

Unesco-UNEP International Environmental
Education Programme (IEEP)

**Environmental Education:
Selected Activities of
Unesco-UNEP International
Environmental Education
Programme 1975-1990**



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Preface

The Unesco-UNEP International Environmental Education Programme (IIEP), established in accordance with Recommendation 96 of the UN Conference on the Human Environment (Stockholm, Sweden, 1972) has been operational since 1975 at Unesco Secretariat, Paris, with the objective to support Member States in the incorporation of environmental education in their educational policies and plans, curriculum materials and personnel training programmes for all types and levels of education. The activities of IIEP have been executed at the international, regional, subregional and national levels. These activities are varied. They are formulated on the needs expressed or identified by concerned governments, educational institutions, nongovernmental organizations and professionals active in the field of environmental education (EE). They range from the organization of intergovernmental conference on environmental education to support to a professional in a Member State in need of an EE document.

The present document contains a brief description of a series of selected IIEP activities considered substantive and of interest to researchers, curriculum developers, teacher educators and educational planners and administrators. It consists of two parts. Part One is the introduction giving an analytical summary of IIEP activities. Part Two describes the fields of action of IIEP under the headings of exchange of information, research and experimentation, curriculum and materials development and training of educational personnel.

The objective of the document is to highlight selected EE activities of IIEP, respond to inquiries of professionals and institutions concerning EE activities, provide summary information for researchers, curriculum developers, textbook writers and teacher educators who are furthering the frontiers of EE development in the Member States.

Comments and suggestions for improving this document may be addressed to the:

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I. Introduction

In 1975, in pursuance of a recommendation of the United Nations Conference on the Human Environment (Stockholm, 1972) and in cooperation with the United Nations Environment Programme (UNEP), Unesco launched the International Environmental Education Programme (IEEP). Subsequently, the Intergovernmental Conference on Environmental Education (Tbilisi, USSR, 1977), considering that there was a great need for international cooperation in this field for all countries, invited Unesco and UNEP to pursue their efforts to intensify the development of such education within the international community.

In accordance with recommendations of the Tbilisi Conference, environmental education was included in the objectives of Unesco's First Medium-Term Plan for 1977-1982, approved by the Unesco General Conference at its Nineteenth Session (Nairobi, 1976). Environmental education activities were provided for in the programmes and budgets which the General Conference of Unesco subsequently approved at its Twentieth Session (Paris, 1978), Twenty-first Session (Belgrade, 1980), Twenty-second Session (Paris, 1983), Twenty-third Session (Sofia, 1985) and Twenty-fourth Session (Paris, 1987). Environmental education was an integral part of Unesco's Second Medium-Term Plan for 1984-1989, as a support programme for all the Organization's environmental activities, grouped together in Major Programme X "The Human Environment and Terrestrial and Marine Resources". In Unesco's Third Medium-Term Plan (1990-1995), high priority is given to environmental education. Under Programme II.2, "Environment and Natural Resources", this high priority domain is covered by the Intersectorial and Inter-agency Cooperation Project, "Environmental Education and Information". In this context, priority is given to environmental education development as part of basic education, including literacy and post-literacy education, for young people and adults alike, as well as primary education and secondary general, technical, vocational and higher education. Emphasis will be put on the incorporation of environmental education into school curricula, teaching materials, and pre-service and in-service teacher training programmes.

The Declaration and recommendations of the Tbilisi Conference helped to establish the nature, objectives and principles of environmental education as well as the main lines which its development should follow both nationally and internationally. In this connection, the Tbilisi Conference considered that environmental education should be incorporated into all educational processes and cater to all sections of society: (i) the general public and non-specialists; (ii) the socio-professional groups whose activities have important effects on the environment; (iii) the scientists and technicians whose fields of study, whether concerned with the natural or social sciences, deal with the environment and who must receive specialized training.

With regard to the first group, the achievements of the Unesco-UNEP International Environmental Education Programme (IEEP) can be examined at three complementary levels: firstly, its contribution to developing a general awareness of the need for environmental education, which began with the establishment of IEEP in 1975; secondly, its contribution to the devising of concepts and methodological approaches in this field, which was the major activity of IEEP during the period 1978-1980; and finally, its contribution to incorporating an environmental dimension into the educational processes of Member States which, together with the other aspects already mentioned, forms the core of the permanent functions of IEEP.

Among the IEEP activities which have made the greatest contribution to the development of international awareness about environmental education, particular mention should be made of a series of international and regional meetings which culminated in the 1977 Intergovernmental Conference in Tbilisi. In this connection, the International Workshop in Belgrade (1975) was particularly important, since its recommendations provided a preliminary framework of reference for the Tbilisi Conference.

A policy of providing regular information has also made a considerable contribution to international awareness of environmental education. Particular mention might be made of the IEEP international newsletter, Connect, which is published quarterly in six languages (Arabic, Chinese, English, French, Russian and Spanish) and has, in the five regions of the world, approximately 17,000 individuals or institutional subscribers actively concerned in the promotion and development of environmental education and training. There have also been eight international and regional meetings organized by IEEP with the aim of promoting the exchange of ideas and information on such subjects as interdisciplinarity and the incorporation of the environmental dimension into social science teaching, general university education and technical and vocational education at the intermediate level. Finally, in this context, mention should be made of (1) the preparation of a bilingual glossary (English and Russian) intended to unify the terminology employed by environmental education, and (2) of directories listing international specialists and institutions operating in the field of environmental education.

Another important aspect of progress in environmental education at the international, regional and national levels has been the clarification of concepts and methodologies in this field. Since 1977, and as a result of the conclusions of the Tbilisi Conference, an immense effort has been made, both internationally and nationally, to define more clearly the content of environmental education and also the methods which will assist its further development. The contribution of IEEP has mainly taken the form of carrying out studies and organizing seminars, research and experimental projects, which have made it possible to clarify the nature of environmental education as a dimension which should be incorporated into all disciplines and subjects in the educational process and which should take account of the social aspects and the natural aspects of the human environment. Similarly, mention should be made of the

emphasis which has been given to the interdisciplinary nature of environmental education and to the need to reach all sections of society through formal and nonformal education.

IEEP has been associated with the efforts to incorporate an environmental dimension into the educational practice of Member States. Interinstitutional committees have thus been established in several countries in all regions, following regional conferences, national training courses or pilot projects undertaken or supported by IEEP, in order to encourage the incorporation of general environmental education into the national education systems.

This contribution of IEEP has had two particularly important aspects, (1) the development of educational content, methods and materials and (2) the training of teachers. Regarding the latter, IEEP has organized a series of 15 regional and subregional seminars since 1978 to develop awareness on the part of educational administrators and those in charge of study programmes. These seminars have been particularly concerned with the formulation of national environmental education policies, the methodology of pre- and in-service training for teachers and the policies to be followed in the preparation of educational materials. IEEP has also undertaken or sponsored the organization of more than 110 national training seminars and workshops for teachers and curriculum developers on the concept and development of environmental education.

With regard to the work of devising educational content, methods and materials on the environment, IEEP has carried out 15 research and experimental projects which have led to the production of an integrated series of educational materials, including methodological guides, thematic modules and manuals for general education and for the initial training and retraining of teachers. These have been published in Arabic, English, French and Spanish in the "Environmental Education Series", which by 1990 included 30 titles. Finally, in more specific terms, 80 pilot projects carried out by IEEP in several countries have not only made it possible to mobilize national institutions concerned with environmental education, but have also made it possible to train groups of educators at the national level and to prepare curricula and educational materials adapted to local conditions.

In addition to IEEP's role as a catalyst in promoting environmental education at the national level, mention should also be made of its multiplier effect at the international level. From its very beginning, in fact, IEEP has endeavoured to work in conjunction with agencies of the United Nations system and with other intergovernmental and nongovernmental organizations concerned with environmental education. Both formal and informal meetings have been held in furtherance of this aim, so that today an increasing number of international, regional and subregional organizations are giving environmental education an important place in their action programmes.

IEEP has undoubtedly made a significant contribution both nationally and internationally to increasing awareness and developing education and training in the environmental field.

More than 140 countries from all regions of the world have been directly associated in the activities carried out by IEEP. They have involved more than 12,000 teachers at different levels of school and out-of-school education, about 2,000 primary and secondary schools, more than 100 universities in different regions and more than 150 institutions concerned with training and educational research.

However, given the importance of the conceptual, educational and institutional changes required if a new "environmental culture" is to have worldwide acceptance and in view of the environmental problems which have arisen, present efforts need to be redoubled. Accordingly, Unesco and UNEP intend to pursue their activities within the general framework of the System Wide Medium Term Environmental Plan (SWIMTEP) and implement a plan responding to the needs and priorities of environmental education and training for the 1990s based on the International Strategy for Action in the field of Environmental Education and Training for the 1990s, which came out of the International Congress on Environmental Education and Training, Moscow, USSR, 1987.

In view of the fact that the worldwide development of environmental education is a lengthy and complex process, and that educational, environmental and development problems are bound to change during the coming decade, it is envisaged to seek out actively new ideas, programmes and sources of funding in order to facilitate the extension and improvement of IEEP activities.

II. Fields of Action of the International Environmental Education Programme

In accordance with needs and priorities of Member States, the Unesco-UNEP International EE Programme has envisaged a progressive strategy involving different levels and modalities of education (primary, secondary, technical and vocational school education, higher education, and nonformal education). A multiple action has been undertaken in this respect to develop and reinforce the principal elements of educational processes (information, pedagogical research and experimentation on content and methods, training of personnel, preparation of educational materials) and to provide Member States with appropriate advice for the incorporation of EE into their educational policies and programmes.

Outputs of the IEEP could therefore be properly appraised in terms of these principal areas: (A) exchange of information and experiences; (B) research and experimentation; (C) curriculum and materials development; and (D) training of educational personnel.

A. EXCHANGE OF INFORMATION AND EXPERIENCE

This action is aimed at providing Member States and nongovernmental institutions, as well as specialists and the general public, with information and opportunities for exchange of experiences relating to research, policies, programmes, activities, training of personnel, materials and publications in the field of general environmental education.

Main activities undertaken in this field are:

1. The quarterly newsletter "Connect". Since 1976 this newsletter has continuously been published and distributed freely, first in English, French and Spanish, then in Arabic, Russian and Chinese. Commencing with the June 1980 issue, the Russian edition has been translated, printed and distributed in the USSR. Beginning with the March 1982 issue, the Spanish edition has been undertaken by Unesco's Regional Office of Education for Latin America and the Caribbean. Beginning with the June 1987 issue, the Arabic edition has been undertaken by Unesco's Office of Education for the Arab States. Beginning with the March 1988 issue, a new Chinese edition has been translated, printed and distributed in China. The other editions are done in Paris, France. Connect is an integral component as well as the organ of the Unesco-UNEP International EE Programme, reaching about 17,000 specialists and institutions throughout the world involved in environmental education and concerns. It serves as the Programme's principal source for the gathering and dissemination of information about EE activities of both the IEEP and other governmental and nongovernmental programmes and agencies.

2. Computerized Data Base on Environmental Education. This system is composed of files on institutions and organizations, projects, activities and periodicals concerned with environmental education. It has produced two directories: (i) Directory of EE Institutions, containing detailed information on more than 1,500 institutions active in environmental education, updated in 1989 and printed in English, French and Spanish; (ii) Directory of EE Periodicals, containing 200 items, printed and distributed in 1984 in English, French and Spanish.

