongside practical utilization of the findings of scientific research, constitutes a corner-stone of the overall programme for protection of the environment.

As far as our republic is concerned, Georgia was one of the first republics of the USSR to adopt a "Law on the protection of nature". In 1974 a State committee for the protection of nature was set up; a standing commission for the protection of nature operates within the system of the Academy of Sciences; and in Tbilisi University a special centre has been established for work on problems concerned with protection of the environment. The higher and secondary educational curricula devote a great deal of attention to protection of the environment. Students reading zoology, geography, philology, mathematics and engineering attend special courses

on the ecological fundamentals of the protection of nature. Each year sees an improvement in teaching of the fundamentals of nature protection in the secondary schools of the republic. We consider that it is important already at this early stage to solve the delicate educational problems involved in inculcating ecological and aesthetic outlooks and standards of conduct for the future masters of the country; to form in good time an understanding of the organic link between man and his environment; and to arouse a feeling of personal responsibility for the state of natural resources and a concern for multiplication of the wealth and beauty of nature.

Work in the field of environmental education is a centuries-old tradition of the national culture of the Georgian people. Our people has always displayed a great love for nature and a careful attitude to it and its resources.

The singularity of the relief and landscape of Georgia has from time immemorial been used by our builders to create unique architectural monuments. And today in many parts of Georgia one can but delight and wonder on witnessing the extraordinary mastery with which human art has been harmoniously combined with the natural beauty of nature. In the songs and legends of our people and in the works of our poets and writers, the great primal love of man for nature, with its significance for man, is sung with particular creative force. The widely known Georgian poet Vazha Pshavela - whose centenary was celebrated by Unesco in 1961 - wrote: "There is no poetry outside nature and human life, and he who well understands nature and life - even though he may never have written verses, plays or novels - is none the less a poet. In the life of man we cannot

name any phenomenon the like of which is not to be found in nature". It is also noteworthy that Vazha Pshavela was an educator, a village teacher. Another prominent public figure and educator, Yakob Gogebashvili, wrote that "Nature submits only to him who is armed with knowledge of its laws; for him who can use its forces, it is a source of wealth".

The vicissitudes of the historical fortunes of our people often weakened man's concern for nature, led to the destruction of forests and wildlife, and did serious damage to our natural resources. And only during the Soviet period after the October Revolution did a new era begin in the life of Georgia. It has become a highly developed agricultural and industrial republic with a high level of culture, developed science and advanced technology, and a society capable of solving many problems, including the age-old problem of man's relations with nature.

In view of its comparatively small territory, its geographical position and its particular type of landscape, Georgia is especially sensitive to pollution of the environment. This explains our exceptional interest in overcoming environmental problems, in understanding these problems and in the results of this Conference whose purpose it is to discuss matters concerning environmental education.

Allow me once more to welcome you on behalf of the Government of the Georgian SSR and to wish you profitable discussion of the problems of environmental education. We hope that the results of the Conference and its recommendations will be of assistance in overcoming the environmental problems facing mankind.

Opening statement by Dr. Mostafa K. Tolba  
Executive Director  
United Nations Environment Programme

Mr. President,  
Mr. Director-General of Unesco,  
Your Excellencies,  
Ladies and Gentlemen,

Permit me to begin by expressing my deep appreciation to the Government of the Union of Soviet Socialist Republics for hosting this important Intergovernmental Conference on Environmental Education. It could hardly be held in a more agreeable setting, and I take great pleasure in being here once again in the beautiful city of Tbilisi, capital of the Republic of Georgia. I know that Georgians are noted for their hospitality and I hope all delegates will have the maximum opportunity while they are here to profit by it. It may well be a pleasant educational event in more ways than one.

I would also like to pay a sincere tribute to my dear friend and colleague, Amadou-Mahtar M'Bow, the Director-General of Unesco, for the tremendous efforts he has put into all the preparations that have led up to the Conference. I will have more to say later about the co-operation we in UNEP have enjoyed with Unesco throughout the preparatory stage.

But let me try first to tell you why the United Nations Environment Programme attaches such a great importance to environmental education. It is because in the long run nothing significant will happen to reduce local and international threats to the environment unless widespread public awareness is aroused concerning the essential links between environmental quality and the continued satisfaction of human needs. What is more, human needs and aspirations the world over can only be satisfied as environmental awareness leads to appropriate action at all levels of society from the smallest local communities to the whole community of nations. Appropriate action requires a solid base of sound information and technical skills. But action also depends upon motivation, which depends upon widespread understanding and that, in turn, depends upon education. What is required is continuing educative action so that all strata of society everywhere become aware of their responsibilities and willing to do what they can to help.

Environmental problems are marked by

variety, complexity and urgency. For many in today's world, environmental education is really a matter of life and death: for thousands of industrial workers who deal with chemicals; for countless farm workers who deal with pesticides; for the millions of poorer people whose livelihood and health depend upon more enlightened management of the world's water systems; for the millions of richer ones who are threatened by environmentally induced cancer; and for the more than 600 million people who live in arid and semi-arid lands threatened by decreasing productivity induced by desertification. We in UNEP see environmental education, therefore, as a global lifelong process involving society as a whole, directed at all members of the community, with due regard to their social, economic, cultural and political needs. We also believe that it is the action of man, as planner, builder, farmer, citizen or consumer which causes environmental degradation. It is thus on man's attitude that the future of our air, water, soil, forests and mineral wealth ultimately depends. This is why we feel it is so important that everyone becomes environmentally-conscious through proper environmental education.

Environmental education is also essential in integrating the knowledge generated by the important United Nations conferences of the past five years: on the human environment, on population, food, human settlements, and water and desertification. Environmental education must be accelerated within nations and internationally if the important results of these remarkable global meetings are to be disseminated and implemented for the satisfaction of basic human needs for all.

Another prime area, where a better world-wide understanding of environmental issues, through appropriate forms of environmental education, has become very apparent in recent years, is development itself, and the implementation of the new international economic order. The study of environment and development relationships is resulting in a more comprehensive understanding that development objectives must henceforth embrace, among other things, sustained improvement of the quality of life, eradication of poverty, and equitable participation of people in the benefits

of development. The problem is not how to choose between environmental protection and achievement of development goals, but how to direct development so as to ensure maximum human benefits from the environment for both present and future generations. Environment and development relationships, as a matter of fact, appear to be the key issue and a wider view of these relationships demands a wider view of environmental education.

After these general remarks let me say a few words now, Mr. President, on the place of environmental education in the mandate conferred upon UNEP by the General Assembly following the United Nations Conference on the Human Environment in Stockholm in 1972.

UNEP's activities, according to that mandate, consist of three major components: environmental assessment, environmental management and supporting measures. A brief word about each of these.

First, assessment is a dynamic process by which environmental issues are identified and data generated and evaluated to provide a basis for rational decision-making, especially at the national level. At the global level this activity is known as Earthwatch. We need assessment to locate and define problems, and to estimate their urgency and dimensions.

Second, drawing on the best available knowledge and information provided through environmental assessment, the function of environmental management is to ensure that environmental considerations are taken into account in social and economic development policy formulation and planning, and throughout the decision-making process leading to action. It is only thus that environmentally-sound management of human activities can be carried out.

But effective implementation of environmental management calls for widespread public understanding, the necessary resources and technical capacity, and the public motivation and will to back it up. And so the third component of UNEP's activities consists of supporting measures. These are: information, technical assistance and environmental education and training. To call these activities supporting measures does not mean that they are of secondary importance. Together with environmental assessment and management they are an indispensable part of action to safeguard the environment.

The fulfilment of our mandate, therefore, requires a truly comprehensive view of environmental education and training. More is needed than small groups of highly specialized experts who spend many years passing through all stages of formal education. The contribution of such experts is highly important, but public participation at all levels is equally necessary, and it is for that reason that UNEP attaches great importance to out-of-school informal education. Millions of people living today will never spend an hour in a formal school setting but it is important that they, too, have the opportunity to learn about the environmental factors essential to their own well-being. In addition, many

environmental measures in every country call for active citizen participation, which will only be effective if based on and linked to education for the public at large. Hence the challenge to this Conference is to advance the theory and practice of environmental education on the broadest possible front.

The eight major guiding principles for environmental education spelled out in 1975 by the government experts at the Belgrade International Workshop on Environmental Education are excellent rules for education as a whole. But I would emphasize three unique qualities of environmental education: it aims at promoting an awareness of linkages between disciplines; it aims at promoting greater consciousness of how actions taken now may affect people in the future; and it is concerned with geographical and social linkages. It is our past failure to think of the environment in broad enough terms that has led humanity into many of our present-day environmental and developmental problems. I would like, therefore, at this point, to add to what I have already said about the key importance of a better universal understanding of the relationship between environment and development.

In the first place, environmental problems in tomorrow's world will be everyone's concern. The world has been made one community by modern travel and communication facilities, by a vast network of economic and trade links, and by a common interest in understanding and respecting the limits in the ability of the planet's life-support systems to absorb the impacts of man's activities. We cannot say that one region's environmental and developmental problems are the concern of that region alone. One nation's problems can quickly become all nation's problems, just as surely as global threats to the environment are the concern of humanity as a whole.

In the second place, environmental and developmental problems are inseparably linked; they have global and international dimensions; they occur in all countries and societies at every stage of economic development and with every kind of social or political orientation.

Let me offer a few examples to illustrate the global nature of environmental concerns, and the interrelatedness of environment and development. One obvious global problem is the threat to the ozone layer from the release of certain chemicals into the atmosphere with possible far-reaching consequences for terrestrial life forms, including man. There may also be far-reaching effects on the climate of our globe from the impact of other activities of man - particularly his use or misuse of certain energy sources. The exhaustion of petroleum resources has obvious global implications, and so do some of the measures adopted in the development of new energy sources, especially nuclear fission.

However, as an aside and in order to illustrate the complexity of environmental problems, it is interesting to note that while most environmental concern about energy has concentrated on the nuclear issue, it could be that the consumption of fossil fuels, through its impact on

climate by the emission of carbon dioxide, actually has a more significant environmental impact.

We now know that environmental problems can be associated with both inappropriate development and lack of development. Many complex problems have arisen in the past from developmental applications of science and technology without full regard to environmental consequences. In developing countries when development projects are ill-conceived, poorly designed, and badly executed they may be accompanied by resource depletion environmentally-induced diseases, chemical and biological pollution at levels even higher than are now met in developed countries, and widespread social disruption. Lack of development, on the other hand, can result in squalid human settlements, loss of productivity through disease and malnutrition, and loss of arable land through destruction of forests and over-use of fragile semi-arid and subhumid pasture lands.

A major factor that is becoming apparent in the analysis of causes of environmental problems is the great disparity in living standards, not only between rich and poor countries, but also between rich and poor strata within the same country. Extreme inequalities of wealth make it difficult for any society to benefit fully from its natural resources, and can lead to environmental damage both through the desperate search of the poor for the means of sustenance, and through the wasteful use of resources by the rich. Rich countries or rich sectors of various societies apply wasteful life-styles which impose arrogant demands on natural resources, particularly energy, minerals and food. It is now apparent that all countries, developed and developing alike, must, in their pursuit of development, take account of the limitations as well as the opportunities the environment affords; and they must seek out and adopt new approaches and patterns of development and life-styles in which environmental factors are fully taken into account.

Mr. President,  
Distinguished Delegates,

UNEP is required through its mandate to play a central role in environment, and hence in environmental education, both within the United Nations system as a whole and in the world at large. That is the Stockholm/General Assembly mandate for UNEP. I would emphasize that the environment programme is not the exclusive prerogative of our small Secretariat headquartered in Nairobi, it is a programme designed with the assistance of the entire international community, and to be carried out by that community. Thus UNEP exists to co-ordinate the preparation of the programme and to catalyse its implementation. Accordingly, in promoting environmental education and training, UNEP must work in full consultation and co-operation with other organizations. At the top of the list comes Unesco, but we also work with ILO, FAO, IUCN and many others.

Here I would also mention the important role of non-governmental organizations, with their substantial communication networks and their

many education and information activities. Because it believed that the non-governmental organizations can do much to further environmental education, UNEP has made it possible through the full co-operation of Unesco, for a number of such organizations from developing countries to attend this Conference, and has arranged for a non-governmental organization workshop on environmental education in Geneva immediately following the Conference to identify ways and means of implementing the recommendations, commensurate with their abilities.

Over the last four years UNEP has supported some 40 training activities, some very small and experimental, and others of larger size. I will cite two examples. The first is ENDA, an environment and development training project in Africa, mounted jointly by UNEP, the African Institute for Development and Planning, and SIDA, the Swedish International Development Authority. The project is located in Dakar. The other is CIFCA, the International Centre for Training and Education in the Environmental Sciences for Spanish-speaking countries, located in Madrid. In these and other training activities UNEP has had a number of partners: such as Unesco, IMCO, UNIDO, ILO and a number of national education bodies.

Our Governing Council gave me authority to establish a Regional Programme Activity Centre for Environmental Education and Training in Africa on an experimental basis and endorsed the establishment of similar centres in other regions.

These Regional Centres are conceived as specific mechanisms for ensuring that the environmental dimension is given adequate coverage in educational and training systems. They thus provide a base for the catalysing and co-ordinating functions of UNEP, for stimulating action through joint planning and programming, and for supporting programmes implemented by regional institutions. The establishment of these centres is being carried out in full collaboration with Unesco and in co-operation with other Specialized Agencies. The success of any international undertaking in the field of environmental education and training most assuredly depends on action at the local level. Not only are national participation and financial provision essential, but the implementation of the enormous task of changing approaches to education must be done by nationals within each country.

Mr. President,  
Distinguished Delegates,

I would be failing my duties if I do not mention the fruitful and very co-operative relationships we in UNEP have enjoyed with Unesco since the International Environmental Programme was initiated in January 1975. In a sense all the activities of the programme have been preparations for the Tbilisi Conference. You are very familiar with the steps we have taken together. One of the first steps was the initiation of a global overview of publications on environmental



education. Next a number of important formal and non-formal education topics were studied, and the results were presented as working documents to the Belgrade International Environmental Education Workshop. The Workshop also studied Unesco/UNEP reports on consultants' missions and a preliminary world survey of environmental education needs and priorities.

The Belgrade Workshop adopted the "Belgrade Charter: A global framework for environmental education". After the Workshop there was a series of meetings of experts and pilot projects in every region of the world.

Now, here at Tbilisi, we look for guidance from governments on their priorities, and on what it is they want us to do. You will review two years of study and experimentation, and an enormous collection of information from intergovernmental meetings. The recommendations you make here for further action will be what your government representatives will have to consider at the Governing Council of UNEP, and at the General Conference of Unesco. In essence, you will consider what should be an Action Plan for promoting and developing environmental education and training nationally, regionally and globally.