3. Thesaurus of Environmental Education Terms. This thesaurus contains a classified vocabulary of 1200 terms in English. The terms are related to each other and are also complementary to the Unesco Thesaurus, which comprises many terms involving education and environmental sciences. Thus some 5000 terms pertaining to environmental education literature have been identified and grouped according to subject content. The thesaurus serves as an indexing tool for environmental education publications and is of immediate use for abstracting library acquisitions and full text description indexing of projects and activities. It has been disseminated to specialized institutions and organizations.

4. Glossary of Environmental Education Terms. Published in English and Russian. The glossary has been conceived to harmonize the utilization of environmental education terms.

5. Annotated Bibliography. An updated bibliography on environmental education was published in English and French by the International Bureau of Education in cooperation with the IEEP in the third quarter of 1976 as Bulletin No. 200. The bibliography contains 320 classified entries. The second edition of the annotated EE bibliography, appearing in English, French and Spanish in the series "Educational Documentation and Information, the Bulletin of the International Bureau of Education", was printed and distributed in early 1981. The bibliography contains 350 classified annotated entries. A third edition of the bibliography, including items published between 1980 and 1985, has been prepared by the Fondation Universitaire Luxembourgeoise (Belgium). The bibliography contains 425 classified annotated entries.

6. Consultation Meeting on the Training of Curriculum Developers, Teacher Educators and Educational Planners in Environmental Education. This meeting was organized 11-16 February 1985 by IEEP with the cooperation of the National Institute of Educational Planning and Administration (NIEPA), New Delhi, India. Its objectives were to study in a holistic and comprehensive manner the ways and means of incorporating environmental education into the training of teacher educators, curriculum developers and educational planners, and to exchange information and experience in this field. There were 8 participants and 11 observers from 8 countries (Afghanistan, Bangladesh, Bhutan, India, Malaysia, Nepal, Pakistan, Sri Lanka) and 12 observers from India. A final report was reproduced and disseminated in 1985.

7. Consultation Meeting on the Incorporation of Environmental Education into Curriculum and Teacher Training for Industrial and Agricultural Schools. This meeting was prepared in 1985 and organized in Singapore from 10 to 14 March 1986. Its main objectives were: (i) to study the need and place of environmental education in technical and vocational education; (ii) to develop guidelines and strategies for the incorporation of environmental education into technical and vocational education, mainly through school curricula and teacher training for industrial and agricultural schools; (iii) to exchange information and experience in the development of environmental education in this field. Participants from 7 countries (Australia, Egypt, India, Malaysia, Sri Lanka, Switzerland, USSR) and 2 observers attended the meeting. Elements of country reports and conclusions of the meeting on the role and place of environmental education in technical and vocational education are reflected in a final report, printed in 1986.

8. Consultation Meeting on the Use of Findings of Environmental Research Carried Out by International Scientific Programmes for the Development of Environmental Education. The meeting was organized by the Maltese Foundation for International Studies in cooperation with IEEP and held in Valletta, Malta, 11-13 December 1989. There were fifteen participants and observers from Canada, Ethiopia, Finland, Germany, Italy, Sweden, Switzerland, the United Kingdom and the host country. They were university administrators and EE educators, economic and research specialists. The objectives of the consultation meeting were: (1) to develop guidelines on the ways and means for using the findings of environmental research programmes in the development of EE programmes of various types and at different educational levels; and (2) to enhance the exchange of information and experience in this field. The proceedings were primarily based upon the presentation of relevant case studies followed by discussions and conclusions. The case studies involved experiences in Britain, Ethiopia, Finland, Malta, the Mediterranean region and Sweden.

After remarking upon the large number of international organizations generating environmental research and the significant quantity and quality of their publications, participants noted that the research results and published reports too often fail to reach their target groups, especially educators and curriculum developers in developing nations. One strategy which could facilitate the smooth flow of information between these research organizations and the end users, participants agreed, would be to establish a national Environmental Education Unit in each country. The functions of this EE Unit would be: (1) to receive, digest and prepare in appropriate form research findings for dissemination to educators, curriculum developers, the mass media and the general public; (2) to act as a resource centre accessible to interested individuals and groups; (3) to produce curriculum and other materials suitable for the mass media and other end users; (4) to coordinate the preparation of relevant environmental research reports for decision makers; (5) to conduct EE training programmes for key personnel; and (6) to prepare annotated bibliographies, summaries of research findings, and directories. A final report has been published in English.

9. International Symposium on the Content and Methods of EE for Professional Groups (Economists, Planners, etc.). This symposium was organized by the Maltese Foundation for International Studies in cooperation with IEEP and held in Valletta, Malta, 5-7 December 1989. There were fifteen participants from countries of the European region: Austria, France, Hungary, Israel, Italy, the United Kingdom and the host country. They were largely university and governmental specialists in environmental economics and economic planning. The aims of the symposium included formulation of guidelines for the objectives, content and methods of such education and training.

There was a consensus among the participants that there is presently a lack of adequate educational materials and programmes in this regard, despite their vital need; that current university materials and educational programmes do not embrace a holistic

environmental view. As a consequence, the environmental impact of many economic decisions and actions on the part of economists and economic planners has meant such environmental damages as air, water and soil pollution, depletion of natural resources, disappearance of species, and now-recognized global threats, such as climatic and other drastic changes resulting from destruction of the ozone layer and the accumulating greenhouse effect. Two alternate approaches were suggested by participants for inserting EE into current university curricula: (1) new EE courses to be added to present economic courses, which would include environmental knowledge, values, management strategies and methods; and (2) incorporation of environmental case studies into economic planning programmes. EE training workshops were also recommended for the in-service training of teachers currently conducting courses in economics and economic planning.

Guidelines were developed at the symposium with reference to EE objectives and content. The first group (EE objectives) involved knowledge, attitudes and skills. That is: knowledge about environmental structures and processes, problems and risks; the holistic development of people; major technological processes impacting on the environment and relevant economic considerations; environmental resource management; financial and investment theory; problem-solving methods and techniques. Attitudes as an objective concerned a personal and collective environmental ethic; respect for international obligations and participation in solution of international environmental problems; general readiness to exercise an environmental responsibility. Skills included analytic skills, systemic approaches, decision-making and evaluation skills, policy and planning skills, interdisciplinarity and team work, communications and training skills. The second group of guidelines, namely, EE content, emphasized systemic approaches (as in the first group), based on a firm grasp of ecology, resource management and pollution control, global problems (such as ozone-layer depletion and global warming), technological impacts and the totality of the environment (natural and built). Environmental management and anticipatory impact assessment and statement were deemed part of EE content for student economists and economic planners as well as environmental values and perceptions.

A final report has been published in English. It contains chapters on recommended strategies for the environmental education of economists and economic planners, guidelines relating to objectives and contents, international cooperation, production of educational materials and the text of papers presented.

10. Round-Table on "Education-Environment-Development". This round-table was prepared in cooperation with the Bulgarian Ministry of Culture, Science and Education and held in Sofia, April 1989. It was attended by 23 participants from Bulgaria, Czechoslovakia, Egypt, the Federal Republic of Germany, France, Hungary, Kenya, Switzerland, the UK, USA and USSR. General recommendations included greater and more inclusive networking among EE centres and national and international organizations, with regional meetings bringing together representatives of these

centres and bodies. Other means for furthering international cooperation and the exchange of EE experiences were recommended, such as international, interdisciplinary workshops and seminars. The international twinning of similar schools and towns for the creation of joint camps and environmental projects was suggested. Nonformal or out-of-school EE was stressed for the general public.

11. European Workshop in EE for Associated Schools Project Teachers and Students. The workshop, prepared in collaboration with the Norwegian National Commission for Unesco was organized in 1989. The objectives were: (i) exchange information and experience in EE activities carried out by Associated Schools with a view to promoting international cooperation; (ii) examine EE teaching methods, approaches and materials developed by Associated Schools; and (iii) prepare elements for a practical EE manual for use by secondary school teachers in Europe. The workshop was attended by 30 participants, mostly high school teachers from 18 countries. The following recommendations were addressed to the Director-General of Unesco: (i) provide financial assistance for the production and dissemination of a teacher guide on "Environmental Education for Our Common Future"; (ii) consider establishing a clearing-house of printed and audiovisual materials and new acquisitions through Connect; (iii) ensure coverage of EE activities on the satellite broadcasting and organize a TV bridge between ASP schools with EE teaching materials, including didactic games and computer software, under the IEEP; and (v) organize a workshop on environmental literacy on the occasion of the International Literacy Year, 1990.

12. European Seminar on the Integration of Environmental Concepts in University Teaching. The seminar was organized with the cooperation of the Vrije University Brussels (Department of Human Ecology) in Brussels, Belgium, June 1989. Main topics were the examination of university courses on EE, pedagogical materials and international cooperation. The seminar was attended by 71 experienced university educators from 22 countries with a special interest in ecology. Follow-up activities were suggested: (i) EE should be introduced into the formal and nonformal education of children; (ii) key personnel in the mass media should be trained in EE; (iii) teacher education should be enriched with EE; (iv) specialists should receive pre- and in-service training on the environment; (v) school supervisors and administrators should receive training in EE; (vi) future seminars at the university level should include scientists and educators as well; (vii) new courses in EE should be developed and given to undergraduate students; and (viii) European students should go to Third World countries and bring their experience to Europe.

13. Regional Seminar on the Integration of an Environmental Dimension into General University Education in Africa. The seminar was organized in Dakar, Senegal, May 1988, in cooperation with the National Commission of Senegal for Unesco with the objectives to deepen the reflexion on the concept, content and priorities of EE in the African context; to identify the major EE priorities and the needs for EE to be integrated in general university education in Africa; to formulate policies for

developing and adapting teaching materials based on identified needs; to enhance exchange of information and experience at national and international levels in the field of EE at university level; and to foster regional and subregional cooperation in the field of EE at university level. The seminar was attended by 30 participants from higher education institutions of Burkina Faso, Ghana, Ivory Coast, Liberia, Mali, Senegal, Sierra Leone, Zaire and also from Belgium. The three main priority areas identified by the seminar are the EE programmes and methods at university level, training of teachers in EE and research in EE at university level. Ten recommendations were formulated for the development of EE at university level in Africa and a declaration, decrying the disposal of toxic wastes from developed countries, was addressed to all African Member States.

14. Subregional Seminar on the Integration of an Environmental Dimension into General University Education in Latin America. The seminar was prepared in collaboration with Universidad de Buenos Aires, Centro de Estudios Avanzados, Argentina. The seminar was organized in September 1988 in Buenos-Aires, Argentina, and was attended by 46 participants from Brazil and Uruguay.

15. Subregional Seminar on Needs, Priorities and Strategies to Incorporate EE in Higher Education in Central America. The seminar was organized in cooperation with the Ministry of the Environment of Costa Rica in San Juan, Costa Rica, December 1988, for 90 experienced professors and university administrators from institutions active in the field of environmental education. The objectives were to identify needs and priorities and to develop strategies for incorporating EE into higher education in Central America.

16. Subregional Seminar on the Integration of an Environmental Dimension into General University Education for Pacific Countries. The seminar was organized in September 1989 with the cooperation of Macquarie University, Australia, for 20 participants from the region.

17. International and Regional Meetings Organized by IEEP

- .International Workshop on Environmental Education, Belgrade, Yugoslavia, October 1975
- .Regional Meeting of Experts on EE in Africa, Brazzaville, People's Republic of the Congo, September 1976
- .Regional Meeting of Experts on EE in Latin America and the Caribbean, Bogota, Colombia, November 1976
- .Regional Meeting of Experts on EE in the Arab States, Kuwait, November 1976
- .Regional Meeting of Experts on EE in Asia, Bangkok, Thailand, November 1976
- .Regional Meeting of Experts on EE in Europe, Helsinki, Finland, January 1977
- .Intergovernmental Conference on Environmental Education, Tbilisi, USSR, October 1977
- .International Seminar on Education and the Environment, Budapest, Hungary, 1980

- .International Expert Meeting on Progress and Trends in EE since the Tbilisi Conference, Paris, September 1982
- .International Symposium on EE, Bulgaria, October 1983
- .Regional Seminar on University and the Environment for Latin America and the Caribbean, Bogota, Colombia, November 1985
- .Regional Seminar on the Incorporation of General Environmental Education into University Education in the Arab States, Doha, Qatar, December 1985
- .International Symposium on Environment and Teaching Social Sciences, Paris, February 1986
- .International Congress on Environmental Education and Training, Moscow, USSR, August 1987

18. International and Regional Meetings Supported by IEEP

- .International Conference on Environmental Education, New Delhi, India, December 1981
- .Regional Conference on EE Transfers from ASEAN Universities, Serdang, Malaysia, August 1981
- .Conference of the International Union of Biological Sciences, Canada, 1982
- .Regional Workshop on EE and the Training of Ecologists in the African Francophone and Lusophone Countries, Kisangani, Zaire, May 1982
- .World Conference on EE in Developing Countries, Cairo, Egypt, April 1983
- .Symposium on "Long-Term Development of Environmental Policy and Environmental Education in Europe", Vienna, Austria, June 1983
- .European Seminar on the Role of the University in EE, Budapest, Hungary, October 1983
- .Study Course on Environmental Education, Luneburg, Federal Republic of Germany, October 1988

B. RESEARCH AND EXPERIMENTATION

This action is aimed at promoting and developing research activities dealing with content, organizational mechanisms and training strategies for furthering formal and nonformal environmental education. It is also devoted to promotion of experimental and pilot activities stimulating environmental education in Member States.

Main activities undertaken in this field concern:

Studies, Surveys and Research Activities

1. Study on the Incorporation of an Environmental Dimension into General University Education. On the basis of selected cases, this study explores possible structures and content of an integrated course on environmental problems and issues for students of the natural sciences. (Under preparation.)
2. Study on the Development of Nonformal Environmental Education. This study was undertaken in some four countries to provide data and information leading to a comparative analysis on: (i) establishment and operation of an infrastructure for the development of nonformal EE; (ii) the nature and mode of present and future activities and their implementation in nonformal EE; (iii) major problems and constraints encountered in the promotion and development of nonformal EE; and (iv) development of guidelines for further development of nonformal EE. It is being published as a document entitled, Guidelines for the Development of Nonformal Environmental Education (EE Series No. 23).
3. Study on the Incorporation of an Environmental Dimension into School Curriculum and Teacher Training in Technical and Vocational Education. Three case studies were carried out in three countries (Czechoslovakia, Singapore and Jamaica) for obtaining data and information for comparison and analysis leading to: (i) identification of environmental concepts to be integrated into the curriculum of, and teacher training for, technical and vocational education; (ii) identification of teaching methodologies for the effective implementation of environmental education concepts; (iii) activities performed and evaluation techniques utilized for achieving EE objectives in technical and vocational education; (iv) suggested strategies and guidelines for effective incorporation of the environmental dimension into curriculum and teacher training in technical and vocational schools. The case studies were used as reference documents in subregional training seminars on the incorporation of EE into technical and vocational education.
4. Art Education and Environmental Education. This study was prepared in cooperation with the International Society for Education through Arts. Its objectives were: (i) to develop a conceptual and pedagogical framework to deal with relationships

between art education and environmental education; and (ii) to report on experiences of various countries in this field. A report of the study was printed.

5. Studies on Environmental Ethics. Three studies on environmental ethics in Australia, Sri Lanka and West Germany were prepared in 1989-1990. They focus on the nature of environmental ethics, how it may be developed and ways and means for inculcating it at individual, family, community, national and global levels.

6. Case Studies on Environmental Education at the University Level. Two case studies, one on the incorporation of an environmental dimension into the Science Faculty of Jadavpur University, India, and the other on the incorporation of an environmental dimension into the Faculty of Social Science of the Central University of Venezuela, were finalized in 1985. A report of the case study from India was printed and distributed in 1985.

7. Environmental Education in Vocational Agriculture Curriculum and Agriculture Teacher Education in Michigan, USA, A Case Study. The study has been reproduced in the "Environmental Education Series" as No. 28, 1988.

8. Survey on Curriculum Development in Environmental Education. A survey in some 15 countries was undertaken in cooperation with the Unesco Institute of Education in Hamburg. On the basis of the study, a document has been published as No. 17 of the "Environmental Education Series": "A Comparative Survey of the Incorporation of Environmental Education into School Curricula", 1985.

9. International Survey of Needs and Priorities in Environmental Education (1977). This study was carried out in three phases: (i) a world survey in 1975; (ii) regional reports in 1976; and (iii) a preliminary report entitled "Environmental Education Needs and Priorities: An International Survey". The purpose of the study was to furnish the International EE Programme as well as specialists and decision-makers in environmental education a valid base upon which further action could be pursued. For the IEEP in particular, the results of this study have been to orient other domains of action, especially activities related to innovative projects and expert meetings.

10. International Survey on Trends and Progress in Environmental Education since the Tbilisi Conference (1982). This study was conducted in two phases: (i) a survey in which 82 Member States responded and upon whose basis (ii) a report was prepared, entitled "Trends in Environmental Education since the Tbilisi Conference". The report presents an overview of trends, needs and progress in environmental education since the Intergovernmental EE Conference, held in Tbilisi, USSR, 1977. Aspects considered are: Unesco actions in this field and national EE trends related to policies, planning and mechanisms; content and methods; training of personnel; and research and experimentation.

11. International Survey on Environmental Education at the University Level. This survey was contracted during 1984-1985 and its results were made available for the Asian and Arab States meetings on environment and the university. The survey was based upon the review of documentation available from various regions as well as upon a questionnaire requesting information from 100 universities. The rate of response of 50% was relatively high for a questionnaire and regional representation was well balanced. Its objective was to identify needs and priorities for guiding further development of environmental education in general university education in such academic areas such as natural sciences, social sciences and technology. Its report was printed in English and French.

12. Research on the Development of Content and Methods for Teacher Training in Environmental Education. This activity aimed at the elaboration of teacher training objectives and the experimentation of environmental education curricula, methods and materials in selected Australian teacher training colleges.

13. Research on the Development of Interdisciplinary Content and Methods for the Incorporation of an Environmental Dimension into General Education in Polytechnical Schools. This activity aimed at the formulation of appropriate educational objectives and the experimentation of curricula, methods and materials in selected technical schools of Bulgaria. Its report was printed.

14. Research on the Development of Content and Methods for the Incorporation of an Environmental Dimension into Biology and Geography. This activity aimed at the formulation of appropriate objectives for secondary school education, the analysis of existing curricula and experimentation in selected schools of content and materials for possible incorporation into biology and geography education.

15. Research Project on the Teaching of Environmental Education at Secondary Level. This study, prepared with the cooperation of the Laboratoire d'Epistémologie et de Didactique de l'Enseignement des Sciences, University of Geneva, is devoted, on the one hand, to the proposal of a systematic procedure for the elaboration of curricula and, on the other, to the application of this methodology to a prototype educational programme dealing with priority environmental themes such as (i) water, its pollution and conservation; (ii) noise; (iii) forests, conservation and management; and (iv) minerals and metals, utilization and management. A final report was issued.

16. Research Project on the Educational Use of Microenvironments. This project has been implemented between 1983 and 1985 in cooperation with the Environmental Education Centre "Los Molinos", Alicante, Spain. The project aimed at approaching various natural and man-made microenvironments (woods, farms, city quarters, factories, schools) from a pedagogical, interdisciplinary point of view. For each of the above microenvironments, a module was developed which identifies: (i) educational objectives; (ii) interpretation itineraries; (iii)

educational activities; and (iv) evaluation procedures. The educational programmes developed were tested on a local group of schools.

17. Research Project on the Incorporation of an Environmental Dimension into Civic Education. This project, undertaken in cooperation with the Academy of Sciences of the Ukrainian SSR, aimed at developing contents and methods for the treatment of environmental issues and problems in civic education programmes at the secondary school level. The identification of the above contents and methods has been based on information gathered through a national survey. A report was issued in Russian and English in 1985.

Pilot Projects

Within the framework of experimentation and innovation activities, a series of pilot projects related to various environmental education topics, for both formal and nonformal education, was developed in the first phase of the IEEP since 1977. The main purpose of the pilot projects is, on the one hand, to contribute to application of the knowledge and experience already gained in various aspects of environmental education, and, on the other, to play a significant role in the renovation of educational approaches to the environment and its problems. The pilot projects involve two distinct and equally essential phases: (a) an experimental phase aimed at the identification, analysis and solving of eventual problems linked to the institutional organization, pedagogical conception and implementation of environmental education innovations; (b) an expansion phase related to the diffusion of the innovations through the educational systems involved.

The situation of the pilot projects (mid-1990) is as follows:

Africa

1. GHANA (1977-1980) Pilot Project for Primary Level Teachers (SEPA). This project was developed by the Science Education Programme for Africa (SEPA). It aimed at producing multimedia educational materials for first-cycle teachers, related to environmental problems of Subsaharan Africa. The project has developed two packages, one concerning problems of water utilization, including a teacher's guide and associated films and film strips, the other related to food production, similarly including a curriculum guide and audiovisual aids.

2. KENYA (1978-1981) Pilot Project for Secondary Schools. This project was conducted under the joint responsibility of the National Commission for Unesco, the Kenya Institute of Education and the Kiambu High School of Nairobi. The project developed an integrated experimental curriculum of environmental education at the secondary level, as well as the retraining of teachers to apply it within the Kiambu High School.

3. SENEGAL (1977-1982) Pilot Project on the Sahel Region. This project was developed by Unesco's Regional Office of Education for Africa in collaboration with the Director of the Environment at the Ministry of Urbanism of Senegal. The project produced a series of multimedia materials for environmental education of the general public which concerned environmental issues and problems of the Sahel region. The materials were tested in selected villages.

4. BURKINA-FASO (1980-1982) Pilot Project for Schools and the General Public. This project was carried out by the National Institute of Education of the Ministry of Education of Burkina-Faso and was devoted to the development of a comprehensive environmental education programme for school and out-of-school populations concerning environmental problems related to desertification. Pilot activities have been extended to other regions of the country.

5. KENYA (1986) Pilot Project on the Incorporation of an Environmental Dimension into Social Studies at School. This project was undertaken with the co-operation of the African Social Studies Programme (ASSP), Nairobi, Kenya. Its objectives were to incorporate environmental issues into social, economic and physical geography curricula. In this connection, a comprehensive environmentalized geography programme was developed and tested by the ASSP.

6. MALI (1985-1987) Pilot Project on the Incorporation of an Environmental Dimension into Nonformal Education. This project was carried out in co-operation with the Ministries of Literacy and Urban Planning of Mali. It aimed at the development of content, methods and materials concerning environmental problems of urban and semi-urban areas of Mali, to be included as a component of educational programmes for adults.

7. GABON (1987-1989) Pilot Project for Nonformal Environmental Education. This project is being implemented in cooperation with the Ministry of the Environment. It envisages the development of an environmental education component to be integrated into adult education programmes undertaken in rural settings of the country, as well as the training of educators involved in the project. Major environmental themes to be dealt with are rational management of natural resources, fight against various kinds of pollution and measures for improving nutritional and sanitary conditions of the population.