But, let us make no mistakes, the success of any international undertaking in the field of environmental education and training most assuredly depends on action at the local level. Not only are national participation and financial provision essential, but the implementation of the enormous task of changing approaches to education must be done by nationals within each country.

In conclusion, Mr. President, I would emphasize the magnitude and the urgency of the task before you. What, after all, is at stake? To answer this, I would request you to consider what our planet would be like today if previous generations had known and implemented the environmental knowledge we now possess within the framework of more just world economic relationships. Forests would exist where there is now only denuded land, a great deal of the earth's surface which is unproductive would still be yielding rich harvests, and we would have been breathing cleaner air, having access to cleaner water and in almost all probability had a much better picture than the dim one we see today of mass poverty devastating the lives of millions and millions of our fellow companions on this space-ship earth. We have not yet reached the point of no return, but surely, in facing the colossal problems of today's world both nationally and globally we are going uphill. Not only that, but we are also surely racing against time. We have to work together now, right now, if we are to avoid catastrophes foreseen by the doomsday watchers. We have a great challenge and an enormous responsibility to bring about, the revolution in human consciousness and behaviour that is imperative in our era. Plato, writing of Attica, lamented so many years ago, "Our land, compared to what it was, is like the skeleton of a body wasted by disease. The plump soft spots have vanished and all that remains is the carcass". By our action or inaction now, we will determine whether the same will be said a few decades from now, not of Attica, but of the world as a whole.

Address by Mr. Amadou-Mahtar M'Bow  
 Director-General of the United Nations Educational,  
 Scientific and Cultural Organization (Unesco)

Mr. Deputy Chairman of the Council of Ministers  
 of the Union of Soviet Socialist Republics,  
 Honourable leaders of the Georgian Soviet  
 Socialist Republic,  
 Mr. Chairman of the National Organizing  
 Committee,  
 Mr. Executive Director of the United Nations  
 Environment Programme,  
 Your Excellencies,  
 Ladies and Gentlemen,

It is a real pleasure for me today to open, with  
 you, the Intergovernmental Conference on Environ-  
 mental Education.

I should first of all like to express my deep  
 gratitude to Mr. Vladimir Alekseyevich Kirillin,  
 Deputy Chairman of the Council of Ministers of  
 the USSR, who, by honouring this inaugural meet-  
 ing with his presence, has shown the importance  
 attached by his country to the Conference, and to  
 ask him to convey my most cordial thanks to the  
 Government of the Soviet Union, to the Soviet  
 people and to the authorities of the Georgian Soviet  
 Socialist Republic for the warm welcome they  
 have extended to us in this beautiful capital city.

At a time when the Soviet Union is celebrat-  
 ing the sixtieth anniversary of the October Social-  
 ist Revolution and has just adopted a new Consti-  
 tution charting the course for its future develop-  
 ment, looking back on the results it has obtained  
 since its foundation, we find them to be truly  
 spectacular: in the course of a few decades the  
 Soviet Union has reached a high level of develop-  
 ment, which is shown by its remarkable achieve-  
 ments in all areas of economic, social and cul-  
 tural life.

All those who have anything to do with Unesco's  
 work know, in particular, what has been achieved  
 in education by means of sustained and untiring  
 efforts. Less than 15 years after the October  
 Revolution, universal, free and compulsory pri-  
 mary education had been established, an objective  
 which, at the beginning of the century, it was  
 reckoned Russia would need at least a hundred  
 years to attain. Adult illiteracy was eliminated  
 in the space of 20 to 25 years. Many nationalities,  
 a large number of which previously had no written  
 language, obtained access to education in their  
 mother tongues. Today three-quarters of the

working population of the USSR have had complete  
 or partial secondary or higher education, and  
 the country has succeeded in establishing uni-  
 versal secondary education which is now com-  
 pulsory under the new Constitution.

Scientific and technical development has pro-  
 ceeded at a similar pace, attaining an extremely  
 high level. Thus, to take just two examples, one-  
 quarter of the world's research personnel today  
 work in the Soviet Union, whilst ten days ago  
 this country celebrated the twentieth anniversary  
 of the putting into orbit of "Sputnik", the first  
 artificial earth satellite.

In the field of culture, the many peoples of  
 the Soviet Union, while forming one vast com-  
 munity, have each been able to preserve that  
 which is most valuable in their traditions and  
 combine them with modern trends, at the same  
 time asserting their own cultural identity. And  
 in this ancient land which is our host, we can  
 sense, in the serene hospitality extended to us,  
 that harmony which has always reigned between  
 man and nature and which so deeply imbues art  
 and life in Georgia.

To come now to the subject of this Confer-  
 ence, I might add that, through the work it has  
 done to preserve and improve the environment  
 and through its achievements in the field of en-  
 vironmental education, the Soviet Union has often  
 accomplished pioneering work, to which I am  
 happy to pay tribute.

On the occasion of the sixtieth anniversary  
 of the founding of the Soviet State, I believe then  
 that I am speaking for all those gathered together  
 in this hall when I extend to the Government of  
 the USSR and to the Soviet people my sincerest  
 wishes for prosperity, happiness and peace.

I should like also to extend a welcome to the  
 eminent representatives of Member States from  
 all regions of the world gathered here, and to  
 the eminent persons sent by their countries as  
 observers.

I give cordial greetings to the representatives  
 of the United Nations and of the sister agencies in  
 the United Nations system, and to the representa-  
 tives of governmental and non-governmental organ-  
 izations, whose numbers are sufficient evidence of  
 the importance they attach to environmental educa-  
 tion and to Unesco's efforts in this field.

I would also like to say how pleased I am to see among us Mr. Mostapha Tolba, the Executive Director of the United Nations Environment Programme. I am glad to be able to take this opportunity of thanking him for the decisive contribution that the United Nations Environment Programme, under his skilled and forceful leadership, has made to Unesco, both in encouraging the development of environmental education and training and, particularly, in organizing the Conference which is now opening.

Ladies and Gentlemen,

This is the first time in the history of international co-operation that representatives of governments of all regions of the world have come together to consider how education can contribute to the solution of the problems raised by the protection of the human environment and to make recommendations aimed at guiding national, regional and international activity in this field. This is an indication of how important your discussions will be, since this Conference is being held at a time when environmental problems have, because of the constraints they impose on human life, become a major cause of concern to the public, to the scientific community and to governments. As stated in the Declaration on the Human Environment adopted by the United Nations Conference held in Stockholm in June 1972, "to defend and improve the human environment for present and future generations has become an imperative goal for mankind - a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development".

Although it is not the purpose of this Conference to discuss environmental problems as such but the part that education has to play in helping to forestall and solve them, you will perhaps allow me briefly to review the subjects of concern which environmental education aims to cover and which justify the increasing importance that, by general agreement, is attached to it almost everywhere.

Gradually, in recent decades, the dangers of unreasonable exploitation of natural resources have become apparent and there has been a realization of the disturbances of the natural balance which might affect all living beings, and human societies in particular, as a result of their large-scale industrial utilization and, in the long term, the exhaustion of those resources. In short, the need for better management of our earthly heritage has come to be recognized.

It was thus that, in the early 1950s, Unesco came to embark on environmental studies, research and training activities. I shall cite in this connection the pilot programme on the arid zones still, unfortunately, as topical as ever, as proved by the repeated disasters which have occurred in the Sahelian countries of Africa, the lessons of which were echoed at the recent conference on desertification in Nairobi. Although on a smaller scale, the programme relating to the humid tropical regions is also worthy of mention. I should

like particularly to point out, however, that all the environmental activities undertaken by Unesco have been further extended in the Programme on Man and the Biosphere (MAB) launched by the Organization in 1971. This Programme, which enjoys wide international participation, constitutes an essential framework not only for the rational enhancement and preservation of the environment, but for training and education in this field.

For all the importance of an activity which has thus been going on for a quarter of a century, it is mainly in the last decade, and particularly since the United Nations Conference on the Human Environment, that a vast and intensive effort has developed to think through the problems of the environment and define their consequences for mankind more clearly.

From an outlook confined to the physical and biological aspects of the environment, there has been a gradual transition to a broader conception of the question which, while giving those aspects their proper share of attention, also covers the man-made social, economic and technological environment so as to arrive at a comprehensive view of the many and complex interrelationships between them. It has thus become clear that an effort was needed to identify and at the same time solve a vast array of apparently distinct but in fact indissociable problems, such as the deterioration and depletion of natural resources, pollution and disamenities of every kind, difficulties brought about for man by life in the new - because utterly artificial, in the basic sense of the word - environment represented by large conurbations, and the very serious difficulties encountered by most countries in the fields of health, nutrition and education. The rational use and constant improvement of the environmental potential for the good of mankind requires an all-embracing and dynamic view of these many aspects of the problem, together with equally varied and judiciously co-ordinated measures to deal with them.

It is understandable, in these circumstances, that environmental questions, like all those where man's future is at stake, should have often given rise to controversy; but, for all the diversity of points of view, the fundamental idea that protection of the environment is a many-sided task which cannot be carried out without taking account of those socio-economic factors which have usually been the very cause of the problems has finally prevailed.

There is nothing surprising about this when we consider that in fact these issues tie in with all those raised by development and cannot be dissociated from them. Protection of the environment is a necessary dimension of development: if we are to take effective action, the objectives and strategies relating to the environment and to development must be combined and co-ordinated in the framework of long-term planning.

In a world where enormous disparities exist, the general problems of development, and therefore those of the environment, of course vary according to particular circumstances in each

country, and it is legitimate and even desirable that all States should define and apply, as is their sovereign right, their own policy in these fields. There are, however, certain common denominators.

As the motto of the Stockholm Conference - "one world" - indicates, the biosphere knows no frontiers. The growth of some depends greatly upon the resources of others. Exchanges of goods, people and ideas are common practice. Progress in communications is making the world smaller. The idea of the interdependence of human societies and of their resources - equality, sovereignty and mutual respect being observed - is gradually coming to be recognized. All these considerations give the general problem of development and the environment an international dimension which, far from cancelling out its specific national and regional character, enhances it and to a certain extent helps to create a better insight into possible solutions.

To recognize the interdependence of human societies is to accept the fact that any rational policy for the environment calls for the organization of a new system of relationships between nations, not only as regards the exploitation of resources which belong to all, such as the oceans and the atmosphere, but also in economic, scientific and technological exchanges. It is obvious that any serious harm done to the environment in one region or country may, sooner or later, have repercussions on the whole biosphere, and that an approach to development which benefits some at the expense of others makes for inequitable management of mankind's common resources and cannot but cause deplorable tensions for all. The gradual introduction of a new international order, to which Unesco wishes to contribute to the fullest of its ability, implies that the problems of the environment, like those of development, must be approached in a spirit of solidarity and justice.

If they wish to preserve and mould their environment, the nations of the world must become aware of their moral and material responsibilities. This will involve awareness of the essential role of education, in the broadest sense of the word, which can provide the knowledge and inculcate the values which will enable them to understand the problems involved and to recognize the vital importance of what is at stake, and, above all, it will stimulate the will to take action, i.e. to acquire the necessary knowledge and skills. But if education is thus to become the driving force behind the efforts to safeguard the environment, it must be reoriented in the light of this new awareness and base its approach, its content and its methods on a genuine ethos of the environment at national and world level.

We thus have some idea of the magnitude of the tasks to be accomplished.

Before education can be reoriented in this way, there will have to be some clarification of the concepts involved. This is why one of the most important items on the provisional agenda before you concerns "the role of education in facing the challenges of environmental problems". In an area as new, after all, as that of environmental

education, clarification of the concepts and principles which should guide our action is of crucial importance. What must be done is to state as clearly as possible not only what is meant by environmental education, but also, indeed above all, its specific functions as part of the general effort to develop and bring about a renewal in education, in order to prepare each individual squarely to shoulder his responsibilities.

This is not, of course, the first time the question of the role and nature of environmental education is being discussed; but we have now passed the stage of exchanging fragmentary information and knowledge on specific environmental problems, such as that of pollution, the deterioration of the natural environment or the conservation of resources. A more ambitious task now faces the international community: that of devising and putting into effect a type of education and training which will enable individuals of all ages and from all backgrounds, to assimilate the values, the basic concepts and the practical knowledge which will help them to an awareness of environmental problems, help them to adapt their everyday behaviour accordingly and thus make a useful contribution to the joint effort to safeguard the environment.

On this question of knowledge, it should be the responsibility of education to promote understanding of the role of the various biological, physical and socio-economic factors on whose interaction the very nature of the environment depends. A distinction should, of course, be drawn between specialists and the non-specialist public, children or adults, who will be made aware of these questions and introduced to them by education both in and out of the formal education system and by wide use of the mass media.

As far as specialists are concerned, it seems to me that education should inculcate in the professional groups whose action and influence on the environment are - sometimes without their realizing it - considerable, the knowledge which will give them a clear idea of the consequences which their decisions and actions are likely to have in this sphere both in the short and the long term and thus of the extent of their responsibility. Detailed knowledge should also, of course, be dispensed, within the context of their specialized training, to all scientists and technicians who will be required, in whatever capacity, to engage in work or research relating to the environment.

Environmental education should also, in respect of ethical and aesthetic values as in respect of economic considerations, promote attitudes which will encourage individuals to discipline themselves, first of all in order not to impair the quality of the environment, but also in order to play a positive role in collective action to improve it. In this connection, I believe stress should be laid on the role of environmental education in developing a sense of responsibility and solidarity at national level and between different countries and regions, which, as I have said, I regard as one of the bases for genuine international understanding.

Lastly, environmental education could not be effective if it did not help to develop, in the members of every community (in different ways, of course, depending on the groups involved), a body of knowledge and a critical sense enabling them to be informed participants in the planning, implementation and monitoring of measures to preserve and improve the environment.

The adoption of these objectives will, it seems to me, call for substantial changes both in the conception and structure of educational content and in the methodology and organization of the process of instruction. In this area, as in many others where we are experiencing the effects of an undeniable acceleration of historical processes, education must, while retaining its basic purpose, be made more relevant and more socially effective by being geared more closely to life, by being related to the practical problems faced by the community, by the adoption of a problem-solving approach and by leaving considerable room for participation, i.e. individual and collective initiative. An education based on these principles will be able to benefit from the help of specialists in various professional fields, and to join forces with the various groups and bodies which have a role to play in the everyday life of the community. It is in such a context that individuals and social groups feel most concern for the quality of the environment and will be able to find appropriate means of improving it.

This kind of approach would also pave the way for a renewal of the educational process which, transcending the traditional division between disciplines, competence in which ends up as being considered an end in itself, aims, within a context of action and participation, to enable each individual to appreciate the many-sided nature of the environment. Thus, in the final analysis, the aim is to achieve an interdisciplinary education. But, however worth while this may appear in many respects, it must be admitted that it is a difficult undertaking and can only be carried out gradually, depending on each country's available educational resources and stage of development.