8. KENYA (1988-1989) Pilot Project for the Development of Educational Materials for Schools. A pilot project was implemented during 1988-1989 in collaboration with the African Social Science Studies Programme of Kenya. A Teachers Guide for Social Science in Secondary Schools of Kenya and Uganda was prepared under the project in 1989.

9. REPUBLIC OF GUINEA (1988-1989) Pilot Project on EE. A document, "Introduction to a National Strategy of Environmental Education", was finalised at a meeting in December 1989. Seven participants from the Ministry of Education and 20 heads of primary, secondary and vocational schools participated in the elaboration of the document. The following issues were examined and discussed: the problem of the environment in Guinea; the necessity of environmental education in Guinea; objectives and goals of environmental education in Guinea; and the outline of a strategy for national environmental education.

The strategy developed deals with the information and sensibilization of the public concerning the environment; regional and international research by specialized institutions on environmental planning; appropriate educational approaches; and the training of personnel including teacher educators.

10. CONGO Pilot Project on Dissemination of the Findings of Environmental Scientific Research Through Environmental Education. The above project was begun in February 1989 in collaboration with the Ministry of Education of Congo. Its objective is to produce 3 teaching modules for primary and secondary schools and for public education based on the findings of scientific research on the environment.

The module devoted to primary-schools will develop the following subjects: environmental concepts, climate, rivers and their use, different soils and their conservation, population and society, agriculture, health and hygiene. The module devoted to the secondary-schools will develop environmental concepts and problems, elements of climatology and the physico-chemistry of the atmosphere, elements of geology and metallurgy, demography and sociology notions, improvement of agricultural techniques, problems of deforestation, transportation, health and nutrition. The module for the general public will deal with environmental protection, the nature of soil and soil conservation, management of rivers, hunting and fishing, rational use of natural resources and the prevention of environmental diseases. The three modules will be tested and improved before being used in general.

11. KENYA (1989) Pilot Project. This project has resulted in the preparation and publishing of a "Guide on Environmental Education for Secondary-school Teachers in Kenya". The project aimed at analysing secondary-school and secondary teacher-training curricula and identifying environmental education elements that the teacher's guide should be based upon. It was to develop, among other things, the environmental education role in educational renewal; EE contents and teaching methods (based on curriculum analysis in Kenya); EE activities and experiments; evaluation techniques and procedures; suggestions for the use of the guide; glossary of terms; appendices (if any) and a bibliography. The guide was printed and distributed to schools in Kenya. The project was implemented by the Kenya Science Teachers' College, the Kenya Institute of Education in co-operation with Kenyatta University College, and Loreto Convent Valley Road.

Arab States

1. JORDAN (1978-1980) Pilot Project for Primary School and the General Public. This project was under the responsibility of the National Commission for Unesco within the Ministry of Education of Jordan. The institutional framework was constituted by an intersectorial team representing the Ministries of Health and Agriculture, the Faculty of Agriculture of the University of Jordan and the local administration of the Jordan Valley. The objective of the project was development of awareness of the Gorch Valley population concerning problems of water pollution and its purification, and to encourage participation of school and community members in the solution of environmental problems in the daily life. The project developed an educational module on water pollution, aimed at teachers and students of the pilot area. Before its experimental application by primary schools of the area, an interdisciplinary workshop was organized assembling EE specialists and teachers. A publication of a more general nature aimed at the general public was also prepared.

2. EGYPT (1978-1981) Pilot Project for Youth Association and Clubs. This project was conducted by the Egyptian National Commission for Unesco. Its main objectives were to increase youth awareness about national environmental problems and favour an effective contribution of the young in a countrywide programme of environmental education and preservation. Actions involved development of educational modules and training of youth leaders.

Project activities included the convening of pilot project seminars and workshops of a duration of one to two weeks in five different regions of Egypt, in order to encourage the creation of new environmentally oriented youth organizations, to identify local environmental problems; and to prepare educational syllabuses for youth regarding the problems identified. On the completion of the work of these seminars, a one- to two-week meetings of curriculum developers, teachers, environmental specialists, leaders of out of school youth activities were held in order to develop educational modules based upon the syllabuses prepared by the seminars. An evaluation of the project in terms of the results achieved and recommendations regarding the extension of environmental education activities to all Egyptian youth organization were also a part of the project.

3. MOROCCO (1986-1990) Pilot Project on the Incorporation of an Environmental Dimension into General University Education. This project is being developed in cooperation with the Agronomic Institute Hassan II of Rabat. It is devoted to the development of content and materials for an interdisciplinary course for the general education of students in high level agronomics on main contemporary environmental problems, particularly those of Morocco and the Maghreb Region, as well as the training of tertiary level teachers in this field. The project is under monitoring and implementation.

Asia

1. MONGOLIA (1978-1979) Pilot Project for the General Public. The objective of this project was development of environmental education programmes to provide basic knowledge and develop appropriate attitudes for the general public and specific social groups. The implementation of the project was the responsibility of the State Committee on Science and Technology of the Council of Ministers of the Peoples Republic of Mongolia. The full title of the project was: "Nonformal Environmental Education for the General Public and Specific Social Groups". The specific social groups targeted by the project were industrial and rural workers and the project was to develop specific educational units intended for these groups with environmental education content. Special emphasis was given to the preparation of audio-visual teaching materials which could be diffused through mass media, such as radio or television and to create educational environments such as ecomuseums to support environmental educational activities for the general public.

The project developed a series of instructional aids, including programmes for radio and TV, and an ecomuseum. Environmental education modules were also prepared for the adult population of rural and urban settlements concerning environmental preservation and transportation, mineral resources and their use, values and environment, medicinal plants and their utilization. The project has also produced 18 sets of slides and film strips on conservation of wildlife, as well as 80 radio and TV programmes and 80 special press articles which were diffused throughout the country. The project has had an impact on some 160,000 people and has constituted a nucleus for the further development of environmental education nationally.

2. AFGHANISTAN (1977-1980) Pilot Project for Primary Schools. The "Design, Development and Implementation of Instructional Materials for Environmental Education" was the title of the project. Its objective was to include aspects of environmental education into the science education programme of 7th and 8th grades of primary education.

This project was contracted by the National Centre of the Ministry of Education of Afghanistan. The aim of the project was to enable 7th graders in certain schools from the provinces of Kabul, Nengarhar, Takha, Herat, Kandahar and Ghazni to better understand the interrelationship of people and their immediate environment and to develop behaviour favouring the environment. The project developed teaching/learning modules dealing with the conservation of natural resources, safe drinking water and environmental health. The project also developed institutional materials for retraining supervisors and teachers and familiarizing educational personnel involved in the project with basic teaching strategies and major concepts of the modules. Recommendations were made for the expansion of the project nation-wide.

3. INDONESIA (1977-1980) Pilot Project for Primary School and the General Public. This project was implemented by the MAB (Man and Biosphere) Committee of Indonesia with the co-operation of the Office for Education and Cultural Research Development, the Municipal Government of Jakarta and the Jakarta Institute of Teacher Training and Education.

The objectives of the pilot project was to introduce the environmental dimension into the curriculum of grades four, five, and six of selected primary schools in Jakarta and after evaluation to expand the project to more schools in Jakarta and other parts of Indonesia, both at the primary and secondary levels, as well as, in teacher training institutions. With a view to attain this objective it was intended to examine the existing curriculum to determine the areas in which environmental themes could be introduced in an integrative manner, to train teaching personnel for the implementation of the pilot project, to develop educational modules for primary schools and for teacher training workshops and to try out on an experimental basis the primary school module in Jakarta schools.

This pilot project resulted in development of a series of environmental education modules on different environmental problems for students and teachers, the training of a group of teachers on the experimental use of the modules in selected primary schools.

4. INDIA (1979-1980) Pilot Project for Primary Schools. The pilot project was implemented by India's National Council of Educational Research and training (NCERT). The NCERT convened a three-day orientation workshop. The participants were four teachers from each region and the persons who had developed the Unesco/NCERT module. Other activities included meetings of resource persons from each State to exchange views and experiences and discuss the progress of the project three months after its initiation; continuous evaluation, visits to participating schools by NCERT; organization of State-level workshops; and preparation of a final report which could be used in other parts of the country.

5. INDIA (1981-1983) Pilot Project on Environmental Problems of Urban Marginal Areas. This project aimed at developing multimedia educational materials related to major environmental problems of marginal urban settlements (hygiene, nutrition, pollution and other aspects), the training of community leaders and the experimental development of actions oriented toward improvement of the environmental quality of the community concerned in India.

Among the activities of the project was the preparation of educational materials on selected themes of formal and nonformal education of youth and adults in the pilot community. A training workshop of community leaders and educators followed in order to develop their skills in the use of educational material which was developed by the project. Subsequently educational activities on a limited scale were initiated which it was expected would lead to social involvement and action by the target population concerning the problems of their immediate environment. An evaluation component to assess the outputs in

terms of knowledge, skills and attitudes of individuals and changes in the community regarding physical surroundings and social organization was included. Assessments of the transferability of experience and knowledge gained was also envisaged.

6. INDIA (1986) Pilot Project on Environmental Education Problems of Urban Marginal Zones. Based on the experience gained by the pilot project of 1981-1983, this project, undertaken with the collaboration of the National Council for Educational Research and Training (NCERT), India, was aimed at developing multimedia pedagogical materials dealing with major environmental problems (hygiene, pollution, nutrition, etc.), confronted by marginal urban settings. The purpose of the project was also the training of teachers, community leaders and instructors, and the experimental utilization of materials developed. A synthetic report of its results has been produced.

The project activities included: carrying out of a survey of the local communities in and around Delhi; the preparation of a questionnaire and the administration of the questionnaire through interviews to collect data; analysis of data to assess the needs and problem of the communities in question; preparation of 56 black and white photographs; enlargement of 16 photographs on water to the size of 12" x 10"; preparation of 126 coloured slides on water and waste disposal; developing other educational materials on waste disposal, air pollution, water and water borne diseases.

7. INDIA (1985-1987) Pilot Project on the Incorporation of an Environmental Dimension into General University Education (Natural Science Area). This project, undertaken with the co-operation of the University of Calcutta, was devoted to the implementation of guidelines resulting from a case study previously conducted at the same university. The project developed content and materials for an educational programme adapted to students in natural science disciplines, trained personnel for the experimentation of the programme, tested this programme and evaluated its results.

8. CHINA (1987-1988) Pilot Project on the Use of Biosphere Reserves. This pilot project implemented in collaboration with the MAB National Committee of China was devoted to the establishment of a Changbaishan Natural Museum in the Changbaishan Natural Reserve.

9. CHINA (1987-1989) Pilot Project on the Incorporation of an Environmental Dimension into General University Education. A contract was established in 1987 with the Tsinghua University, Beijing, China, to develop the above project in order to contribute to the development among professors and university students of awareness concerning environmental issues and problems so as to improve interdisciplinary dialogue and work regarding the national environment. The report along with a publication in Chinese based on the outcomes of the pilot project were printed.

Europe

1. FRANCE (1977-1978) Pilot Project on Methodologies for Secondary Schools. This project was developed by the National Institute for Pedagogical Research of the French Ministry of Education. It aimed at the development of methodological innovations in environmental education, especially the formulation of educational objectives and experimentation of various teaching/learning approaches for secondary school students.

The main results of the project have been the development of teaching/learning modules of an interdisciplinary nature, specially adapted to the treatment of environmental issues, subsequently applied in 30 French secondary schools. These modules were elaborated through four training workshops in which about 40 teachers, 8 educational researchers and 28 environmental specialists participated. The project also resulted in the formulation of a ministerial statement recommending the development of environmental education within the national educational system, as well as in the establishment of an agreement between the Ministries of Education and of Environment for the advancement of this education.

2. UKRAINIAN SSR (1976-1979) Pilot Project for Secondary Schools and the General Public. This project was undertaken by the Faculty of Natural Sciences and Geography of the Pedagogic Institute of Kiev in collaboration with the Institute of Pedagogical Research of the Ukrainian SSR. Its objectives were to develop basic environmental knowledge for secondary-school students in order to improve their comprehension of environmental problems and to encourage active participation in their prevention and solution. The project developed a series of educational materials related to such environmental aspects as the conservation of water, air, soil, flora and fauna. Workshops were organized for the retraining of teachers and the incorporation of the environmental dimension into regular educational programmes at the secondary level. A major result of the project consisted in definition of mechanisms for the infusion of environmental education into general education in rural and urban areas. These mechanisms involved environmental education actions, research activities, interpretation, field trips, and more conventional pedagogical approaches such as lectures and classroom courses.

3. UNITED STATES OF AMERICA (1977-1978) Pilot Project of an Environmental Education Network for Secondary Schools, INTERNET. This project was carried out by the International Environmental Resources Network (INTERNET) of the Centre for Natural Areas, an affiliate of the Smithsonian Institution of Washington, D.C. The objective was to promote environmental awareness through the dissemination of information on environmental events, principally natural events, man-caused events, environmental quality and environmental management. The most important outcome was the publication of a directory of local environmental resources, relevant organizations working in the field and the involved schools of the USA and Canada. Another project result was development of information on environmental issues and programmes

disseminated to Internet participants in the form of a 2-page "Internet Environment Reports". The reports, of which 103 were published in 1977, cover a wide range of environmental issues at world, regional, national and local levels. The last achievement was development of a teacher's materials in and out of the classroom and providing teachers and students with selected background documents on national and international efforts in environmental management and education.

4. UNITED KINGDOM (1977-1978) Pilot Project for Teacher and Educational Specialists. This project was carried out by the Town and Country Planning Association of London. Its objective was to provide European educators with up-to-date information concerning urban environment programmes in their area. The Association organized two courses in London (1977) on urban environmental education. The main aim of these courses was to bridge the gap between those involved in urban planning and design and those involved in teaching these subjects at secondary-level teacher-training institutions.

This pilot project grew out of the recommendation of the European region working group at the Belgrade International Environmental Education Workshop of 1975, where interest was expressed in British urban studies. As part of the implementation of the project, the Town and Country Planning Association carried out a study on the current environmental education movement in the United Kingdom and in the European region generally. It also organized two in-service courses, each of about 10 days duration and attended by about 100 participants, aimed at introducing European educators to the main themes of urban studies and their role in innovative pedagogical approaches. An important focus of the project was to examine recent developments in urban studies at the secondary school level in Britain and the role of urban studies as "complementary and essential to the wider environmental education movement".

5. CZECHOSLOVAKIA (1977-1983) Experimental Project for the School System. This project has been carried out by the Pedagogical Research Institute of Czechoslovakia. Its main objective was development of a comprehensive environmental education programme embracing all levels of school education: (a) pre-school and lower primary school; (b) upper primary school; and (c) secondary school.

6. POLAND (1984) Pilot Project on the Development of Content and Methods for the Incorporation of an Environmental Dimension into Biology and Geography Studies. This project, undertaken with the co-operation of the Ministry of Education of Poland, aimed at the development of environmental education in the above subject matters through analysis of existing educational programmes and their experimental adaptation to environmental issues and problems.

7. FRANCE (1985) Pilot Project on the Incorporation of an Environmental Dimension into Consumers' Education. This project was devoted to the incorporation of an environmental analysis into the treatment of issues dealing with consumption of food,

industrial goods, services and others currently studied by a well-known French consumers review, "50 millions de consommateurs". The project has produced eight analysis in eight monthly issues of the review dealing with questions such as heavy metals, malnutrition and starvation, forest protection, coffee consumption, water utilization, fresh food consumption, agriculture and environment, and energy consumption and habitat.

8. PORTUGAL (1986) Pilot Project on the Incorporation of an Environmental Dimension into Geography Studies. This pilot project was carried out with the co-operation of the Ministry of the Environment of Portugal. As most pilot projects, it aimed at strengthening national capabilities to deal with environmental education in relation to a particular educational field, in this case the teaching of physical geography. In pursuing these objectives, the project developed educational programmes and materials; trained personnel for the experimentation of these programmes; tested the programmes and evaluated their results; proposed ways and means for wider application within current national activities in physical geography.

9. SPAIN (1985-1986) Pilot Project on the Incorporation of an Environmental Dimension into General University Education (Social Science Area). This project was undertaken in co-operation with the University of Cantabria, Santander, Spain, and was devoted to the development of an interdisciplinary course on environmental problems adapted to the needs of students in social science disciplines. The project developed lectures and materials for a one-month course.

The target group was 1st cycle students (Courses 1,2 and 3) of the Faculty of Law and the Faculty of Philosophy and Letters. The general objective of the courses was the acquisition on the part of the students of social sciences of the basic concepts and problems concerning the environment and to develop activities favourable for improving it. Through 14 learning units the most important contemporary environmental problems were studied in a historical prospective and with reference to the current Spanish situation.

10. CZECHOSLOVAKIA (1986-1989) Pilot Project on the Incorporation of an Environmental Dimension into General University Education. This project was undertaken under the responsibility of the Comenius University of Bratislava. Main objectives of the project were the development of a general interdisciplinary course on contemporary environmental problems for students from all faculties, as well as the training of a team of interdisciplinary teachers responsible for the application of the course on a permanent basis within the curriculum of general education.

11. SPAIN (1986) Pilot Project on the Incorporation of an Environmental Dimension into General University Education. This project is being developed in co-operation with the University of Sevilla. The project is aimed at the adaptation in various Spanish Universities in the region of Andalusia of an interdisciplinary course on contemporary environmental problems, that was previously developed in the framework of a pilot project

undertaken in 1985-1986 by the University of Santander. The project envisages further development of the above-mentioned course, as well as the constitution of interdisciplinary teams of teachers in the concerned universities.

12. CANADA (1988-1989) Pilot Project on the Preparation of Environmental Information Cards as a Contribution to the Teaching/Learning Process. This pilot project concerned preparation of information cards on a large variety of general environmental subjects.

13. BYELORUSSIAN SSR (1988-1989) Pilot Activity on the Use of Ecomuseums and Natural and Cultural Heritage for Environmental Education of the General Public. A contract was established with the Byelorussian Technological Institute for developing pedagogical approach and materials to the use of biosphere reserves for environmental education purposes in secondary schools.

14. CANADA (1987-1989) Pilot Project on Developing Environmental Education Materials in Higher Education. The above project, initiated in collaboration with Quebec University of Chicoutimi, aimed at developing prototype teaching materials on contemporary environmental problems for integration into general university education. Its report includes 2 video-films on acid rains; one video film on biosphere reserves and one video-film on food production.

15. AUSTRIA (1987) Interdisciplinary Pilot Project on the Incorporation of the Environmental Dimension into General Education of Economists at University Level. This project, was initiated during Phase V of the IEEP at the Vienna Centre. It aimed at developing an interdisciplinary course on environmental education to be incorporated into general education of economists at university level (undergraduate). Its objectives were to: (i) enable students involved with the Project to acquire basic knowledge about the relationship between economics and contemporary environmental issues; (ii) prepare a model interdisciplinary course and associated didactic materials on the above to be applied in the general education of students in economics; and (iii) develop from these materials a textbook reflecting economic approaches and the management of environmental problems in different regions of the world.

16. UKRAINIAN SSR (1987-1989) Pilot Project on the Use of the Biosphere Reserves. This project was established with the Directorate of the Chernomorsky Biosphere Reserve (Ukrainian SSR) to establish an educational programme designed for the general public, students and school children of the Pontian Steppe Area involving the role of the Chernomorsky Biosphere Reserve in terms of local cultural and socio-economic development.

17. FRANCE (1987-1988) Pilot Project on the Use of Biosphere Reserves. This project was established with the National Park of Cévennes, France, to develop a formal and nonformal education programme aimed at the different population groups of the Lozère-Gard-Ardèche Region concerning the relevant use of the Park's resources.

18. BYELORUSSIAN SSR (1988-1990) Pilot Project on the Use of Biosphere Reserves. This pilot project, developed in cooperation with the National Commission of the Byelorussian SSR for Unesco, envisaged the development of pedagogical approach and materials on the use of the Berezinsky and Bielowesa Reserves for the formal and nonformal environmental education of secondary school children.

19. CANADA (1986-1988) Pilot Project on the Use of Ecomuseums. Established with the National Museum of Natural Sciences, Ottawa, Canada, this project has helped to increase the role of museums in the environmental education of the general public with an emphasis on the younger generations, as well as to integrate environmental education into general nonformal education.

20. IRELAND (1986-1988) Pilot Project on "Living in the Environment". Established with the Irish Eco-Youth Unesco Clubs, this project aimed at promoting, especially among young people, an interest in, and concern for, the conservation and development of the natural and cultural heritage, based on economically and ecologically sustainable principles and practise.

21. UKRAINIAN SSR (1988-1990) Pilot Project on Environmental Education and International Comprehension. A contract was established in 1988 with the Kiev State Pedagogical Institute (Ukrainian SSR) to undertake a pilot project on the relationship between environmental education and international comprehension education in school. The objectives of the project are to contribute to: (i) the development of ethics based on a better comprehension of the interrelations between the improvement of the environment and the quality of life, and the efforts towards improving international understanding and peace; and (ii) the enhancement of the social and environmental awareness of pupils, 10-15 years of age.

22. UKRAINIAN SSR (1988-1990) Course on General Environmental Education for Decision-Makers. This project was established with the Institute for National Economic Management of the Ukrainian SSR and involved development of an environmental education pilot project for implementation of the above course for decision-makers in the framework of their in-service training. The project has resulted in the development of a series of EE modules for the training of high-level decision-makers. These modules after tested in experimental seminars are serving as in-service course materials.

23. UKRAINIAN SSR (1988-1990) Pilot Project on the Use of Ecomuseums and Natural and Cultural Heritage for Environmental Education. This project, initiated in 1988, aimed at preparing an information document and exhibition based on environmental education objectives, specifically the nature, importance, protection and method of utilization of ecomuseums by the school population and the general public.

24. FRANCE (1989-1990) Pilot Project on the Use of Informatics in Environmental Education. This pilot project was initiated in early 1989 on the use of computer and video in environmental

education for primary and secondary schools. There are two components: the preparation of a record, in English and French, which would present in a systematic manner the environment and the interaction of its different spheres with a clear, short commentary; a video-cassette of 20 minutes in colour on the experiences of environmental education in agriculture, water purification and the use of solar energy in rural areas.

25. FEDERAL REPUBLIC OF GERMANY (1989) Research Project on Environmental Ethics. This research project was undertaken in collaboration with the Essen University of the Federal Republic of Germany on the concept of and need for environmental ethics and values in contemporary civilization and methods for their development.

26. IRELAND (1989) Pilot Project on an Interdisciplinary Module for Secondary Schools on Coastal Environment. This project was established with the Environmental Resource Management Unit, University of Dublin (Trinity), Ireland. Its objective is to produce an interdisciplinary module for secondary schools on coastal environment. The module will cover the subjects of geography, physics, chemistry, biology, history, mathematics and art. The project involves the following phases:

Phase 1: (a) Gathering and scanning of available environmental information and training materials on coastal themes. (Ireland in detail, as well as a limited scan of U.K., U.S.A., Polish, Norwegian and German materials); (b) discussions with Department of Education, Environment, Marine and Wild Life Services on Existing Schools Syllabus and Materials.