There is another essential aspect of environmental education which is rightly stressed in your main working document: the fact that it is ongoing and forward-looking. Since the industrial revolution, and even more since the scientific and technical revolution which is a feature of the second half of our century, the social and cultural environments have undergone changes just as profound as those affecting the natural environment. The rapid increase in scientific knowledge and in its technological applications has prodigiously increased man's influence on his environment. For the first time in the history of mankind, man's knowledge, his technical skills and certain of his values are undergoing sometimes radical change within a single life-span. Education, if its purpose is to facilitate the solution of environmental problems, should therefore be an ongoing process. In order to prevent knowledge previously acquired from becoming out of date, and to ensure the lasting effectiveness of the action undertaken,

environmental education must constantly restate its guiding principles, renew its content and its methods and encourage the constant readjustment of the various social groups to new situations.

I now come to another item of the provisional agenda before you, that concerning "strategies for the development of environmental education at the national level". Of course these strategies must be determined by each State in the light of the educational objectives which it has set itself, and of its own social, economic and ecological circumstances. The scope and the universal implications of environmental problems, as well as the presence here of delegations from most of the States in the world and of observers from a great number of intergovernmental and non-governmental organizations, nevertheless make this Conference an ideal opportunity to identify and evaluate ways in which environmental education can make headway.

Studies conducted by Unesco within the framework of the International Environmental Education Programme, together with the meetings of experts recently organized in all the different regions of the world, the conclusions of which are reflected in the main working document and in the reference documents submitted to you, make it clear that considerable efforts have already been made to bring subjects relating to the environment into the programmes of formal and non-formal education and into teacher-training courses, and to create the necessary teaching aids. Despite the scale of these efforts, they are still inadequate when one considers the significance of the role which education could play in helping to safeguard the environment.

They are inadequate first of all in that they do not, in general, cover the whole of the education system, and secondly in that the different levels or types of education are not by any means equally involved. The Member States' replies to the international survey on environmental education needs and priorities conducted by Unesco revealed considerable shortcomings, particularly in secondary education, in teacher training and, even more, in non-formal education and the training of teachers in this field. Disparities are also evident in respect of the quality of the methods used, the nature of the content and the form taken by the activities involved. And although many initiatives have been taken, they have not always been based on a clear and comprehensive conception of environmental education, or, for that matter, of the ultimate aims of education in general.

If environmental education is to achieve its objectives, it is not enough for it to be an adjunct to the normal curriculum. Environmental concerns must be seen as an ever-present dimension and function of education in the broadest sense of the term, whether formal or non-formal, in all its forms and at all levels. One might go even further and say that environmental education should be considered a key component in policies for educational renewal and development. Although the difficulties are not by any means negligible, this is an undertaking which deserves whole-hearted support. The objectives of education which relate

to understanding of the environment and the solution of its problems have yet to be explicitly formulated. There is also a need to identify more clearly the contribution which could be made by the different disciplines to the definition of the content of environmental education. Is there not also a need to devise, for the sake of both teachers and pupils, methodologies for teaching and learning which enable education to tackle the real, complex problems of the environment using an interdisciplinary approach? And, so that the education provided may not remain theoretical, lacking any real impact on behaviour, should we not seek to organize the educational process in such a way as to involve individuals in the practical task of protecting and improving the environment?

In order to make the necessary changes to incorporate environmental education in the general system of education, renewal must be based on research and experiment, an effort that is all the more necessary since one is, to a very large extent, concerned with innovations.

This amounts to saying that, in order to achieve the desired effect, environmental education must be based on the coherent application of a whole series of measures including policy definition, legislative measures, conceptual efforts, research, information work both among the public and among those in positions of responsibility, the initial training and in-service training of those in charge of environmental questions, the preparation of teaching materials and the use of all the audio-visual media.

The use of these media, particularly press, radio and television, deserves particular attention: because of their flexibility and the wide audience they reach, educational programmes using these media are particularly appropriate means of establishing contact with broad sectors of the population and also with certain groups that for a variety of reasons remain outside conventional educational systems. A considerable number of countries have, indeed, for some years been using the mass media to disseminate scientific knowledge on the environment and to stimulate public awareness. In certain developing countries, the use of media such as radio and television has proved to be of effective use in the general and functional education of the rural population. In some parts of the world, educational broadcasting is an effective - if not the only - means of bringing geographically isolated communities into the national community as a whole and of providing them with an education that helps them face the problems of their immediate environment.

But a considerable effort still needs to be made in order to increase the scope, quality and relevance of the environmental education transmitted by the mass media. It would therefore seem desirable to give special attention to the further improvement of the procedures that seek to develop, co-ordinate and guide the programmes thus disseminated, so as to ensure the active participation of those responsible for the production and transmission of such programmes in the formulation of environmental education policies, with a view to dovetailing these programmes

with those of formal and non-formal education.

I should like to stress the importance of the item on your agenda entitled "Regional and international co-operation for the development of environmental education: needs and modalities". Indeed, if the unity of purpose of all peoples and of all governments is necessary in order to forestall and solve environmental problems, it can be said that environmental education provides, as regards co-operation between countries and groups of countries in the same region, a field of action where it is indispensable and which is ideally suited to it.

During the last few years, several United Nations organizations and programmes have intensified their activities, either in the area of research and planning, or in that of environmental education and training. Similarly, a growing number of governmental and non-governmental organizations, several of which are represented here today, have made an invaluable contribution to the work of promoting and developing this education, whilst Unesco has devised and put into effect a series of activities which it proposes to intensify in the light of the guidelines and recommendations that you may wish to formulate.

May I make special reference to the fact that, since 1975, pursuant to Recommendation 96 of the United Nations Conference on the Human Environment in Stockholm, Unesco and the United Nations Environment Programme have jointly undertaken a vast environmental education programme in the development of which this Conference may well mark a decisive stage. This recommendation expressed the wish that "the organizations of the United Nations system, especially Unesco should [...] take the necessary steps to establish an international programme in environmental education, interdisciplinary in approach, in school and out of school, encompassing all levels of education and directed towards the general public ...". The first phase in the international environmental education programme whose field of action and activities are described in one of the reference documents prepared for you, has been devoted to the definition and systematization of the guiding principles, and to the development of exchanges of information and the encouragement of innovatory experiments. The results obtained during this initial phase are so promising that Unesco and UNEP have already taken the necessary steps to ensure the continuation of the programme, it being understood, may I repeat, that the objectives and future activities of this programme will depend to a very considerable extent on the recommendations to which your discussions lead.

Moreover, several of Unesco's other programmes in education contain elements relating to the environment, more particularly the programmes for integrated science and technology education, the teaching of biology, population education, literacy training and adult education, and programmes of education for rural and agricultural development, not to mention youth activities and environmental education through the arts and literature.

This contribution by Unesco to the understanding, conservation and improvement of the environment is to undergo further developments under the Medium-Term Plan (1977-1982) which the General Conference adopted at its nineteenth session held in Nairobi in November 1976. As you are aware, this Plan organizes Unesco's activities around objectives which derive from the major problems of the modern world. It is, then, natural that it should give prominence to problems of development, education and communication, science and technology policies and questions concerning the interaction between man and his environment. Within this general framework, the Plan defines the contributions that science, education and communication can make in anticipating and solving current environmental problems, and in protecting and conserving the cultural heritage, more especially, monuments and sites, which constitute particularly important elements of the human environment. I should like, in this connection, to express not only the hope, but the firm conviction that, by means of the guidelines and recommendations that will result from your work, you will give the Secretariat of Unesco invaluable aid in regard to the implementation of the Medium-Term Plan and the preparation of the Draft Programme and Budget for the 1979-1980 biennium in all matters concerning environmental education, which, I know, reflects a major concern of your States. May I express to you, in advance, my very sincere thanks for this.

Within the context of close co-operation with a view to the promotion and development of environmental education, you may, perhaps, wish to pay special attention to the identification of priority aspects of common interest which call for concerted action at the international and regional levels.

Thus, for instance, co-operation can play an important role in the systematization of the exchange of information on significant experiments in the area of environmental education. By fostering the identification, evaluation and dissemination of such data, international co-operation could indeed render useful service to Member States by enabling them to test certain innovations, to diversify their activities, and make their efforts in the sphere of environmental education more effective. It is with this in mind that Unesco intends to strengthen and broaden the international information network that it has already established under the International Environmental Education Programme.

Similarly, it would be desirable to determine the contribution that can be made by international co-operation to the training of teachers, planners and administrators in order to familiarize them with the different aspects of the environment and enable them to introduce environmental education components into their respective activities. Intensive regional and subregional initial and in-service training courses would seem, because of the results they achieve, to be particularly useful. Special agreements between countries for co-operation in the joint preparation and use of

teaching materials could help to meet needs more effectively while reducing costs.

There is, lastly, a further domain in which co-operation could represent an important factor, that of research and experiment designed to foster innovations affecting educational content, methods and means.

At the same time you will no doubt wish to define the measures to be taken to ensure efficient co-ordination and a greater degree of complementarity between endeavours, projects and activities undertaken at the international, regional and national levels by the agencies and programmes of the United Nations system and by other inter-governmental and non-governmental organizations. This would, indeed, seem to be vital if we wish to ensure the optimum use of available technical and financial resources, particularly by avoiding duplication, by the closer dovetailing of the various activities and by taking the greatest possible advantage of existing machinery.

Within this framework of co-operation, international non-governmental organizations, many of which are already carrying out activities in environmental education - and I should like to make special mention here of the International Union for the Conservation of Nature and Natural Resources - are already playing and have still to play a vitally important role, which I am happy to acclaim.

Lastly, within this context you will certainly be making recommendations to Unesco and UNEP and to the other international organizations, recommendations which, having due regard for the respective fields of competence and terms of reference of these organizations, should guide their action more effectively in the service of your countries. It cannot be over-emphasized, in this respect, that combined action, if it is to be really effective, must be based on a judicious and jointly agreed division of tasks, which obviates any overlapping of activities that would lead to dispersion, and any additional expenditure for Member States.

Ladies and gentlemen, the concern that is ours today as regards the environment is bound to become more and more acute, at a period in history when individuals and communities are increasingly aware of the perils that certain of man's actions constitute for the fundamental balances of the biosphere. We cannot conceal or underestimate the seriousness and the complexity of problems such as the incessant increase in all types of pollution, the wastage and often irreparable destruction of natural resources or the deterioration of living and working environments, for the situation that makes them possible jeopardizes the full development of mankind as a whole. Their existence is a challenge to the civic spirit, to the sense of responsibility and the will to act of all men and women and, more especially, political leaders, scientists, planners, technicians and educationists.

However disquieting these dangers may be, I am for my own part convinced that man will, through his powers of thought and of action, be able to tackle the present and future problems of

the environment, since it will clearly be his wish to reconcile development with the need to safeguard and enhance his environment, i.e. to handle with caution the instruments with which science and technology provide him and adopt an ethical line of conduct that will enable him to act as a rational being, anxious to improve for himself and for posterity his natural and social environment. In this undertaking, I am convinced, education can and will play a decisive role using the

ways and means that this Conference will help to define and systematize, thus marking a date in the history of this long march of progress whereby mankind constantly succeeds in meeting the challenges with which its own future faces it.

Ladies and gentlemen, the issues at stake in the discussions which are about to begin are considerable and this is why, concerned as I am for the interests of all the peoples you represent, I extend to you, in all sincerity, my warmest wishes for the full success of your work.



### ANNEX III

#### CLOSING SPEECHES

Address by Mr. Amadou-Mahtar M'Bow  
Director-General of the United Nations Educational,  
Scientific and Cultural Organization (Unesco)

Mr. President,  
Your Excellencies,  
Ladies and Gentlemen,

At the moment when, after two weeks of unremitting effort, this Conference draws to its close, my first duty and one which it gives me special pleasure to perform, is to thank the authorities of the host country who have been so generous in welcoming it and have provided all the necessary facilities for its proper functioning. The message of welcome addressed to the Conference by His Excellency Leonid Ilyich Brezhnev, Chairman of the Presidium of the Supreme Soviet of the USSR, has been an invaluable source of encouragement. I should like, on my own behalf and on behalf of you all, to express my warm gratitude to him. May I also express my thanks to the Government and to the people of the Georgian Soviet Socialist Republic who have created an atmosphere of warmth around us by receiving us so cordially in Tbilisi, their capital, a crossroads of many peoples, whose long history has produced a responsiveness and sympathy towards other cultures.

I should like to thank all the participants, who have spared no effort to stimulate and enrich the discussions, as well as the organizations and programmes of the United Nations, among which, of course, a special place belongs to the United Nations Environment Programme, so closely associated in the preparation and proceedings of this Conference, for which it has given Unesco its full and generous co-operation. I am especially grateful to its Executive Director, Dr. Tolba, to whom I am bound by a friendship of long standing. I should also like to say how much I have appreciated the contributions of the observers from non-Member States, from other intergovernmental organizations and international non-governmental organizations, whose interest in environmental problems is reflected in their strong representation and active participation in discussions.

I have, finally, a special debt of gratitude to pay to your President, Dr. Gvishiani, and to the Vice-Presidents who bore a large share of his high responsibility for guiding your discussions. All of them evinced a lofty vision and a courteous, amiable authority which made it possible for the Conference to carry out, within the anticipated

time-limit, a task which was by no means simple. I should like to extend very warm thanks to the Chairman of the Commission, Mrs. Shah, who performed her task with a competence and firmness that in no way detracted from her feminine charm, and to the Rapporteur-General, Mr. George Francis, whose objectivity and persevering work have enabled the results of your proceedings to be faithfully recorded. I cannot, lastly, overlook the Rapporteur of the Commission, Mr. Hamada, who, with great skill and accuracy, reported the debate on an essential agenda item. You have, every one of you, done much for the success of this Conference, which is the culmination of your endeavours.

For one can, I am firmly convinced, speak of success. I shall not hesitate to say that there was no advance guarantee of such an outcome. Any major conference, however carefully prepared, is something of a gamble and the Conference that is ending on a successful note today, far from being an exception to the rule, presented perhaps special difficulties: the first to tackle, at this level, the complex and relatively new problem of environmental education, it had to live up to the expectations that the very importance of the issue at stake raised. Forming part of the follow-on from the conference organized by the United Nations in Stockholm on the human environment, it had to identify its implications for the field of education, defining concepts which, because of the variety of national situations and practices, did not lend themselves easily to formulation. It had to be both a milestone and a starting point. This is, I believe, what you have succeeded in doing, for success in such a case is essentially due to the contribution made by participants to the discussions. Your first contribution to the success of the Conference has certainly been the exemplary spirit of objectivity and conciliation which you have shown throughout and which is reflected in striking manner in the recommendations which have all been unanimously approved, without any formal vote, and in the Tbilisi Declaration, which you have just adopted by acclamation. The succinct, sober text of this Declaration, whose every word is carefully weighed, will enable all those who have not

followed or will not read the report of your discussions to find their faithful reflection therein, to understand in clearer terms what education can and must do in response to the urgent, serious problems that protection of the environment involves, and to gauge the magnitude of the task to be accomplished in the national, regional and international context. I earnestly trust that the appeal for action and solidarity that it makes to all will be heeded.

You have, furthermore, made this Conference the occasion for an extremely rich and constructive exchange of views, sustained as it was by searching reflection and the impressive sum of experiments and achievements, to which the many reports submitted by your respective delegations bear eloquent witness. You have also brought a conviction to the discussions without which they would not have had any real meaning: I mean the certainty that the threats that man has created for himself and his fellow creatures, and for the earth that sustains them, can be dispelled by the exercise of his reason and the commitment of his resolve. Nothing is lost and nothing is inevitable if awareness serves as a starting point for a search for and putting into effect of solutions, for which science and technology will provide the basis, on condition, however, that they are guided by a sense of equity and solidarity. You were, therefore, right to refer to a new international order, on which the hope of many peoples rests but which still remains to be established: in the same way as development, with which it is linked by many and varied relationships, as you have rightly pointed out, the protection and the improvement of the environment must be placed within the context of constant attention to the needs and aspirations of all men and women wherever they live on earth, of respect for the fundamental balances of nature, and the seeking of more controlled growth the repercussions of which will not, in the long run, constitute a threat for the human species or for natural resources. From the very gravity of the perils, you have drawn an optimistic conclusion, inspired by your faith in man, that education can help him to triumph over himself and prepare him for the exercise of his responsibilities.

It would, of course, be an illusion to believe that education can solve all the problems raised by the complex and often unforeseeable workings of all the various social and technical factors in their state of rapid flux and in their many and varied interactions. Without attempting a definition - which the double specificity of educational conceptions and of the environmental situation in the various countries would make impossible - you have, nevertheless, succeeded, with prudence and realism, in defining the role of education in meeting the challenge of environmental problems. Considerable conceptual progress, in which I see one of the major achievements of this Conference, has thus been recorded.

I am particularly glad, in this respect, to note that the Conference has endorsed the analysis and statement of the problem proposed by Unesco in the working document submitted to you. You

have concurred in the belief that education, assisted by the mass media, should arouse in all, whatever their age, in the context both of formal and of non-formal education, a broad awareness of environmental problems based on objective information; but also that it should help to shape the behaviour required of all by protection of the environment, together with the requisite knowledge and know-how to take part in action for this purpose. You have therefore recognized that environmental considerations and subject-matter should be introduced at all levels of the educational process and make up a dimension thereof. Environmental education should therefore permeate the various disciplines, and its interdisciplinary nature may be regarded as the necessary educational approach for reflecting and conveying the fundamental unity and the complexity of life. While it is true that specialized teaching of environmental sciences and of ecology is necessary in order to train specialists in this field, the interdisciplinary approach will also come into its own at the higher level to provide the requisite knowledge and inculcate the necessary awareness as part of the training of all those whose duties or decision-making power give them special responsibilities with regard to the environment. As an essential component of a global, lifelong, problem-solving education which prepares people for active participation, environmental education follows the guiding line which, in most countries, governs the movement of educational systems towards greater relevance, greater realism and better two-way contact with the physical and social environment in order to make man more closely involved in his surroundings. How then may we identify the specificity of environmental education in relation to the educational process as a whole? A reply must perhaps be sought not only in the characteristics of the topic forming its subject-matter and in its exceptional importance for each man and each woman, but no doubt in its ethical content: for, as you have made clear, it is upon a new ethos of solidarity and respect for nature and for other people, those of past generations who live on in the heritage they have handed down, and those of the generations to come, that environmental education must be based. It perhaps represents an ideal opportunity to restore to education an ethical function it has sometimes lost and that educators in many countries, over and above the diversity of political options, of philosophies and of beliefs, would like to see it recover, drawing inspiration from the needs and concerns of the contemporary world. By virtue of this characteristic too, as well as those to which I have referred earlier, environmental education can greatly contribute to the renewal of educational systems.

The very consistent conception - but one which is nevertheless sufficiently flexible for adaptation to the variety of situations - which you have thus worked out provides a framework capable of providing guidance for the definition of national strategies and the development of regional and international co-operation. Indeed, the body of ideas you have formulated and the

recommendations you have submitted, the number of which bears witness to the interest of your governments in the topics of the Conference, form the equivalent of a plan of action such as a number of delegations wished to see adopted.

You have defined very fully, in the light of experiments already conducted, all the measures which might be taken on a national scale to ensure that educational content and activities, together with materials and methods and the training of the various categories of educational personnel, meet the requirements of environmental education. You have shown how the educational approach adopted should vary according to the level of the group concerned. You have mentioned the contribution which non-teachers, whose environmental skills may be drawn upon, are able to make to educational action in this field, together with the role of youth movements, clubs, trade unions and other social and occupational groups, in a non-formal context in particular. You have stressed the part incumbent, in the education of the public, on the mass media, which must themselves realize their educational responsibilities, responsibilities proportional to their power to disseminate messages and influence behaviour. You have also highlighted the importance which should be given, in the as yet little explored field of environmental education, to research, experimentation and innovation.

The sheer scale of the measures needed, particularly in the least rich countries, is liable to entail considerable extra financial burdens. Specific in its references to national situations and sometimes in its procedures, environmental education deals to a great extent with problems common to many countries. These are two mutually supporting reasons for intensifying co-operation and exchanges of experience, of methods, of information and documentation, and of research findings, but also of personnel. This co-operation, as your discussions have emphasized, should primarily be organized by Member States themselves.

In addition to bilateral relations, you have shown that many countries attach special importance, as is natural, to developing relations and exchanges with countries close to them geographically and culturally and whose environmental problems take much the same form as their own. It is therefore probable that there is a bright future ahead for subregional co-operation in environmental education, and for regional co-operation, with the active collaboration of intergovernmental organizations established at that level. But you have seen fit to call on the assistance of the entire international community in order to help Member States strengthen their collaboration, and this is the tenor of your appeal to that community.

Your thoughts went first to the international organizations. A good number of your delegations made a point of recalling, and I noted this with great satisfaction, that Unesco, as the United Nations agency with responsibility for education, was the normal framework for such co-operation. In addition to this responsibility under its

Constitution, Unesco possesses a long conceptual and operational experience in the field of education and has, in recent years particularly, undertaken in-depth reflection on overall policies and strategies for the development and renewal of educational systems, of which environmental education is one aspect. I need hardly remind you that there was constant concertation with those responsible for education in Member States throughout both the period of reflection and the operational stage. I may also remind you that Unesco, considering education in the context of development in the broadest sense of the term and from all angles, approaches educational problems in their mutual relationship with those of the exact and natural sciences and the social and human sciences, and of culture and communication: this is the principle underlying the Medium-Term Plan which was adopted by the General Conference at its nineteenth session and which integrates the Organization's activities around objectives which are seen as its contribution towards the solution of the major world problems. As I have already taken the opportunity of saying during your debates, the Medium-Term Plan provides for the development of the Organization's action in environmental education, without entering into details concerning the modalities. We shall now be able, in the light of the recommendations which you have just adopted, to intensify the Organization's work in this part of its programme. It seems to me that it is now the right time to move into a more operational phase, in particular by making aid from Unesco available to Member States which would like to launch pilot projects. I would also be willing to consider the possibility of creating a "bank" of experts on environmental education and to intensify the Organization's work in the exchange of experience, in training and in encouraging the production of teaching materials. This will call for some increase in resources, and I intend to put this to the General Conference at its twentieth session. But I must add two further comments: first, Unesco already has a whole infrastructure which could be used to promote environmental education: the Regional Offices for Education and the innovation networks, two more of which will soon be added to the Asian Centre for Educational Innovation for Development; the European Centre for Higher Education and the Centre for Higher Education in Latin America and the Caribbean which will open soon; the Scientific Co-operation Offices and posts; the International Bureau of Education, the International Institute for Educational Planning, the Unesco Institute for Education and the centres for functional literacy and rural development. No doubt some strengthening of these bodies or parts of the Secretariat will be necessary. I am thinking in particular of the appointment of specialists in environmental education to the various Regional Offices for Education and the establishment of training facilities or machinery for co-operation between their Member States. But I am convinced that the strengthening of these infrastructures, which would be a modest one in any case, will cost the Member States less and

at the same time be more effective than the creation of completely new and autonomous bodies, and I felt this to be the view of a very large number of delegations. I also consider that the effectiveness of the action undertaken should be subject to periodic evaluations in accordance with the procedure which I have already made part of the Organization's working practice.

Furthermore, and this is my second comment, Unesco, in increasing the resources which it might allocate for environmental education, does not have any intention - quite the contrary - of isolating itself from the other United Nations agencies which, for different reasons, have an interest in education and training, nor of course from UNEP, which throughout our long and close co-operation, by which I set great store, has shown the importance which it attaches to educational activities connected with its work on the environment. Indeed I think that the time has come for the United Nations Environment Programme to be more active in the role assigned to it by the United Nations General Assembly in resolution 2977 which it adopted at its 27th session in respect of the co-ordination of the environmental activities of all the agencies of the system, bearing in mind their different fields of competence.

Harmonization at the planning stage and at that of programme implementation seems to me to be essential if the system is to serve the community of Member States effectively and avoid all useless duplication of effort.

In the same way, the United Nations Environment Fund should, it seems to me, consider more attentively the funding projects which will be submitted to it by the various agencies of the system acting in their recognized areas of competence. In any case, I, for my part, have the intention of submitting to the Fund, on the terms laid down, requests for funding which will make it possible to carry out the recommendations adopted by your Conference, whether to increase international, regional or subregional action or to meet the special needs of the most disadvantaged Member States.

Finally, I should like to remind you once again that I consider it essential that Unesco should co-operate with other intergovernmental organizations and also with non-governmental organizations, in the front rank of which I have

already had occasion to mention the International Union for the Conservation of Nature and Natural Resources for its invaluable collaboration, and the main teachers' and university organizations. The International Association of Universities has already shown its interest in environmental problems, and some of the projects undertaken in our joint programme could draw invaluable inspiration from your debates. Finally, I should like to add, as you have pointed out, that in a field which calls for the participation of all social groups, international co-operation is taking, and has in fact already taken, the form of contacts between one association and another, one school and another, one university and another and one country and another. Modest financial encouragement could enable such forms of co-operation to develop usefully. And I am, of course, counting very much on the work which the National Commissions for Unesco and the National Committees to be set up for environmental education will be able jointly and severally to do.

Mr. President,  
Your Excellencies,  
Ladies and Gentlemen,

No one knows better than yourselves how urgent is the need for action to protect the environment and perhaps even more for education to this end, since the fruits of education ripen slowly: the men of tomorrow must be educated today. There is therefore no need for me to convince you of the obvious or to win you over to ideas which you have expressed with a forcefulness for which the international community can be rightly grateful to you. I should like, before taking my leave of you, to express a wish: that on your return to your respective countries you will be willing to pursue the work begun in Tbilisi, as I undertake to do myself, by tirelessly reminding all men that they share the same destiny and must unite to protect the indivisible heritage of an earth the everlasting nature of whose resources has sometimes been overestimated; and that is the task of education, by giving them a clear view of the problems to be tackled, to inspire in them the selflessness which is the source of all wisdom. I do not doubt that this appeal will be heeded.

Address by Mr. Svane Evteev  
Assistant Executive Director,  
United Nations Environment Programme (UNEP)

Mr. President,  
Mr. Director-General,  
Distinguished Delegates,  
Ladies and Gentlemen,

Permit me, on behalf of the Executive Director of UNEP, Dr. M. Tolba, and on his instructions, to express the certainty and conviction that the Conference on Environmental Education was an important event in the solution of environmental problems.

The discussions at Tbilisi were very important for us.

We came here to participate, but principally to hear what the representatives of Member States have to say, what direction they recommend for subsequent action.

The Tbilisi Conference was the result of three years of efforts, primarily by Unesco and UNEP, but also by a large number of specialists, experts and country representatives who took part in the Belgrade symposium and the series of regional meetings, as well as of co-operation with non-governmental organizations, in particular with the International Union for the Conservation of Nature and Natural Resources.

The discussion of problems of environmental education over the past two weeks has demonstrated their urgency and importance for the solution of environmental problems and the whole range of questions which were discussed at the international conferences on population, food, water and desertification.

I must say that a great deal has become clear to us after the discussions which have taken place at Tbilisi.

The forthcoming sixth session of the UNEP Governing Council will discuss questions of environmental education in detail, taking into account the recommendations of the Tbilisi Conference.

It seems to us that the most important thing now is concrete action, and we are convinced that the Tbilisi Conference and its recommendations will be an important milestone along the road to them.

In the preparations for the Tbilisi Conference, there was active co-operation between Unesco and UNEP. I am sure that this co-operation will be strengthened and expanded in the actions to follow the Tbilisi Conference.

It remains only for me to express, on behalf of the Executive Director of UNEP, Dr. M. Tolba, and in my personal capacity, our heartfelt gratitude to the Government and people of the Soviet Union and the Government and people of the Georgian Soviet Socialist Republic for everything they did to ensure that the Tbilisi Conference would proceed so successfully. A particular word of thanks for the traditional Georgian hospitality.

I am sure that none of us will ever forget the days we have spent at Tbilisi.

Thank you, Mr. Chairman.

Address by H.E. Mr. O.E. Tcherkezia  
 Vice-President of the Minister,  
 Council of the Georgian Soviet Socialist Republic

First of all, allow me to present the apologies of the President of our Conference, Dzhermen Mikhailovich Gvishiani, who, much to his regret, has been unable to come to the closing meeting of the Conference and fulfil his duties as President to the end. On his behalf, therefore, and as instructed by him, I should like to say a few words.

It gives me great satisfaction to note that our Conference is coming to a successful conclusion. In our view, this success has been due to the participants being highly representative, and can be measured by the importance of the Conference's conclusions and recommendations. We can, of course, argue about which of these conclusions or recommendations are more important or deserving of higher priority, and which call for immediate implementation at both international and national level. The main thing, however, and I should like to emphasize this, is that on the whole, all the proposals, conclusions and recommendations, taken together, and the whole spirit of the Conference, represent a vast contribution to the cause of peace and international co-operation.

The great, indeed enormous, quantity of recommendations discussed at our Conference is evidence of its extremely important subject-matter, and of the great responsibility and industriousness displayed by all participants. During the Conference, discussion on education sometimes became entangled with topical questions regarding protection of the environment. We nevertheless feel that this "intermingling" of topics was quite natural, and it testified to the great concern felt by the peoples of the world about the deteriorating state of the human environment.