Phase 2: (a) Selecting and testing relevant materials; (b) identifying gaps.

Phase 3: (a) Producing new materials to fill identified gaps; (b) adapting existing materials. Both (a) and (b) with cross-reference to school syllabuses, laboratory, and field centre possibilities and equipment.

Phase 4: Trial of draft interdisciplinary unit by secondary school teachers, also working on the coastwatch survey, and by mixed groups of the public through environmental groups and coastal interpretation centres.

Phase 5: Workshop to evaluate tests with those who have used part or all of the module, as well as regional coastwatch co-ordinator representation who inform teachers/centre of material available.

Phase 6: Re-draft of module in light of workshop assessment to produce final version.

Latin America

1. COLOMBIA (1977-1979) Pilot Project for Rural Populations. This project was developed within the institutional framework of INDERENA, the Ministry of Education (General Direction for Training of Educators) and the Secretary of Education of Cundinamarca.

The project aimed at developing educational materials and training activities, particularly related to environmental problems of coffee ecosystems in Colombia. Within this perspective, the project elaborated an educational package addressed to educators and student teachers of primary and secondary levels constituting: (a) 15 resource articles related to various aspects and problems of the Colombian environment; (b) 6 audio-visual programmes related to environmental issues of the coffee region of Saldana River Basin; (c) 10 posters, one 16 mm film and a half-hour TV programme related to the same ecosystems.

The educational package has been used in four experimental training seminars. The project resulted in the establishment of an Interministerial Committee for the Co-ordination and National Advancement of Environmental Education Activities.

2. GUATEMALA (1977-1980) Pilot Project for Rural Schools and the General Public. Under the auspices of the Sectorial Unit of Investigation and Planning in Education of the Ministry of Education, this pilot project aimed at developing a basic scientific and technological awareness on the part of primary school students of major environmental problems of the "Altiplano Occidental" of Guatemala. Accordingly, the project planners included preparation of educational guides and materials, and the retraining of teachers-involved in the experimental application of the innovations developed. Educational materials were used in a training workshop, in which 49 primary school teachers took part. The materials were later used on an experimental basis by educators in four community schools in the pilot area. Results of the pilot project are being incorporated into the primary level curricula of Guatemala's rural areas and a permanent unit dealing with environmental education has been established within the Ministry of Education.

3. PERU (1977-1979) Pilot Project for Primary Schools in Marginal Urban Settlements. This pilot project was developed by the General Direction of Regular and Special Basic Education of the Ministry of Education of Peru. The project aimed at elaboration of experimental environmental education materials and associated training for teachers in charge of their application at the primary school level in an urban marginal area near the capital. The central thematic concerns were: prevention of the deterioration of air, water and soil; the improvement of health and hygienic conditions; and improvement of social and cultural relationships in the experimental areas. The project developed a series of educational materials. The project also organized a seminar on the use of interdisciplinary approaches in the training of environmental education instructors and teachers.

The pilot project's pedagogical results have been incorporated into curricula for primary and secondary education within the Peruvian school system.

4. PERU (1979-1981) Pilot Project for Primary and Secondary Schools. The project was developed under the responsibility of the Regional Seismology Centre for South America with the collaboration of the Peruvian Ministry of Education. The main results were preparation of educational multimedia materials on earthquakes for the training and retraining of primary and secondary schools, and the education of students at various levels of formal education. The project also envisaged the diffusion of earthquake-related information for the general public.

The title of the project was "Environmental Education Pilot Project on the Mitigation of Disasters Caused by Earthquakes". The target population was students at different levels of formal education as well as the general public. Its aim was to identify different problems and the consequences of earthquakes and the ways and means by which different categories of the population could participate in reducing the damage caused by such natural phenomena and mitigate its effects. Multimedia educational materials and guides for teachers and students were prepared for different levels of education and for the general public. A training element for teachers who would apply the educational materials produced was incorporated in a limited way in the project. These materials were also tested on a limited scale in different sections of the target groups.

5. COSTA RICA (1979-1981) Pilot Project for Primary School Teachers and the General Public. This project, initiated under the responsibility of the Centre for the Improvement of Science Teaching within the framework of the Ministry of Education, aimed at development of pedagogical materials related to environmental problems of tropical rain zones, particularly energy production, nutrition and health practices. The materials constitute the basis for retraining primary-school teachers and address students as well as various socio-professional groups of the experimental area. Another result is the establishment of a specific unit within the Ministry of Education for the advancement of environmental education at national level.

6. DOMINICAN REPUBLIC (1979-1982) Pilot Project for Primary School Teachers and the General Public. This project, related to meteorological disasters, was developed under the responsibility of the Environmental Education Programme of the Ministry of Agriculture of the Dominican Republic.

The title of the project was "Environmental Education Pilot Project Related to Cyclones". The objectives of the project were to identify problems related to cyclones and how to reduce damage and mitigate their effects on the population and the ways and means that different categories of population could deploy to protect themselves and to reduce damage from the effects and consequences of such natural phenomena. The teaching materials such as teachers and students guides at different levels of formal education as well as for the general public were prepared. Multimedia, both printed and audio-visual, materials were

prepared. Teachers who were to use these materials were trained in limited numbers and the materials were tested and evaluated on the different target groups.

The principal results include preparation of educational materials addressed to school teachers and the general public concerning social and environmental problems associated with cyclones. The project also prepared retraining programmes for personnel responsible for the experiential application of these materials. A department of environmental education has been established within the Ministry of Agriculture.

7. CUBA (1981-1983) Pilot Project for Formal Environmental Education. This project aimed at developing a national response to environmental problems through the training and retraining of teachers and the preparation of educational materials dealing with conservation of natural resources, purification of air and water and preservation of cultural heritage.

The project's activities included the preparation of a course on national environmental problems intended for the training and retraining of teachers and addressing national environmental problems of Cuba such as the conservation and use of natural resources (flora, fauna and mineral resources), atmospheric, underground water, coastal water pollution, the conservation of cultural and historical heritage. A seminar of 15 days duration to train 60 teachers from different part of the country was held. The project envisaged to draft and diffuse circulars to create interest in educational institution in the matter of environmental education.

8. MEXICO (1986-1988) Pilot Project on the Incorporation of an Environmental Dimension into General University Education. This project was developed under the responsibility of the National Autonomous University of Mexico (UNAM). It aimed at analysing the treatment of the environmental dimension in various social science disciplines and at furthering its emphasis in the context of social science teaching in general university education. Results of the project were the elaboration of a sourcebook on the interfaces between social sciences and the environment, as well as the preparation of a general course emphasizing socio-economic roots of contemporary environmental problematics.

9. ARGENTINA (1987-1989) Pilot Project on the Incorporation of Environmental Education into Middle-Level Agricultural Schools. A pilot project with the aim of incorporating environmental education into the curricula of middle-level agricultural schools of arid and semi-arid zones was initiated in October 1987 in collaboration with the Direction General of Agricultural Education, Ministry of National Education and Justice, Pisurno, Buenos Aires, Argentine. It produced a series of teaching modules on different subjects, such as water, vegetation, climate, technology, energy, soil, fauna, etc.

10. BARBADOS (1989) Experimental Project on the Incorporation of Environmental Education into General University Education. The above project is being conducted by the University of the West Indies, Cave Hill Campus in Barbados. The objectives are to: (i)

analyse and make a report on the undergraduate curriculum for general education with respect to existing and needed environmental aspects based on the environmental situation in the Caribbean, (ii) develop strategies for the incorporation of an environmental dimension into the above curriculum; and (iii) develop, on the basis of the above curriculum analysis and strategies, a two-year interdisciplinary environmental education course for first and/or second year university students.

C. CURRICULUM AND MATERIALS DEVELOPMENT

This action of IEEP involves the preparation, adaptation, production and diffusion of prototype environmental education curricula and materials (manuals, guidebooks, modules, audiovisuals, etc.) as well as publications concerning various levels and forms of training in environmental education.

The IEEP publications are categorized under the "Environmental Education series", Basic Documents and the Reports as follows.

The Environmental Education (EE) Series of the IEEP

All brochures of the "EE Series" are folio-size. The summary-annotation is based on the English version.

1. Trends in Environmental Education since the Tbilisi Conference (1983), 44pp.(EE No. 1), (Arabic, English, French, Spanish). This brochure contains an analysis of information collected primarily from a questionnaire sent to Member States of Unesco concerning their environmental education needs and priorities. Other sources were publications, documents and similar materials. The overview comprises two parts. Part One is devoted to trends, needs and priorities in EE at the world level. Part Two focuses on regional particularities.

The information presented here does not represent a full and detailed account of achievements of Member States in the field of environmental education. It shows what are the main trends in environmental education at world level since the Tbilisi Conference and what hindrances there are to its development. However, this overview could be particularly useful in that it provides national officials in charge of environmental education with a sum of experiences and a frame of reference allowing them to perceive more clearly results obtained as well as the importance of efforts that should be devoted to the future development of this type of education.

Analysis of information presented in this overview indicates that considerable progress has been made in all regions in the development of environmental education since the Tbilisi Conference. The regions have particularly concentrated efforts on the development of education programmes and materials and also on the training of teachers for the various levels of the school system. Some regions have attributed importance to the development of pedagogical research in environmental education. As for the strategies for the incorporation of an environmental dimension into education and training programmes, the most used has been that of infusing into ongoing study programmes content related to various aspects and problems of the environment, especially conservation of resources, health, nutrition, and the various forms of pollution.

There has been an insufficient development of educational programmes with an interdisciplinary approach that, aiming at solution of environmental problems, permit the surmounting of the usual separation of the disciplines and favour actions for the environment. Environmental education needs remain considerable in all regions and concern above all the teaching personnel, technical and vocational education in the school system, and adult education in out-of-school education. The most marked insufficiencies deal with appropriate teaching materials, the training of teachers and pedagogical research and experimentation in environmental education.

Priorities for future action for the development of environmental education concern, in particular, the various levels of general school education and technical and vocational instruction.

2. Guide on Simulation and Gaming for Environmental Education. (1983), 101 pp. (EE No. 2), (Arabic, English, French, Spanish). The guide comprises two parts. Part One develops fundamentals of gaming and simulation design. Part Two provides examples of games, including a specific game devised for generating other games, with a view to facilitating the comprehension and practice of the proposed guidelines. Gaming and simulation are viewed as particularly suitable to environmental education, reproducing in a simplified and didactical manner the complex nature of concrete environmental problems and providing the student-players with a framework which helps them to appraise situations in a multidisciplinary perspective.

Environmental education considers the environment in its totality -- natural and man-made, ecological, political, economic, technological, social, legislative, cultural and aesthetic. The simulation approach to this subject area can be thought of as a teaching-learning methodology which involves the players taking an active part in decision-making, influencing the form and nature of their environment.

Widespread interest in both environmental education and simulation is a comparatively recent phenomenon. Both areas have existed for a number of years in their own right. The guide examines both topics together. It seeks to broaden the general awareness of role-playing and gaming-simulation; it endeavours to highlight the appropriateness of selected approaches; it provides step-by-step guidance; and it presents a range of examples of tried and tested material, with a view to helping fix the reader's ideas about the design of simulation exercises.

It must be stressed that this guide is seen as an introduction addressed exclusively to the needs of environmental education. If the publication serves as a stimulus to greater experimentation and development in environmental education in schools, it will have achieved a worthwhile purpose.