To my mind, the main achievement of the Conference has been the elucidation of ideas regarding environmental education, and the formulation of a number of methodological bases for such education which are of interest both nationally and internationally. We can see that environmental education is not some sort of mechanical adjunct to general education. We can see that environmental education and its content will change with changing circumstances and according to the progress made in solving environmental problems in different countries and in different regions. It is difficult to imagine any single and permanent "recipe" for ecological education. Nevertheless,

there are certain general assumptions, and general principles, and a general philosophy underlying the definition of education in this field which is valid for all people on earth. It seems to me that it is precisely in this direction that the Conference has taken a significant step forward and made a substantial contribution to the introduction and development of environmental education.

What might seem from the outside to be a motley array of judgements, opinions and proposals expressed during the Conference, betoken in fact the collective reasoning of the peoples of the earth, whose representatives have been brought here, to Tbilisi, by a general concern with the need to solve the serious problems posed by the interrelations of man and nature.

The most characteristic feature or line running through the entire Conference has been the endeavour of participants, in a comprehensive and systematic manner and on an interdisciplinary basis, to propose and formulate aims, principles and bounds for environmental education. On all accounts, this constitutes not only a success for this Conference but also a main line of development for environmental education and its underlying methods in the future.

As I have already said, the success of the Conference has to a great extent depended on the participants, and I should now like to express my gratitude to all delegations for their helpful, constructive approach to the many and complex questions which were raised here. I should also like to thank you all, most heartily, for your active endeavours at the Conference and wish you every success in your work on developing environmental education, and to express my belief that the further development of such education will mean greater success in teaching environmental problems in all countries and regions of our beautiful planet, earth.

I wish to express my deep recognition and gratitude to you, Mr. M'Bow, for your active participation in this Conference, for the extremely close interest you have displayed in all the questions discussed at the Conference, and for the assistance that your advice has afforded to all of us. We are also grateful to the Executive Director of UNEP, Mr. Tolba, for UNEP's contribution to this Conference.

Finally, I should like to express my gratitude to the members of the Unesco Secretariat who have put in a great deal of effort to ensure the success of our Conference. I particularly want to thank and express the sincere gratitude of all of us gathered together in this hall, to our interpreters and translators, without whom we would have been unable to find our way among the highly complex issues of environmental education, and unable to understand one another. The great pressure under which our interpreters and translators have worked should be noted with the highest

degree of recognition by us all. I should also like to thank the Professional and General Services staff of the Secretariat of Unesco, on whose smooth functioning our work depended, together with all those who have been assisting them.

Allow me, with these words, to conclude the work of our Conference, once more to wish all participants success in the noble cause of developing environmental education, and to wish them health and personal success.

Thank you.



## ANNEX IV

### LIST OF DOCUMENTS

#### Working documents

ENVED 1 prov.	Provisional Agenda
ENVED 2 prov.	Provisional Rules of Procedure
UNESCO/ENVED 3	Annotated Provisional Agenda
UNESCO/ENVED 4	Education and the Challenge of Environmental Problems

#### Reference documents

UNESCO/ENVED 5	International Programme in Environmental Education (Unesco-UNEP)
UNESCO/ENVED 6	Needs and Priorities in Environmental Education: An International Survey
UNESCO/ENVED 7	Regional Meetings of Experts on Environmental Education: A Synthetic Report
UNEP/ENVED 8	Major Environmental Problems in Contemporary Society: Document prepared by the United Nations Environment Programme
UNEP/ENVED 9	The United Nations Environment Programme and its Contribution to the Development of Environmental Education and Training: Document prepared by the United Nations Environment Programme
	Trends in Environmental Education

#### Information documents

ED-77/CONF.203/INF.1	General Information
ED-77/CONF.203/INF.2	Suggestions for the Organization of the Work of the Conference
ED-77/CONF.203/INF.3	Provisional Timetable of Work
ED-77/CONF.203/INF.4	List of Documents

LIST OF PARTICIPANTS/LISTE DES PARTICIPANTS/LISTA DE PARTICIPANTES/  
СПИСОК УЧАСТНИКОВ/قائمة المشتركين

Names and titles in the following lists are reproduced as handed in to the Secretariat by the delegations concerned. Countries are shown in the English alphabetical order.

Les noms et titres qui figurent dans les listes ci-après sont reproduits dans la forme où ils ont été communiqués au Secrétariat par les délégations intéressées. Les pays sont mentionnés dans l'ordre alphabétique anglais.

Los nombres y títulos que figuran en las listas siguientes se reproducen en la forma en que las delegaciones interesadas los han comunicado a la Secretaría. Los países se mencionan en el orden alfabético inglés.

Фамилии и звания, указанные в нижеприведенном списке, воспроизводятся в том виде, в каком они были представлены Секретариату соответствующими делегациями. Страны, перечислены в порядке английского алфавита.

أدرجت الأسماء والألقاب في هذه القائمة كما  
قدمتها للسكرتارية الوفود المعنية، ورتبت  
أسماء البلاد بحسب الترتيب الهجائي  
الانجليزي.

I. MEMBER STATES/ETATS MEMBRES/ESTADOS MIEMBROS/  
الدول الأعضاء/ГОСУДАРСТВА-ЧЛЕНЫ

Argentina/Argentine/أرجنتين/أرجنتين

Delegates

Dr. Jorge Adolfo Ratto  
Ministerio de Cultura y Educación  
(Jefe de la Delegación)

Sra. María Elvira Marconatto  
Subsecretaría de Planeamiento Ambiental

Australia/Australie/أستراليا/أستراليا

Delegates

Professor Peter J. Fensham  
Professor of Education  
Morash University, Victoria  
(Head of Delegation)

Mr. Peter G. Bassett  
Second Secretary  
Australian Embassy  
Moscow

Bangladesh/Бангладеш/بنجلاديش

Delegate

Dr. Alaudin Al-Azad  
Education Attaché  
Embassy of Bangladesh  
Moscow

Belgium/Belgique/Bélgica/Бельгия/بلجيكا

Delegates

M. Iris Fays  
Inspecteur de l'enseignement primaire  
(Chef de la délégation)

M. Jan Frans Herpin  
Ambassadeur de Belgique en URSS  
Moscou

M. Jean-Louis Mignot  
Diplomate  
Ambassade de Belgique à Moscou

M. Léon Ronse  
Ministre plénipotentiaire  
Ministère des affaires étrangères  
Bruxelles

**People's Republic of Benin/  
République populaire du Bénin/  
República Popular de Benin/  
Народная Республика Бенин/  
جمهورية بنين الشعبية**

Delegate

M. Léon O. Sacramento  
Président  
Commission nationale pour l'environnement

**Bulgaria/Bulgarie/България/بلغاريا**

Delegates

M. Stoian Shikov  
Secrétaire général du Comité de l'environnement  
auprès du Conseil des ministres  
(Chef de la délégation)

M. Nikolai Boev  
Maître de recherches  
Académie des sciences de Bulgarie

Professeur Peter Pentchev  
Président du Comité national pour le  
Programme hydrologique international  
Président de la Société géographique

M. Vesselin Vassilév  
Secrétaire général adjoint de la Commission  
bulgare pour l'Unesco

Mme Anna Vassiléva  
Fonctionnaire au Ministère de l'éducation  
nationale

**Burundi/Бурунди/بوروندي**

Delegates

M. Joseph Katihabwa  
Professeur à l'Université du Burundi

M. Pancrace Niyimbona  
Conseiller auprès de la Direction générale  
Ministère des travaux publics, de l'équipement  
et du logement

**Byelorussian Soviet Socialist Republic  
République socialiste soviétique de Biélorussie  
República Socialista Soviética de Bielorrusia  
Белорусская Советская  
Социалистическая Республика  
جمهورية بيلوروسيا الاشتراكية السوفيتية**

Delegates

M. Fedor Kapoutskyi  
Vice-Ministre  
(Chef de la délégation)

M. Vladimir Liakhnovitch  
Titulaire d'une chaire à l'Université

M. Vladimir Romanov  
Recteur de l'Institut

**Canada/Canadá/Канада/كندا**

Delegates

M. Yvon Beaulne  
Ambassadeur  
Délégué permanent auprès de l'Unesco  
(Chef de la délégation)

Honourable Gilbert Clements  
Minister of the Environment  
Prince Edward Island  
(Deputy-Head of Delegation)

Mr. Frederick Dawes  
Manager, Human Settlements Programmes  
Canadian International Development Agency  
Ottawa

Dr. Harry K. Fisher  
Assistant Deputy Minister  
Ontario Ministry of Education

Dr. George Francis  
Faculty of Environmental Studies  
University of Waterloo, Ontario

Dr. John Hurnard  
Executive Director  
Development Division  
Saskatchewan Department of Education

Dr Michel Maldague  
Programme interdisciplinaire en aménagement  
du territoire et développement régional  
Université de Laval, Québec

Adviser

M. Guy Choquette  
Ambassade du Canada  
Moscou

**Chad/Tchad/Чад/تشاد**

Delegate

M. Mouta Adji  
Chef du Service national de l'environnement

**Colombia/Colombie/Колумбия/كولومبيا**

Delegate

Sr. Alfonso López-Reina  
Jefe de Planeamiento y Evaluación Curricular  
Instituto Colombiano de Fomento de la  
Enseñanza Superior

**Cuba/Куба/كوبا**

Delegate

Sra. María de la Concepción Pérez Eiriz  
Investigadora  
Academia de Ciencias de Cuba

**Czechoslovakia/Tchécoslovaquie  
Checoslovaquia/Чехословакия  
تشيكوسلوفاكيا**

Delegates

Prof. Premysl Jagos  
Deputy Minister  
Ministry of Education of the Czech Socialist  
Republic, Prague  
(Head of Delegation)

Mr. Alexander Hoschek  
Vice-Minister of the Office of the Government  
of the Slovak Socialist Republic  
Secretary of the Environmental Council of the  
Government of the Slovak Socialist Republic  
Bratislava

Experts

Assistant Professor Jaroslav Koci  
Head of Department  
Ministry of Education of the Czech Socialist  
Republic, Prague

Mr. Ján Pavlec  
Chief Editor  
Czechoslovak Television  
Bratislava

Mr. Antonín Sum  
Secretary of Scientific, Educational and  
Research Committees of the Environmental  
Council of the Government of the Czech  
Socialist Republic, Prague  
(Secretary of the Delegation)

**Democratic People's Republic of Korea/  
République populaire démocratique de Corée/  
República Popular Democrática de Corea/  
Корейская Народно-Демократическая Республика  
جمهورية كوريا الديمقراطية الشعبية**

Delegates

M. Li Hi-Jong  
Président de l'Académie des sciences  
pédagogiques  
(Chef de la délégation)

M. Jo Gyu-II  
Ministère des affaires étrangères

M. An Won-Jun  
Secrétaire général p.i. de la Commission  
nationale de la République populaire démocratique  
de Corée pour l'Unesco

M. Li Du-Riyol  
Ambassade de la République populaire démocratique  
de Corée en Union soviétique

M. Kim Yong-Deuk  
Délégation permanente de la République populaire  
démocratique de Corée auprès de l'Unesco

**Denmark/Danemark/Dinamarca/Дания/الدنمارك**

Delegates

Mrs. Ritt Bjerregaard  
Minister of Education  
(Head of Delegation)

Mr. Bjørn Brynskov  
Under Secretary of State  
Ministry of Education  
(Deputy Head of Delegation)

Mrs. Estrid Bjerregaard  
Head of Division  
Ministry of Education

Mr. Sten Grambye  
Head of Section  
Personal Secretary to the Minister of Education

Mr. Ingolf Leth  
Inspector of Education  
Ministry of Education

Mr. Claus Helweg Ovesen  
Biologist  
Ministry of the Environment

Mr. E. Torp Pedersen  
Educational Inspector  
Ministry of Education

**Ecuador/Equateur/Эквадор/اكوادور**

Delegate

Sr. Plutarco Naranjo  
Embajador de Ecuador en URSS

**Egypt/ Egypte/ Egipto/ Египет / مصر**

Delegates

Dr. Mahmoud Sami Abd-El-Salam  
Head, Environmental Research Division  
National Research Center  
(Head of Delegation)

Dr. Ahmed Abou-Zeid  
Dean, Faculty of Arts  
Alexandria University

Mr. Mahmoud Fouad Emran  
Assistant Secretary-General  
National Commission for Unesco

**Finland/Finlande/Finlandia/Финляндия/فنلندا**

Delegates

Mr. Kalevi Kivistö  
Minister of Education  
(Head of Delegation)

Ms. Kirsti Wartiovaara  
Secretary for Cultural Affairs  
Department of International Relations  
Ministry of Education  
(Deputy Head of Delegation)

Mr. Harry Helenius  
Second Secretary  
Embassy of Finland in Moscow

Mr. Reijo Käkela  
Political Secretary  
Ministry of Education

Mr. Matti Lahdeoja  
Secretary for Scientific Affairs  
Department for Higher Education and Research  
Ministry of Education

Mr. Olli Paasivirta  
Chief Inspector  
Department of Environmental Protection  
Ministry of the Interior

Mr. Pertti Seiskari  
Head of Bureau  
Bureau of National Resources  
Ministry of Agriculture and Forestry

Mr. Kyosti Suonio  
Secretary-General  
Council for Environmental Protection  
Ministry of the Interior

**France/Francia/Франция/فرنسا**

Delegates

M. Louis Dominici  
Conseiller des affaires étrangères  
Directeur de l'information et de l'action  
éducative  
Ministère de la culture et de l'environnement  
(Chef de délégation)

Mme Nathalie Akimoff  
Chargée de mission au Ministère de la culture  
et de l'environnement

M. Guy Chazelles  
Inspecteur pédagogique national  
Ministère de l'agriculture

M. André Giordan  
Professeur-chercheur  
Institut national de recherche pédagogique

M. Francis Lafon  
Conseiller chargé des études et programmes  
Commission nationale de France pour l'Unesco

Mme Geneviève Laurent  
Administrateur civil  
Chef de la Division du contrôle sanitaire de  
l'environnement au Ministère de la santé et de  
la sécurité sociale

M. Jean Pachot  
Administrateur civil  
Sous-directeur des études économiques et  
sociales au Ministère de l'éducation

**German Democratic Republic**  
**République démocratique allemande**  
**República Democrática Alemana**  
**Германская Демократическая Республика**  
**جمهورية ألمانيا الديمقراطية**

Delegates

Mr. Paul-Johann Weigl  
Deputy Minister  
Ministry of Environment Protection and Water  
Management  
(Head of Delegation)

Prof. Dr. Egon Seidel  
Member of the Council for Environment  
Protection at the Council of Ministers of the GDR  
Chairman of the National Committee "Man and  
the Biosphere"  
(Deputy Head of Delegation)

Dr. Lutz-Günther Fleischer  
Vice-President  
Society for the Dissemination of Scientific  
Knowledge

Mr. Rolf Glückauf  
Head of Department  
Institute for Water Management

Mr. Joachim Krause  
Member of the Secretariat of the Commission of  
the GDR for Unesco

#### Experts

Prof. Dr. Rudolf Hundt  
Professor  
University of Halle

Prof. Dr. Peter Loetzsch  
Professor  
Technical University of Dresden

Mr. Rudolf Marquardt  
Deputy Director  
State Secretariat for Vocational Training

Mr. Klaus Tiltsch  
Ministry of Foreign Affairs

**Federal Republic of Germany**  
**République fédérale d'Allemagne**  
**República Federal de Alemania**  
**Федеративная Республика Германии**  
**جمهورية ألمانيا الاتحادية**

#### Delegates

Dr. Horst-Krafft Robert  
Ambassador at Large  
Federal Foreign Office  
Bonn  
(Head of Delegation, 14-20 October 1977)

Mr. Peter Menke-Glueckert  
Ministerial Director  
Federal Ministry of the Interior  
Bonn  
(Head of Delegation, 21-24 October 1977)

Mr. Alfred Dick  
Minister of State  
Ministry of Regional Planning and Environmental  
Matters of Bavaria  
Munich

Professor Dr. Peter Dienel  
University of Wuppertal

Mr. Günter Eulefeld  
Project Director of Environmental Education  
Institute for Science Education (IPN) at the  
University of Kiel

Dr. Konrad Goppel  
Counsellor,  
Ministry of Regional Planning and Environmental  
Matters of Bavaria  
Munich

Mr. Eggert Hartmann  
First Secretary  
Federal Foreign Office  
Bonn

Mrs. Jutta E. Heinz  
Federal Foreign Office  
Bonn

Mr. Jorg Hoffmann  
Counsellor  
Ministry of Education of Baden-Württemberg  
Stuttgart

Dr. Dietmar Plewe  
Counsellor  
Ministry of Labour, Health and Social Affairs  
of Northrhine-Westphalia  
Düsseldorf

Dr. Hans-Wolf Rissom  
Secretary for Education  
German Commission for Unesco  
Cologne

Professor Dr. Peter Schneider  
University of Essen

Dr. Sabine Vollmar  
Counsellor  
Embassy of the Federal Republic of Germany  
in Moscow

#### **Ghana/Гана/غانا**

##### Delegate

Mr. Joseph Kpakpo-Allofey  
Deputy Director of Curriculum Division  
Ministry of Education

#### **Greece/Grèce/Grecia/Грещия/اليونان**

##### Delegates

Mr. Evangelos Kalketenidis  
General Director  
Ministry of the Interior  
(Head of Delegation)

Mrs. Dimitra Katochianos  
Environment Planner  
Center of Planning and Economic Research

#### **Guinea/Guinée/Гвинея/غينيا**

##### Delegate

M. Salim Bah  
Premier secrétaire chargé des affaires  
culturelles  
Ambassade de Guinée à Moscou

**Guinea-Bissau/Guinée Bissau/Гвинея-Бисау/غينيا بيساو**

Delegate

M. Francisco José Fadul  
Chef de Cabinet du Commissaire d'Etat  
Commissariat d'Etat à l'éducation nationale

**India/Inde/Индия/الهند**

Delegates

Mr. I. K. Gujral  
Ambassador  
Indian Embassy in Moscow  
(Head of Delegation)

Professor Srinivasan Krishnaswamy  
Head  
Department of Biological Sciences  
Madurai University

Dr. Madhuri R. Shah (Mrs.)  
Vice-Chancellor  
SNDT Women's University  
Bombay

**Iran/Irán/Иран/ایران**

Delegate

Mr. Ali M. Bidarmaghz  
Third Secretary of the Iranian Imperial Embassy  
in Moscow

**Iraq/Irak/Ирак/العراق**

Delegates

Dr. Khashi Iyada Al-Ma'athidi  
Dean of the Faculty of Education  
Baghdad University  
(Head of Delegation)

Mr. Adil H. Salih Al-Haddad  
Scientific Researcher  
Department of Regional Planning  
Ministry of Planning

Mr. Mohamad Rafik Al-Obaidy  
Director of Information  
Ministry of Health

Mr. Sa'Adoun Rashied Abdullatif Al-Sabaj  
Director  
Follow-Up and Evaluation Division  
Education Ministry

Dr. Ibrahim Muhammed Ahmed Al-Samawi  
Director-General of Human Environment  
Ministry of Health

Mr. Adil Husam Saleh Jaber  
Scientific Researcher  
Environmental Pollution Research Center  
Ministry of Higher Education and Scientific  
Research

Mr. Badri Abdul-Hadi Jawad  
Officer  
Directorate-General of Human Environment

Dr. Saleh M. Mutlak  
Director  
Environmental Pollution Research Center  
Scientific Research Foundation  
Baghdad

**Israel/Israël/Израиль/إسرائيل**

Delegates

Mr. Chaim Kubersky  
Director-General  
Ministry of the Interior  
Chairman  
Interministerial Committee for the Environment  
(Head of Delegation)

Mr. Azaria Alon  
Secretary-General  
Society for the Protection of Nature

Dr. Uri Marinov  
Director  
Environmental Protection Service

Mr. Eliezer Palmor  
Assistant Director  
East European Division  
Ministry of Foreign Affairs

Mr. David Rahman  
Assistant Director-General  
Ministry of Education and Culture  
Chairman  
Committee on Education for the Quality of  
Environment

**Italy/Italic/Italia/Италия/إيطاليا**

Delegates

M. Franco Foschi  
Sous-secrétaire aux Affaires étrangères  
(Chef de la délégation)

M. Enver Bardulla  
Professeur de Pédagogie à l'Université de Parme

M. Sergio Basilo  
Architecte au Ministère des travaux publics  
Direction générale pour l'urbanisme

M. Valerio Giacomini  
Président du Comité MAB  
Institut de botanique de l'Université de Rome

M. Antonio Moroni  
Directeur de l'Institut d'écologie de l'Université  
de Parme

M. Egone Ratzenberger  
Ministère des affaires étrangères

M. Paolo Schmidt  
Expert  
Ministère des affaires étrangères

**Ivory Coast/Côte-d'Ivoire**  
**Costa de Marfil/ Берег Слоновой Кости**  
**ساحل العاج**

#### Delegate

M. Sidi Yaya Thanon  
Inspecteur général de l'éducation nationale  
Président du Comité national pour  
l'environnement

**Japan/Япон/Япон/Япония/اليابان**

#### Delegates

Mr. Kazuhiko Nakayama  
Senior Officer for Science and International  
Affairs  
Ministry of Education, Science and Culture

Mr. Yasuo Sakakibara  
School Supervisor  
Elementary and Secondary Education Bureau  
Ministry of Education

**Jordan/Jordanie/Jordania/Иордания/الأردن**

#### Delegates

Dr. A. Arabyat  
Project Director  
Ministry of Education

Mr. Ahmed Al-Saheb  
Head of Agricultural Education Curricula  
Ministry of Education

**Kenya/Kenia/Кения/كينيا**

#### Delegates

Mr. Archie W. Mbogho  
Deputy Director of Education  
Principal of Kenya Science Teachers College  
(Head of Delegation)

Mr. Francis Michael O. K'Opiyo  
Kenya Institute of Education  
Ministry of Education

Mr. Elijah Ndegwa  
Physical Planner  
National Environment Secretariat

Prof. James Mbugua Waithaka  
Professor  
Kenyatta University College

Ms. Elizabeth Wangari  
Education Officer  
Wildlife Conservation and Management

**Republic of Korea/République de Corée/  
República de Corea/Корейская Республика**  
**جمهورية كوريا**

#### Delegates

Mr. Pyo Wook Han  
Ambassador of the Republic of Korea to the  
United Kingdom  
(Head of Delegation)

Dr. Kyu-Taik Kim  
Secretary-General  
Korean National Commission for Unesco

Mr. Kyoo Hyang Cho  
Chief of the International Education Division  
Ministry of Education

Dr. Tai Joon Kwon  
Professor  
Department of Environmental Planning  
Seoul National University

Mr. Joon Young Lee  
Deputy Chief of the Social Education Division  
Ministry of Education

Mr. Suk Won Tae  
Ministry of Foreign Affairs

**Kuwait/Koweit/Kuwait/Кувейт/الكويت**

#### Delegates

Dr. Badria Al Awadi  
Lecturer of Law at Kuwait University  
(Head of Delegation)

Miss Naima Al-Shayji  
Director of General Department for Technical  
Co-operation at Planning Ministry

Mr. Mohammad Said Al-Sabbarini  
Biology Supervisor  
Ministry of Education

Mr. Taha Bourously  
Social Inspector in Education Ministry

**Lesotho/Лесото/ليسوتو**

#### Delegate

Mr. J. Phakiso Lebona  
Acting Chief Education Officer  
Ministry of Education, Sports, Culture and Youth



**Libyan Arab Jamahiriya/Jamahiriya arabe libyenne/  
Jamahiriya Arabe Libia/  
Ливийская Арабская Джамахирия/  
الجمهورية العربية الليبية**

Delegate

Mr. Ali Bougila  
Head of Environmental Engineering Section  
Department of Environment  
Ministry of Municipalities

**Malaysia/Malaisie/Malasia/Малайзия/ماليزيا**

Delegates

Dato' Rahman Arshad  
Deputy Director-General of Education  
Ministry of Education  
(Head of Delegation)

Mr. S. T. Sundram  
Deputy Secretary-General  
Ministry of Science, Technology and  
Environment

**Mauritania/Mauritanie/Мавритания/موريتانيا**

Delegate

Ambassadeur Gaye-Silly Soumare  
Ambassade de la République islamique de  
Mauritanie à Moscou

**Mexico/Mexique/México/Мексика/المكسيك**

Delegates

Sr. Sergio García-Ramírez  
Viceministro de Educación Pública  
(Jefe de la Delegación)

Sr. Juan Antonio Mateos Cicero  
Director de Relaciones Multilaterales  
Secretaría de Educación

Sr. Juan Manuel Gutiérrez-Vázquez  
Jefe, Departamento de Investigaciones  
Educativas  
Instituto Politécnico Nacional

Sr. Victor A. Maldonado  
Diputado Federal

Sr. Benjamín Varela  
Director de Estudios Profesionales  
Instituto Politécnico Nacional

**Morocco/Maroc/Marruecos/Марокко/المغرب**

Delegate

M. Ahmed Ben Jazza  
Attaché culturel à l'Ambassade du Maroc à  
Moscou

**Netherlands/Pays-Bas/Países Bajos  
Нидерланды/الأراضي الواطنة**

Delegates

Dr. J. Verhoeve  
Director-General for Nature Conservation,  
Recreation and Mass Media  
Ministry of Culture, Recreation and Social  
Welfare  
(Head of Delegation)

Dr. Gerrit J. H. Bennink  
Chairman of the Commission for Curriculum  
Development of Biology  
(Deputy Head of Delegation)

Ing. Johannes Goudswaard  
Chairman of the Working Party on Environmental  
Education of the Netherlands Unesco Commission

Mr. Gerrit P. Hekstra  
Directorate-General of Environmental  
Protection of the Ministry of Public Health and  
Environmental Protection

Mr. Jacob B. Pieters  
Deputy Head of the Department of Nature  
Conservation and Landscape Protection  
Ministry of Culture, Recreation and Social  
Welfare

Mr. H. Wals  
Director  
Service for Environmental Education  
"School and Children's Garden Service"

**Nigeria/Нигерия/نيجيريا**

Delegate

Dr. Raimi Ola Ojikutu  
Assistant Director  
Environmental Planning and Protection  
Federal Ministry of Housing and Urban  
Development and Environment

**Norway/Norvège/Noruega/Норвегия/النرويج**

Delegates

Mr. Tor Holtan-Hartwig  
Head of Division  
Ministry of Education  
Oslo  
(Head of Delegation)

Mr. Richard Fort  
Head of Division  
Ministry of Environment  
Oslo

Mr. Paul Hofseth  
Researcher  
University of Oslo

Mr. Olaf J. Rønning  
Professor  
University of Trondheim

**Philippines/Filipinas/Филиппины/الفلبين**

Delegates

Ms. Teresita Villacorta  
Environmental Education Co-ordinator  
Human Settlements Commission

Dr. Amando Kapauan  
Professor of Chemistry  
Ateneo University

**Poland/Pologne/Polonia/Польша/بولندا**

Delegates

M. Michaelow Wlodzimierz  
Membre du Présidium de l'Académie des sciences polonaises  
Président du Comité "L'homme et la biosphère"  
(Chef de la délégation)

M. Ryszard Ostas  
Conseiller au Département des études et recherches techniques du Ministère de la science, de l'enseignement supérieur et technique  
(Chef adjoint de la délégation)

Mme Danuta Cichy  
Chef du Laboratoire de mathématiques et de sciences naturelles de l'Institut des programmes scolaires du Ministère de l'éducation et de l'enseignement

M. Piotr Krzyzanowski  
Président du Groupe au Comité de la formation et protection de l'environnement auprès de l'Union socialiste des étudiants polonais

M. Kazimierz Tomaszewski  
Premier secrétaire  
Ambassade de Pologne à Moscou

Observers

Mme Jadwiga Gawłowska  
Secrétaire du Comité de l'éducation de l'Europe de l'Est de l'UICN  
Directeur adjoint de l'Institut de la protection de la nature auprès de l'Académie des sciences polonaises à Cracovie

M. Tadeusz Szczesny  
Membre de la Commission de l'éducation de l'UICN  
Président du Comité de l'Europe de l'Est  
Conservateur en chef

**Portugal/Португалия/البرتغال**

Delegates

M. Manuel Gomes Guerreiro  
Professeur d'écologie  
Secrétaire d'Etat à l'environnement  
(Chef de la délégation)

M. Jose de Almeida Fernandes  
Technicien principal  
Commission nationale pour l'environnement

**Romania/Roumanie/Rumania/Румыния/رومانيا**

Delegates

M. Matei Nicolau  
Secrétaire du Conseil national pour la protection de l'environnement

M. Ioan Maxim  
Deuxième secrétaire au Ministère des affaires étrangères

**Sierra Leone/Sierra Leona/Сьерра-Леоне/سييرا ليون**

Delegates

Mr. Ibrahim M'Baba Kamara  
Deputy Minister for Lands and Mines  
(Head of Delegation)

Mr. Norman H. Ayodele Cole  
Professor of Botany  
University of Sierra Leone

Mr. Julius E. Jonah  
Assistant Chief Education Officer  
Ministry of Education

**Spain/Espagne/España/Испания/اسبانيا**

Delegates

Sr. Pedro de Miguel  
Subdirector General del Medio Ambiente  
Ministerio de Obras Públicas y Urbanismo  
(Jefe de la Delegación)