3. Educational Module on Conservation and Management of Natural Resources. (1983), 89 pp. (EE No. 3), (English, French, Spanish). Part One sets out the basic components to be used by the teacher in organizing his teaching work concerning the subject of the module (general educational objectives, lists of concepts, educational activities, evaluation procedures). Part Two deals with a series of subjects important for a study of the conservation and management of natural resources (the soil and its products, ores and metals, etc.). Each section of this part contains an introduction, educational activities and instruments for evaluating what has been learned.

The study emphasizes that environmental education should: encourage the use of a comprehensive, systemic and interdisciplinary approach to the environment; analyse problems at the individual level, and at the collective level (local, national, regional, or even international), possibly also involving comparisons between various regions or countries; lay the emphasis on real situations and possible or foreseeable future developments; use as far as possible the problems of the

community to which the pupil belongs, at least as the starting-point for discussions on problems which may arise on a larger scale; show the relationship between technical knowledge, problem-solving and the influence of established values; stress both the need for active participation leading to specific action, and a desire and concern to play a real part in the work of planning, developing and managing the environment.

4. Educational Module on Environmental Problems in Cities. (1983), 194 pp. (EE No. 4), (English and Spanish). This teaching module applies specifically to cities of Europe and North America, but is designed for adaptability to other urban situations. Intended mainly for secondary school-level teachers and pupils, the module attempts to clarify certain essential scientific concepts while discussing major environmental problems, such as urban growth and land use, transportation, air and water quality, noise and energy. Part One presents guidelines for teachers. Part Two describes the major environmental problems mentioned, associated educational activities and some evaluation instruments.

The central theme of this module is that environmental quality depends on those who live in the city and that the future depends on the involvement of informed residents who are knowledgeable about how the city works, how the city affects them and how they affect the city. Since more and more people are living in urban settings, no matter where the cities are located, the people who live in them are being subjected to crowding, sanitation problems, excessive motor vehicle traffic, noise, air pollution, etc. Such stressful conditions, when prolonged, can have a profound effect. They create tensions which result in anxiety, alienation, loss of productivity in the workplace and a host of unsocial behaviours: drug abuse, crime, violence and the destruction of property.

5. Environmental Education Module for Pre-Service Training of Teachers and Supervisors for Primary Schools. (1983), 143 pp. (EE No. 5), (Arabic, English, French, Spanish). This module aims at fostering the acquisition by teachers of the knowledge, skills and attitudes useful to teaching about the environment and its problems, to help develop teaching competencies and to stimulate initiative in including the environmental dimension in primary school curricula; the module covers the historical and philosophical background of EE; aspects of EE curricula; teaching methods, activities and experiments; evaluation techniques; and strategies for integration EE into the curriculum.

The module is intended for use by teachers trainers and teacher supervisors responsible for the training of teachers for the primary level. The assumption is made that the primary grades are taught by generalist teachers and that pre-service training of teachers is carried out in institutions specially charged with this responsibility.

It is intended for pre-service teachers who may or may not have done courses in the physical and social sciences as integrated or separate disciplines. The content outlined is considered minimum knowledge for the teacher and it is not intended that all of it should be taught at the primary level.

Environmental education is treated as a self-contained course for the teachers and accordingly aims at fulfilling two broad goals: (1) to ensure that pre-service teachers themselves possess the knowledge, cognitive skills and affective attributes they are expected to impart to students at the primary level; (2) to ensure that pre-service teachers acquire these attributes in a manner that satisfies the goals of environmental education and that serves as a model for their own teaching.

6. Environmental Education Module for In-Service Training of Teachers and Supervisors for Primary Schools. (1985), 172 pp. (EE No. 6), (Arabic, English, Spanish). This module focuses on in-service training of teachers, as indicated, and aims at (1) fostering the acquisition and transfer of the knowledge, skills and affective attributes concerning the environment and its problems; and (2) developing competence in the teaching and supervision of the environmental dimension in primary schools. The module treats (1) the historical and philosophical development of EE; (2) essential knowledge about the environment and its problems; (3) teaching methodologies, activities and experiments as well as evaluation in EE; and (4) strategies for integration of the environmental dimension into primary school curriculum.

The module contents introduce the reader to the objectives in Unit 2 and to the background of international efforts for the promotion of EE since 1972 in Unit 3. The need of having an environmental dimension to education at all levels is also discussed in Unit 3. The knowledge about the environment essential for the in-service training of primary school teachers and supervisors has been dealt with in Unit 4. in some detail. It is to serve as a core academic content of the in-service training course. This is followed by Unit 5 on environmental problems and their solutions. Teaching methodologies in EE with special emphasis on problem-solving approaches at the primary school level have been elaborated in Unit 6. Experiments and activities to facilitate the teaching and learning about the environment through the primary school subjects have been discussed in Unit 7. Units 8 and 9 deal with (a) evaluation in EE teaching and (b) strategies for planning, development; implementation, management and evaluation of the environmental dimension of the primary school curriculum. It is hoped that this module will give sufficient background to primary school teachers to introduce environment-based teaching in their respective subject areas.

7. Environmental Education Module for Pre-Service Training of Science Teachers and Supervisors for Secondary Schools. (1983), 224 pp. (EE No. 7), (Arabic, English, French, Spanish). This module's objectives are similar to those above. It particularly addresses itself to (1) the environmental problematique and education's response; (2) science education as an essential contribution to environmental education; (3) curriculum tasks in

EE for science teachers; (4) teaching strategies for use in environmental science education; (5) evaluation in EE; and (6) implementation of EE at school and wider educational-system levels.

The units in this study group themselves naturally into six chapters. In Chapter 1 (Units I to IV), the student science teachers are introduced to the origins of environmental education as a response to the urgent environmental problems which confront humankind at local, national and global levels. The chapter concludes with a unit that develops a schema for science teachers to include an environmental emphasis in their science teaching and to recognise this as a contribution to the totality of environmental education.

Chapter 2 (Units V-VIII) deals with the nature of science, its relationship to environmental education, and some of the concepts already developed through science that relate to the environment.

Chapter 3 (Units IX-XIV) consists of a number of units that collectively consider in detail the curriculum task a science teacher has if she/he is to implement an environmental emphasis in the classroom.

In order to implement the curricula tasks outlined, a number of teaching strategies that are particularly useful for environmental education in classroom are introduced experimentally to the science teachers in the suggestions in the Units of Chapter 4 (XV-XVII).

Chapter 5 (Units XVIII-XX) looks at evaluation in environmental education in a number of senses. One of these uses a form of content analysis to provide evaluations of curriculum materials like text books and other student resources.

Chapter 6 is concerned with the support science teachers need from their school authorities and in the wider educational system if they are to be able to contribute to environmental education through their science lessons.

8. Environmental Education Module for In-Service Training of Science Teachers and Supervisors for Secondary Schools. (1983), 154 pp. (EE No. 8), (English, Spanish). This module's main objectives are similar to those above. It is primarily addressed to secondary school science teachers and supervisors who have had little or no orientation in environmental education and seeks to provide practical guidance to the presentation of the environmental dimension of science to secondary level pupils. It covers inter alia teaching methodologies, activities, experiments and evaluation.

Implementation requirements suggested are:

Requirements for Management (i.e., planners and coordinators):

(1) Preparation of a course curriculum or a syllabus. The trainees must be informed right at the start what to expect to learn from the training programme. As is customary in course offerings and training programmes, a course curriculum or syllabus is prepared to provide such information.

(2) Selection of trainees. What kinds of science supervisors and teachers may qualify for in-service training in environmental education? Anyone interested, ... has at least two years of teaching experience, ... has not attended any environmental education course, conference or workshop, ... last attended school ten years ago or longer and, therefore needs a refresher.

(3) Preparation of a schedule of activities. In the preparation of day-to-day schedule of activities, the acceptability of the dates and duration of the training workshop to the trainees should be considered. A short intensive programme held over five to ten days, or a one-day-a-week programme spread over several weeks? During school days after office hours, or on Saturdays only, or when school is on vacation? The deciding factor in scheduling in-service training is acceptability to trainees as the most opportune time for their learning. The kind and quantity of available learning resources partly determine the activities for scheduling. The management should make an informal survey of human and physical resources that may be tapped for the training workshop. An evaluation scheme should be carefully planned from the outset and worked into the schedule of activities.

(4) Preparation of a budget. The preparation of a budget and the availability of corresponding funds may spell the difference between success and failure of a training workshop. Every activity, facility, personnel and material that will entail some cost should be anticipated and included in the budget.

Requirements for trainees:

(1) Active participation in small and large group discussions. The gains for the trainee are in the form of sharing ideas and information, observation of the reaction of people to issues and problems, and the exercise in the articulation and communication of ideas and reactions. The trainee who participates more, gains more.

(2) Production of a lesson plan or design an activity. A lesson plan dealing with one environmental issue, problem or concept may be required of each trainee. The lesson plan should use at least one teaching strategy discussed in this module. Alternatively, the design of an activity that will engage students in dealing with a local environmental issue or problem may be required. The write-up of the activity should include objectives, detailed objectives, student tasks, equipment and facilities needed.

(3) Production of an evaluation instrument. The trainee may also be required to submit a one to two page evaluation instrument to assess student learning in terms of knowledge, attitude or interest, or student/teacher reaction or opinion, or instruction and class management of environmental education which the trainee can use when he starts implementing the environmental education

programme. The evaluation sheets should be accompanied by a description of how the data obtained from the instrument shall be collated for the purpose of writing an evaluation report.

9. Environmental Education Module for Pre-Service Training of Social Science Teachers and Supervisors for Secondary Schools. (1985), 123 pp. (EE No. 9), (Arabic, English, French, Spanish). The essential contents of this module are: (1) the historical and philosophical development of EE; (2) basic knowledge of the environment and its problems; (3) teaching methodologies, activities and experiments in EE as well as evaluation procedures; and (4) strategies for the planning, development, implementation, management and evaluation of the environmental dimension in secondary-school social science.

Training provided only in ecology or in conservation may not be adequate to develop all competencies needed to infuse the environmental dimension into the teaching of different social studies subjects. It is essential that besides the ecological components, aspects of social environment should also form an integral part of environmental education courses for pre-service training of social science teachers and supervisors.

10. Environmental Education Module for In-Service Training of Social Science Teachers and Supervisors for Secondary Schools. (1985), 125 pp. (EE No. 10), (English, Spanish). The main objectives of the module are to: (1) foster the acquisition and transfer of knowledge, skills and affective attributes concerning the environment and its problems; and (2) develop competence in the teaching and supervision of the environmental dimension of social science in secondary schools.

This module is primarily addressed to secondary school social science teachers and supervisors who have had little or no orientation toward environmental education. The social science teacher is identified as a teacher of history, geography, social studies, civics, ethics and economics, and art. It was recognized that social science teachers already use much material related to the environment and hence this could provide possibilities for the infusion of the environmental dimension when teaching this content. Topics which are considered suitable include population, human settlements, food, water, morality, illiteracy, unemployment, degradation and depletion of natural resources, ways in which people organize themselves, and their relationships to the natural and social environments, customs, traditions and histories. In-service training should aim at making the social science subjects taught not a mass of content but a new perception of relationships and the acquisition of new values within the social science context.