Sr. Cristóbal Aragón  
Primer Secretario  
Ministerio de Relaciones Exteriores

Prof. Fernando González Bernáldez  
Departamento de Ecología a la Facultad de  
Ciencias  
Universidad Autónoma de Madrid

Sr. Manuel de Luna  
Coordinador, Centro Internacional de Formación  
de Ciencias Ambientales (CIFCA)

Sr. Juan-José Santos  
Primer Secretario  
Embajada de España en la URSS

**Sudan/Soudan/Sudán/Судан/السودان**

Delegate

Mr. Munier Gallal Mohed Abdu  
Cultural attaché  
Embassy of Sudan in Moscow

**Sweden/Suède/Suecia/Швеция/السويد**

Delegates

Ms. Britt Mogård  
Minister for Primary and Secondary Education  
Ministry of Education  
(Head of Delegation)

Mr. Bert Levin  
Under Secretary of State  
Ministry of Education  
(Deputy Head of Delegation)

Mr. Anders Wijkman  
Member of Parliament  
Chairman of the Swedish Preparatory Committee  
for the Intergovernmental Conference on  
Environmental Education  
(Deputy Head of Delegation)

Mr. Lars Emmelin  
Director of Studies  
Environmental Studies Programme  
University of Lund

Mr. Hans-Jörgen Karlsson  
Educational Adviser  
National Board of Education

Mr. Lennart Lindgren  
Head of Division  
Ministry of Agriculture

Mr. Carl G. Sköld  
Head of Section  
Ministry of Education

Mr. Bengt Thorslund  
Head of Section  
National Board of Universities and Colleges

Mr. Gunnar Zettersten  
Head of Division  
National Environment Protection Board

**Switzerland/Suisse/Suiza/Швейцария/سويسرا**

Delegates

M. Bernhard Bittig  
Sous-directeur de l'Inspection fédérale des  
forêts  
Département fédéral de l'Intérieur  
Berne  
(Chef de la délégation)

M. Walter Fetscherin  
Secrétaire d'ambassade  
Ambassade de Suisse à Moscou

M. Roland Wiederkehr  
Directeur chargé de l'éducation et de  
l'information  
World Wildlife Fund

**Thailand/Thaïlande/Tailandia/Таиланд/تايلاند**

Delegates

Dr. Nart Tuntawiroon  
Director  
Environmental Education and Research Project  
Mahidol University  
Bangkok  
(Head of Delegation)

Mr. Manoon Mukhapradit  
Chief  
Environmental Information and Promotion  
Division  
National Environment Board  
Bangkok

Mrs. Vanli Prasarttong-Osoth  
Director  
Educational Materials Development Center  
Department of Educational Techniques  
Ministry of Education  
Bangkok

**Togo/Toro/توجو**

Delegate

M. Latévi Modem Lawson  
Premier secrétaire  
Ambassade du Togo en URSS

**Tunisia/Tunisie/Túnez/تونس/تونس**Delegates

M. Ali Hili  
Professeur-directeur de la Faculté des sciences  
de Tunis  
Coordonnateur des projets MAB en Tunisie  
(Chef de la délégation)

M. Nadir Hamada  
Sous-directeur de l'environnement  
Ministère de l'intérieur

M. Mokhtar Kaddeche  
Inspecteur principal de l'enseignement agricole  
à la Direction de l'enseignement, recherche et  
formation des cadres  
Ministère de l'agriculture

**Turkey/Turquie/Turquía/Турция/تركيا**Delegate

Mr. Muammer Yavuz  
Director  
Department of Environmental Problems  
General Directorate for State Water-Works

**Uganda/Ouganda/Уганда/اوغندا**Delegates

Mr. Joseph S. Magoba  
Secretary-General  
Uganda National Commission for Unesco  
(Head of Delegation)

Mr. David S. Kiyimba  
Environmental Education Specialist  
National Curriculum Development Centre  
Supervisor  
Namutamba Project

**Ukrainian Soviet Socialist Republic**  
**République socialiste soviétique d'Ukraine**  
**República Socialista Soviética de Ucrania**  
**Украинская Советская Социалистическая**  
**Республика/جمهورية أوكرانيا الاشتراكية السوفيتية**

Delegates

Mr. Alexander M. Marinitch  
Minister of Education  
(Head of Delegation)

Mr. Sergey I. Ivchenko  
Professor  
Dean, Department of Geography and Natural  
Sciences  
Kiev Pedagogical Institute  
(Deputy Head of Delegation)

Mr. Andrey M. Grodzinsky  
Corresponding Member  
Academy of Sciences  
Chief of the Central Republican Botanical Gardens

Mr. Boris K. Kubrak  
Deputy Chairman of the Ukrainian SSR Council  
Ministers' State Committee for the Protection  
of Nature

Mr. Mikhail I. Shcherbane  
Professor  
Dean, Department of Geography  
Kiev State University

Advisers

Ms. Julia M. Daniltchenko  
School Deputy Director

Mr. Igor A. Litvin  
Attaché  
Ministry of Foreign Affairs of the Ukrainian SSR

**Union of Soviet Socialist Republics**  
**Union des républiques socialistes soviétiques**  
**Unión de Repúblicas Socialistas Soviéticas**  
**Союз Советских Социалистических Республик**  
**اتحاد الجمهوريات الاشتراكية السوفيتية**

Delegates

M. D. M. Gvichiani  
Vice-président du Comité d'Etat pour la science  
et la technique  
Conseil des ministres de l'URSS  
(Chef de la délégation)

M. O. E. Tcherkezia  
Vice-président du Conseil des ministres de la  
RSS de Géorgie  
(Chef adjoint de la délégation)

M. N. S. Egorov  
Vice-ministre de l'éducation supérieur et  
secondaire spécialisée de l'URSS  
(Chef adjoint de la délégation)

M. K. V. Ananichev  
Chef du Département des organisations  
internationales, économiques et scientifiques  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS  
(Chef adjoint de la délégation)

M. A. M. Borodine  
Chef de la Direction de la protection de la  
nature, des parcs naturels, de l'industrie  
forestière et de la chasse  
Ministère de l'agriculture de l'URSS

M. A. V. Fokine  
Adjoint au Secrétaire principal du Présidium de  
l'Académie des sciences de l'URSS

M. V. I. Katcharava  
Président du Comité d'Etat pour la protection de la nature  
Conseil des ministres de la RSS de Géorgie

M. K. P. Mitriouchkine  
Consultant principal du Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

M. L. E. Mikhaïlov  
Premier adjoint du Président du Comité d'Etat pour l'industrie forestière  
Conseil des ministres de l'URSS

M. M. I. Smirnov  
Secrétaire de la Commission de l'URSS auprès de l'Unesco

M. V. Sokolovski  
Directeur du Département de l'utilisation de la nature et de la protection de l'environnement  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

M. V. Vinogradov  
Président du Comité d'Etat pour la science et la technique  
Conseil des ministres de la RSS de Géorgie

M. I. D. Zverev  
Académicien - Secrétaire du Département de didactique et des méthodes  
Académie des sciences pédagogiques de l'URSS

#### Experts and Observers

M. G. A. Aliev  
Président du Conseil intersectoriel pour la protection de la nature de la RSS d'Azerbaïdjan  
Directeur de l'Institut de géographie de l'Académie des sciences de la RSS d'Azerbaïdjan

M. A. G. Bannikov  
Titulaire d'une chaire à l'Académie vétérinaire de Moscou  
Ministère de l'agriculture de l'URSS

Mme V. A. Bouchtouvea  
Titulaire d'une chaire  
Institut central de perfectionnement des médecins  
Ministère de la santé de l'URSS

M. L. K. Chapchnikov  
Adjoint au Directeur du Laboratoire central de protection de la nature  
Ministère de l'agriculture de l'URSS

M. J. Eilart  
Vice-président de la Société estonienne de protection de la nature  
Chef du Cabinet de protection de la nature de l'Université de Tartu  
Ministère de l'éducation supérieure secondaire et spécialisée de la RSS d'Estonie

Mme N. K. Gassilina  
Directeur du Département pour le contrôle de la pollution de l'environnement

M. V. E. Goulissachvili  
Président de la Commission pour la protection de la nature de l'Académie des sciences de la RSS de Géorgie

M. I. G. Grebtsov  
Expert en chef  
Division des organisations internationales économiques, scientifiques et techniques  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

M. B. P. Kolesnikov  
Président de la Commission pour la protection de la nature du centre de l'Oural de l'Académie des sciences de l'URSS

M. I. P. Laptev  
Titulaire de la Chaire de protection de la nature à l'Université de Tomsk  
Ministère de l'éducation supérieure et secondaire spécialisée

Mme E. G. Moskovkina  
Docent à l'Institut polytechnique de Riga  
Ministère de l'enseignement supérieur et secondaire spécialisé de la RSS de Lettonie

M. V. Popov  
Titulaire de la Chaire de biologie et de protection de la nature  
Université de Kazan  
Ministère de l'enseignement supérieur et secondaire spécialisé d'URSS

M. A. K. Roustamov  
Recteur de l'Institut agronomique de Turkménie  
Ministère de l'agriculture de l'URSS

M. A. M. Riabchikov  
Doyen de la Faculté de géographie de l'Université de Moscou  
Ministère de l'enseignement supérieur et secondaire spécialisé d'URSS

M. P. M. Skirda  
Expert en chef  
Adjoint au Directeur de la Division des missions à l'étranger  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

M. A. I. Soloviev  
Président du Conseil scientifique pour les aspects pédagogiques de la protection de l'environnement  
Académie des sciences pédagogiques de l'URSS

M. A. I. Strebkov  
Expert en chef de la Division des organisations économiques, scientifiques et techniques internationales  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

M. R. Valitov  
Expert en chef de la Division des organisations  
économiques, scientifiques et techniques  
internationales  
Comité d'Etat pour la science et la technique  
Conseil des ministres de l'URSS

United Kingdom/Royaume-Uni/Reino Unido  
Соединенное Королевство  
المملكة المتحدة

#### Delegates

Mr. John A. Hudson, CB  
Deputy Secretary for Primary and Secondary  
Education  
Department of Education and Science  
(Head of Delegation)

Mr. Peter C. Fletcher  
United Nations Department  
Foreign and Commonwealth Office

Mr. Peter H. Forrest  
Her Majesty's Inspector of Schools  
Department of Education and Science

Dr. Christopher G. Gayford  
Council for Environmental Education

Mrs. Patricia Heatley  
Her Majesty's Inspector of Schools  
Department of Education for Northern Ireland

Miss Patricia E. McCarthy  
International Relations  
Department of Education and Science

Mr. John B. W. Robins  
Assistant Secretary  
Department of the Environment

Mr. Keith S. Wheeler  
Council for Environmental Education  
Town and Country Planning Association

Mr. George M. Willan  
Department of Education and Science  
31 Red Lion Street, Chesham  
Buckinghamshire HP6 1HP

United States of America/Etats-Unis d'Amérique  
Estados Unidos de América  
Соединенные Штаты Америки  
الولايات المتحدة الأمريكية

#### Delegates

The Honourable Mary F. Berry  
Assistant Secretary for Education  
Department of Health, Education and Welfare  
(Head of Delegation)

Mr. Donald R. King  
Director  
Office of Environmental Affairs  
Bureau of Oceans and International Environmental  
and Scientific Affairs  
Department of State  
(Deputy Head of Delegation)

#### Alternate

Mr. Constantine Warvariv  
Acting United States Permanent Representative  
to Unesco  
Paris

#### Advisers

Mr. Alexander Barton  
Division of Science Education  
Development and Research  
National Science Foundation

Mr. George Bennis  
Council on Environmental Quality  
Washington, D. C.

Ms. Carol A. Colloton  
U. S. National Commission for Unesco  
Bureau of International Organization Affairs  
Department of State

Mr. Robert S. Cook  
Deputy Director  
United States Fish and Wildlife Service  
Department of the Interior

Mr. Dwight D. Darland  
National Education Association

Mr. Walter E. Jeske  
Chief  
Education and Publications Branch  
Soil Conservation Service  
Department of Agriculture

Mr. Thomas L. Kimball  
Executive Vice-President  
National Wildlife Federation  
Washington, D. C.

Mr. Frederick H. Lawton  
Directorate for Unesco Affairs  
Bureau of International Organization Affairs  
Department of State

Mr. George E. Lowe  
Office of Citizen Education  
Department of Health, Education and Welfare

Mr. Albert Printz  
Environmental Affairs Co-ordinator  
Agency for International Development

Mr. Marshall E. Purnell  
American Institute of Architects  
Washington, D. C.

Mr. William Stapp  
University of Michigan  
Ann Arbor  
Michigan

Ms. Penelope A. Williams  
Conference Officer  
Office of International Organization Affairs  
Department of State

Observers

Mr. John E. Katzka  
Mr. Randall Speer

**Venezuela/Венесуэла/فنزويلا**

Delegates

Sra. María Hortensia Hernández Luna  
Funcionario del Ministerio del Ambiente y de  
los Recursos Naturales Renovables  
(Jefe de la Delegación)

Dr. Gustavo Rivas-Mijares  
Miembro Consejo Nacional de Investigaciones  
Científicas y Tecnológicas

**Yugoslavia/Yougoslavie/Югославия/يوغسلافيا**

Delegates

Professeur Avgustin Lah  
Vice-président du Conseil exécutif de la  
République de Slovénie  
Ljubljana  
(Chef de la délégation)

M. Enver Lihic  
Membre de la Présidence RKSSRNBH  
Sarajevo

Dr Ranko Radovic  
Professeur à l'Université de Belgrade  
Secrétaire de la Commission pour l'éducation  
relative à l'environnement du Conseil exécutif  
fédéral

II. NON-MEMBER STATES/ETATS NON MEMBRES/ESTADOS NO MIEMBROS/  
ГОСУДАРСТВА, НЕ ЯВЛЯЮЩИЕСЯ ЧЛЕНАМИ ЮНЕСКО/الدول غير الاعضاء

**Holy See/Saint-Siège/Santa Sede**  
**Ватикан/الكرسي البابوي**

Delegate

Révérénd Père Miguel Arranz S.J.  
Professeur à l'Institut pontifical des études  
orientales de Rome

Mr. G. M. Mamba  
Swaziland's High Commissioner in  
Great Britain

Mr. Meshack M. L. Shongwe  
Swaziland's UNEP Co-ordinator  
Chief Health Officer

**Swaziland/Swazilandia/Свазиленд/سوازيلاند**

Delegates

H. R. H. Prince Masitsela  
Minister for Local Administration  
(Head of Delegation)

III. ORGANIZATIONS OF THE UNITED NATIONS SYSTEM/  
ORGANISATIONS DU SYSTEME DES NATIONS UNIES/  
ORGANIZACIONES DEL SISTEMA DE LAS NACIONES UNIDAS/  
ОРГАНИЗАЦИИ СИСТЕМЫ ОБЪЕДИНЕННЫХ НАЦИЙ/  
منظمات تابعة للأمم المتحدة

United Nations/Nations Unies

Prof. Vassili Vakhzushev  
Director  
United Nations Information Centre  
Moscow

Food and Agriculture Organization of the United  
Nations (FAO)/Organisation des Nations Unies  
pour l'alimentation et l'agriculture

Mr. L. Huguet  
Chairman of the Inter-Departmental Working  
Group on Natural Resources and the Human  
Environment

International Labour Organisation (ILO)/  
Organisation internationale du travail (OIT)

Mr. H. Z. Evan  
Working Conditions and Environment Department

United Nations Relief and Works Agency for  
Palestine Refugees in the Near East (UNRWA)/  
Office de secours et de travaux pour les réfugiés  
de Palestine dans le Proche-Orient

Mr. Fawzi Abu Ghali  
Teacher Training Specialist (Social Studies)

United Nations Institute for Training and  
Research (UNITAR)/Institut de formation et de  
recherche des Nations Unies

Mr. Horst Breier

United Nations Environment Programme (UNEP)/  
Programme des Nations Unies pour l'environne-  
ment (PNUE)

Mr. Mustafa Tolba  
Executive Director  
(Head of Delegation, 15 October 1977)

Mr. S. Evteev  
Assistant Executive Director  
(Acting Head of Delegation, 16-26 October 1977)

Mr. A. Buzzati-Traverso  
Adviser

Mr. G. Biryukov  
Programme Officer

Mr. G. Herbertson  
Information Officer

Mr. V. Johnson  
Chief, Environmental Education and  
Training Unit

Mr. A. Matheson  
Chief, Division of Information

Mr. T. Munetic, IRS  
Programme Officer

Organizations of the United Nations system with  
which Unesco has not concluded mutual represen-  
tation agreements/Organisations du système des  
Nations Unies avec lesquelles l'Unesco n'a pas  
conclu d'accord prévoyant une représentation  
réci-proque

Intergovernmental Maritime Consultative Organ-  
ization (IMCO)/Organisation intergouvernemen-  
ta-le consultative de la navigation maritime

Mr. Oleg Khalimonov  
Senior Technical Officer of the Marine  
Environment Division

Mrs. E. E. Nemtchinova

World Meteorological Organization (WMO)/  
Organisation météorologique mondiale (OMM)

Mr. James B. L. Breslin  
Chief, Training Service Branch

IV. INTERGOVERNMENTAL ORGANIZATIONS/  
ORGANISATIONS INTERGOUVERNEMENTALES/  
ORGANIZACIONES INTERGUBERNAMENTALES/  
МЕЖПРАВИТЕЛЬСТВЕННЫЕ ОРГАНИЗАЦИИ/  
نظمات دولية حكومية

Regional/Régionale

Arab States/Etats arabes

Arab Educational, Cultural and Scientific  
Organization (ALECSO)/Organisation arabe pour  
l'éducation, la culture et la science

Dr. Mohamed Saber Selim  
Director, Science Department  
ALECSO  
109 Tahreer St., Dokki Square  
Cairo, Egypt

Mr. Moustafa Abdel Aziz  
Professor, Faculty of Science  
Cairo University  
Editor of the Environmental Education Source  
Book for General Education

Dr. Adly Kamel Farag  
Expert in Environmental Education

Europe

Nordic Council of Ministers of Education and  
Culture/Conseil nordique des ministres de  
l'éducation et de la culture

Mr. Jørgen Villadsen  
Expert

Council for Mutual Economic Assistance (CMEA)/  
Conseil pour l'assistance économique mutuelle

Mr. Vladilen Andrieshin  
Mr. Jerzy Zycki



V. INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS IN  
CONSULTATIVE RELATIONSHIP (CATEGORIES A AND B) WITH UNESCO/  
ORGANISATIONS INTERNATIONALES NON GOUVERNEMENTALES EN  
RELATION DE CONSULTATION AVEC L'UNESCO (CATEGORIES A ET B)/  
ORGANIZACIONES INTERNACIONALES NO GUBERNAMENTALES QUE MANTIENEN  
RELACIONES DE CONSULTA CON LA UNESCO (CATEGORIAS A Y B)/  
НЕПРАВИТЕЛЬСТВЕННЫЕ МЕЖДУНАРОДНЫЕ ОРГАНИЗАЦИИ, ИМЕЮЩИЕ  
КОНСУЛЬТАТИВНЫЙ СТАТУС ПРИ ЮНЕСКО (КАТЕГОРИИ А И В)/  
منظمات دولية غير حكومية على علاقة تشاور مع اليونسكو (الفئات أ وب)

Category "A"

International Co-operative Alliance (ICA)/  
Alliance coopérative internationale

Mr. K. Sharvishvili  
President of the Georgian Union

International Council of Monuments and Sites  
(ICOMOS)/ Conseil international des monuments  
et des sites

Mr. V. Beridze  
Directeur  
Institut d'histoire de l'art géorgien

International Council of Museums (ICOM)/  
Conseil international des musées

Mrs. Taissia Ovtchinnikova  
Maître de recherches au Comité de musées  
d'histoire naturelle

International Union for Conservation of Nature  
and Natural Resources (IUCN)/ Union internatio-  
nale pour la conservation de la nature et de ses  
ressources

Mr. Donald Aldridge  
Commission on Education

Mr. James Aldrich  
Commission on Education

Ms. Adelaida Chaverri  
School of Environmental Sciences  
Universidad Nacional  
Heredia, Costa Rica

Mr. John Connell  
President  
Caribbean Conservation Association

Mr. Alfred Hoffmann  
Executive Officer  
Commission on Education

Prof. Dr. Kh. P. Mirimanian  
Consultant and Chairman of Mountain Committee  
IUCN Commission of Ecology

Dr. Uday Raj  
National Trust for Fiji

Dr. Fritz Vollmar  
World Wildlife Fund

International Council of Scientific Unions (ICSU)/  
Conseil international des unions scientifiques

Mr. R. Awotar  
Mauritius National Youth Committee for  
Environment and Conservation

Mr. Hubert Dyasi  
Programme Director  
Science Education Programme for Africa

Dr. David H. Evans  
Secretary, Education Committee  
Institution of Environmental Science  
United Kingdom

Ms. Bridget Hughes  
Environment Liaison Centre

Prof. Stanley Kalpagé  
Faculty of Agriculture

Ms. Serena Zwangobani  
Environment Education Project Co-ordinator  
Environment Liaison Centre

World Confederation of Organizations of the  
Teaching Profession (WCOTP)/ Confédération  
mondiale des organisations de la profession  
enseignante (CMOPE)

Mr. Raymond J. Smyke  
Assistant Secretary

Category "B"

Catholic International Education Office/ Office  
international de l'enseignement catholique

M. Jacques Dorselaer  
Coordonnateur du groupe de recherches sur  
l'enseignement de l'environnement de  
l'Association européenne de l'OIEC

International Committee for the Co-ordination of  
Out-of-School Activities/ Comité international  
pour la coordination des activités scientifiques  
extrascolaires

M. Fayçal Ben Hassine Bey  
International Co-ordinator  
IYCHE Standing Committee

International Federation of Landscape Architects/  
Fédération internationale des architectes  
paysagistes

Dr. Mihaly Möcsenyi  
Great Council Member

International Federation of University Women/  
Fédération internationale des femmes diplômées  
des universités

Dr. Belkis Canfesci  
President  
Turkish Association of University Women

International Schools Association/ Association des  
écoles internationales

Mr. Viroj Na Bangchang  
Chairman, Asia Environmental Council  
Thailand

Dr. Desh Bandhu  
President, Indian Environmental Society

Mr. K. M. S. Benjamin

Miss Irene Fernández

Mr. Richard Hughes

Mr. D. C. Jayasuriya  
Chairman, Environmental and Population Law  
Committee of the Family Planning Association  
of Sri Lanka

Dr. Amando Kapauan  
Professor of Chemistry  
Ateneo University

Dr. Liberty Mhlanga

Mrs. Mary Opiyo  
Adult Educator and Trainer of Literacy Workers

Mr. Suheyl Kirçak  
Member of the Executive Committee  
Chamber of Architects of Turkey

International Youth and Student Movement for the  
United Nations (ISMUN)/Mouvement international  
des jeunes et des étudiants pour les Nations Unies

Mr. Delmar Blasco

International Youth Federation for Environmental  
Studies and Conservation/ Fédération international  
de la jeunesse pour l'étude et la conservation de  
l'environnement

Ms. Birgith Sloth  
President

Mr. Surajmal Jain  
Udaipur Environmental Group

League of Red Cross Societies/Ligue des  
sociétés de la Croix-Rouge

M. Vsevolod Kovchilo  
Membre, Présidium du Comité exécutif de la  
Croix-Rouge soviétique  
Chef du Département sanitaire et épidémiologique  
du Ministère de la santé publique

World Federation of Democratic Youth/  
Fédération mondiale de la jeunesse démocratique

Mr. Peter Reinhardt  
Secretary

Category "C"

African Social Studies Programme/Programme  
des études sociales africaines

Mr. C. A. Adewole  
Executive Secretary

AFROLIT - Association for the Promotion of  
Literacy in Africa/ Association pour encourager  
la lutte contre l'analphabétisme des adultes en  
Afrique

Mrs. Mary Opiyo  
Adult Educator and Trainer of Literacy Workers

European Broadcasting Union/Union européenne  
de radiodiffusion

Mr. Ingo Hermann  
Zweites Deutsche Fernsehen

European Teachers' Union/ Association  
européenne des enseignants

M. Iris Fays  
Membre de la Commission belge

World Council of Comparative Education  
Societies/ Conseil mondial pour l'éducation  
comparée

Dr. Margaret Gillett  
McGill University  
Montreal

VI. SECRETARIAT OF THE CONFERENCE/SECRETARIAT DE LA CONFERENCE  
SECRETARIA DE LA CONFERENCIA/СЕКРЕТАРИАТ КОНФЕРЕНЦИИ/  
سكرتارية المؤتمر

Director-General of Unesco/Directeur général de l'Unesco

Mr. Amadou-Mahtar M'Bow

Executive Office of the Director-General/  
Cabinet du Directeur général

Mr. Ch. Békri

Secretary: Miss H. Devereux

Assistant Director-General for Education/Sous-directeur général pour l'éducation

Mr. S. Tanguiane

Assisted by/assisté de:

Mr. R. Ochs

Director - Division of Higher Education and the Training of Education Personnel

Mr. W. Conton

Director - Division of Equality of Educational Opportunity and Special Programmes

Mr. B. Haidara

Chief of Co-ordination and Evaluation Unit

Secretaries: Mrs. M. Geisler  
Miss M. Schickler

Deputy Assistant Director-General for Science/  
Sous-directeur général adjoint pour les sciences

Mr. M. Batisse

Co-operation for Development and External Relations Sector (CPX)/Secteur pour la coopération en vue du développement et les relations extérieures

Mr. R. Rodríguez

Secretary-General of the Conference/Secrétaire général de la Conférence

Mr. S. R. Samady

Director - Division of Science, Technical and Vocational Education (STE)

Assisted by/assisté de:

Mr. S. Romero-Lozano

Chief - Environmental Education Section  
Division of Science, Technical and Vocational Education

Mr. B. Borissov

Executive Assistant to the Assistant Director-General for Education

Secretaries: Miss B. Sundling  
Mrs. L. Giarratano

Plenary Session/Séance plénière

Mr. Amadou-Mahtar M'Bow

Assisted by/assisté de:

Mr. S. Tanguiane

Secretary of the Plenary/Secrétaire de la plénière

Mr. S. R. Samady

Assisted by/assisté de:

Mr. S. Romero-Lozano

Mr. J. Barry, ED/STE

Mr. L. Rudstrom, ED/STE

Commission

Director-General's Representative/Représentant du Directeur général

Mr. S. Tanguiane

Secretary of the Commission/Secrétaire de la Commission

Mrs. S. Haggis

Chief, Science Education Section  
Division of Science, Technical and Vocational Education

Assisted by/assisté de:

Mr. V. Kolybine, ED/STE

Mr. L. Albala, ED/STE

Mr. C. Nones Sucre, SC/TER

Secretary: Miss P. Lacroix

Technical Advisers/Conseillers techniques

Mr. U. Busuttil

Director - Division of Human Settlements and Socio-Cultural Environment

Mr. E. Kajosaari, SC/TER

Mr. A. Sasson, SC/ECO

International Bureau of Education/Bureau international de l'éducation

Mr. Y. Alferov

Liaison with COL/Liaison avec COL

Mr. A. Ghafoor, ED/STE

Secretary: Miss M. Hilario

Conference Services/Services de conférence

Mr. R. Burton, COL

Miss V. Shepherd, COL

Press Liaison/Liaison avec la presse

Mr. A. Volkov, OPI

Mr. A. Brock, OPI

Mrs. T. Lemee, OPI

Documents Control/Contrôle des documents

Mr. J. Celiset, COL

Mr. J. Gilbert, COL

Interpretation/Interprétation

Mr. E. Aguirre

Mr. C. Andronikof

Mr. A. Anfilofiev

Mr. P. Artzrouni

Mrs. M. Aruffo-Romensky

Mr. A. Bernstein

Miss N. Biros

Mr. M. Boulares

Mrs. S. Farchakh

Miss F. Hashish

Miss Z. Hoff

Mrs. F. de Larrain

Mr. A. Larrauri

Mrs. G. Leibrich

Mrs. H. Salem

Mrs. A. Sartin

Mrs. M.S. Tellier

Miss I. Zaiontchec

Translation/Traduction

Mr. N. Albrecht

Mr. J. Brasseau

Mr. J. Cardona

Miss M. Cazamian

Miss A. Cook

Mr. A. Darwish

Mr. A. El-Badini

Mr. F. El-Boustani

Mrs. M. Farge

Mr. J. Gelabert

Mr. L. Gibson

Mrs. A.-M. Goueffon

Mr. N. Hanna

Mr. M. Hurtado

Mr. A. Ibrahim

Mr. S. Ioudinikov

Mr. M. Jahahan

Miss S. Kouster

Mr. A. Lazarov

Mr. E.S. Osman

Mrs. Prévost

Mr. S. Salomon

Miss C. Urquía

Mr. B. Verity

Typing Services/Services dactylographiques

Miss A. Barry

Mrs. Z. Benhamou

Miss I. Dounal

Miss M. El-Chafai

Mr. M. García-López

Mr. S. Hasan

Miss L. Kronfli

Mrs. M. Morin

Mr. Ould Ali Khalna

Mrs. M. Roger

Mrs. P. Sánchez Orrico

Mrs. A. Sayed-Ahmed

Mrs. N. Schurtz

Miss N.L. Tejeda

Miss D. Thornborough