11. Energy: An Interdisciplinary Theme for Environmental Education (1985), 171 pp. (EE No. 11), (English, Spanish). This publication consists of two parts. Part I is largely introductory, describing energy in nature and human society, in the cosmos and in the biosphere, the evolution of societies and the utilization of energy, energy sources and resources and the use and management of energy resources. Part II is devoted to the content indicated in the publication's title, beginning with

pedagogical methods and their application, then going on to the presentation of a module on the theme of energy. The module constitutes half of the publication and covers all aspects of its theme plus student activities suggested for each aspect. Four annexes include a topical bibliography as well as a glossary of terms.

An interdisciplinary approach is indeed considered one of the essential characteristics of environmental education: energy looms large among the so-called integrating or federating themes. One of the first requirements of an interdisciplinary approach is that teachers who have specialized in one disciplinary field should have access to the concepts of other disciplines. This seems a prerequisite on the one hand of serious communication between members of the teaching team, and on the other hand of a systematic approach clearly demonstrating the global character of a given theme and the links between the theoretical concepts and the socio-economic situation (including environmental problems).

The creation of interdisciplinary cohesion in teaching teams based on a sound initial understanding of the concepts involved, was the main reason for preparing this publication. The authors have attempted to present in simple form all the conceptual elements needed to grasp the special characteristics of energy and the practical consequences inherent in its use; to define the links between energy and society with the help of data bearing on the problems of the supply, production, use and consumption of energy; to introduce, into the educational field, such methodological considerations and modular elements as will render possible the performance of concrete tasks, justified and supported by adequate prior reflection.

12. Evaluating Environmental Education in Schools: A Practical Guide for Teachers (1985), 106 pp. (EE No. 12), (English). This guide comprises six chapters which address, step by step, different questions to be considered in a scientific evaluation process at the same time as in a practical and accessible manner. Evaluation and associated statistical instruments which involve a certain complexity are contained in the appendix. The six chapters in the form of questions are respectively: What should I evaluate? How can I plan my evaluation? How can I conduct my evaluation? How can I use the results of my evaluation? How can I put it all together? Where can I get additional help?

The directions for each step and the alternative pathways and routes to accomplish it are based on the assumption that the teacher is the evaluator.

The methods of evaluation presented here will help to find out what is happening in the environmental education programme so that it can be improved.

Chapter VI presents a case study to indicate more clearly how evaluation can be used to strengthen the role of environmental education in a school's curriculum. Chapter VII, the final chapter, provides sources for additional information.

13. A Guide on Environmental Values Education. (1985), 106 pp. (EE No. 13), (English). This guide aims at providing basic theoretical and practical knowledge for the purpose of stimulating teachers as well as specialists in curricula and materials development in the field of environmental education to explicitly introduce into their programmes and educational practises, together with cognitive content, the treatment of environmental values. Part I develops fundamentals of values education. Part II provides selected examples of the value components of various environmental problems which can be dealt with in primary and secondary education.

Chapter 1 focuses on the nature of human values. The basic components of values are described along with the roles these play in affecting the formation of value and behaviour patterns. Value-change theories are discussed, with emphasis on similarities in fundamental human needs as a basis for the existence of cross-culturally similar value orientations. A vital issue is covered in Chapter 2, which reviews the current strategies in general values education, with a summary of the status of each strategy in EE. Chapter 3 synthesizes the findings of previous chapters, outlines the theoretical evolution of environmental ethics, and emphasizes international concerns.

Chapter 4 provides guidelines for teachers who are planning an EE curriculum. Included are suggestions to follow when setting educational objectives, when addressing student values in the classroom in light of student needs and school and community policies, when choosing appropriate EVE strategies and in evaluating student progress. Practical exercises are presented in Chapter 5 and 6, both for younger and older learners. These exercises, if not directly applicable to specific teaching situations, are meant as models which may be adapted to local conditions. Chapter 7 proposes a programme of coursework and training to help teachers become proficient in environmental values education theory and methodologies. A list of additional curriculum materials is contained in the appendices.

14. Interdisciplinary Approaches in Environmental Education. (1985), 52 pp. (EE No. 14), (English, French). The study is comprised of three parts. Part One deals with an analysis of, and an approach to, the concept of interdisciplinarity -- difficulties encountered, complexity involved and clarification of the concept. Part Two covers strategies for incorporating an interdisciplinary environmental dimension into educational practice -- an overall strategy, specific characteristics at the primary and secondary levels. Part Three discusses research objectives in the field of interdisciplinary EE.

Interdisciplinary research in an environmental framework aims at developing new knowledge that will supply the means to solve certain problems. Environmental education is not so ambitious, but also relies on interdisciplinarity among teachers to reach its objectives.

Whatever the methods and intensity applied to training teachers, what must always be put across is an understanding of a system's mechanisms as they reveal the relationships between

human activity and the environment. A systemic approach, therefore, is indispensable even for observing and describing known processes. Moreover, this approach is in itself an element in the training to be acquired if the desired changes in attitude, behaviour and, especially, thought mechanisms are to be achieved.

Concretely, in teaching, whether a single teacher is responsible for several subjects or a number of teachers work in more or less narrow disciplinary specialities, two conditions are essential to realizing interdisciplinarity; first, knowing with sufficient precision what a given discipline can bring to environmental education and which of its aspects deserve to be further developed within an environmental education framework; second, assuring the connections between disciplines that by definition characterize interdisciplinarity. In practice, these connections will probably require preliminary theoretical thinking before they can be established, but they will relate to concrete subjects of study as soon as the systemic approach is sufficiently evident. If several specialized teachers participate, interdisciplinarity will require organization of a team; its constitution obviously depends on the human relationships that emerge.

A major difficulty in achieving interdisciplinarity can stem from the teaching practices peculiar to each subject; the specificity of field of study often makes for considerable autonomy in their teaching. To participate fully in environmental education, teachers must consent to teach in a different style than is traditional in their subjects.

15. A Problem-Solving Approach to Environmental Education (EE No. 15), (1985), 83 pp. (Arabic, English, French). This publication treats a variety of pedagogical approaches to practical activities in the solution of environmental problems. The approaches involve group-guided discussion, environmental interpretation, clarification of values, games and simulation, demonstration experimental workshops, action and research projects. Each approach is illustrated by a full-page drawing.

A discussion group is a specific means of pooling experience through language. It is the function of every adult discussion group to facilitate the communication of experience through language and to foster the formulation of ideas, propositions, counter-propositions, etc.

Guided environmental interpretation involves making contact with known external conditions, yet not so familiar as to raise no questions. It is based on a programme of visits or studies, in which what matters is to discover, observe, exchange, and discuss with a view to gaining a better understanding of the environment, of life and of work.

The second function of guided environmental interpretation is to give man greater control of his relationship with his material and living environment at a time of rapid and far-reaching changes. Any guided environmental interpretation can be regarded as a tool. In some cases, it can be applied to man's

relationship with the biosphere or certain ecosystems, and give direction to observations of, and reflections on, man's influence on the environment, for instance on grazing land, water, forests, etc.

As far as environmental problems are concerned, value judgements affect the examination and decision-making process involved in the exploitation and control of natural resources, the conservation of ecosystems, etc. Values and preferences, independent of the technical and economic imperatives, play the role of filters. When faced with a particular situation, every man, including the political decision-maker, will try to respond in ways that satisfy him, even if they are no more than the results of "mental images". Simulation involves a more or less explicit model.

The main purpose of some models is to explain, illustrate and clarify -- in short, to serve as tools for the acquisition of knowledge; others are mainly guides to action in that they are supposed to provide all the elements needed for effective action.

There are models for material systems as well as for systems describing situations. However, there can be no material model of the environment without an underlying conceptual model.

The function of a model is to help us represent reality as we think it is. The basis of any experimental demonstration workshop is the immediate or the broader environment. It must be used as a point of reference at every stage of the procedure. Workshop activity is intended mainly as a training exercise; it needs to be broken down into component units, thus facilitating the teaching of elementary mechanisms.

A practical action project, is to some extent, a manifestation of freedom; it is primarily a commitment before others and with others. Moreover, as part of environmental action, a "project" reflects the wish to control the environment and to take appropriate steps.

Action-oriented research is an integrated and interdisciplinary educational method facilitating an overall and integrated approach to concrete problems, based on research into their causes and consequences.

16. Environmental Education Module on Desertification (1985) 144 pp. (EE No. 16), (French, Spanish). This module deals particularly with the arid and semi-arid zones of the Sahel region. Part One presents the structure and use of the module. Part Two treats the problem of countries facing desertification with the Sahel region as an example. Part Three consists of the teaching module itself -- relations with one's environment, water as an essential resource, the soil and its cultures, animal husbandry and pastures, fire-wood and deforestation, problems of land management and development; Annexes include (1) and (2) practical educational activities.

17. A Comparative Survey of the Incorporation of Environmental Education into School Curricula (1985) 142 pp. (EE No. 17), (Arabic, English). This survey covers thirteen countries of Africa, the Arab States, Asia, Europe, Latin America and the Caribbean: Colombia, Federal Republic of Germany, India, Jamaica, Japan, Kenya, Kuwait, Malaysia, Nepal, Sri Lanka, Thailand, USSR and Venezuela. EE aspects dealt with are: (1) national policies concerning the environment and environmental education; (2) EE curricula -- aims, content, teaching methods, examples of learning sequences, etc.; (3) evaluation; and (4) teacher training. The survey concludes with a summary of trends in these regards.

An examination of the aims, objectives, content and instructional methodology of the environmental education curriculum materials of the countries included in the study reveals certain common features such as the following:

- environmental education concepts are integrated into the entire system of education at all levels of the educational system, from primary school to the senior secondary school level (in some countries, e.g. Venezuela even at the pre-school level);
- an interdisciplinary approach is adopted at the primary level;
- a multidisciplinary approach is adopted at the secondary level;
- a holistic perspective encompassing the physical, ecological, social, cultural and other aspects of the problem is adopted;
- in addition to the knowledge component (cognitive domain), the need to include skills (psycho-motor domain) and attitudes and values (affective domain) is also recognized.

Analysis of the available material on environmental education in the countries included in the present study indicates that considerable progress has been made in the development of environmental education programmes since the Belgrade and Tbilisi Conferences.

A significant observation is that all the countries have adopted the strategy of "infusing" subject matter relative to the environment into the different disciplines of the traditional curriculum in their attempt to integrate the environmental dimension with the general education curriculum. This has resulted in the emergence of a multidisciplinary approach which is evident particularly at the post-primary levels. Of the traditional subjects, natural and social sciences have had the benefit of absorbing the largest share of environmental concepts in this infusion approach.

18. The Balance of Lifekind: An Introduction to the Notion of Human Environment (1985), 26 pp. (EE No. 18), (Arabic, English). This modular unit provides a global perspective or framework to which teachers can relate other environmental studies. The use of

the word "lifekind" rather than "nature" is to make the study of environment and ecology more tangible for the student. The chief value of the unit is this provision of a common terminology for the understanding of both biological and human cultural systems which can be easily translated into the common vocabulary of most languages.

This global perspective is comprehended within the relationships among 15 concepts: the balance of lifekind, human environment, global environmental system (biosphere), ecosystems, human systems, energy, food, agriculture, evolution (adaptation), culture, population, community, interactions (feedback) and values. These concepts are elaborated in the "Introduction" to the Student's Guide, and in the section entitled "Network and Sequence of Concepts".

Most of the concepts in this unit are already familiar to students. In most cases, only the interrelationship of these concepts will be experienced as new. The one certain exception is the newly coined term, "lifekind". "Lifekind" is the concept that makes this global perspective possible. It is intended for teachers and pupils of lower secondary school level, and attempts to clarify and articulate in a holistic perspective principal concepts and notions related to natural, social and cultural dimensions of the human environment.

Proper understanding of the notion of human environment is essential for the attainment of the objectives of environmental education, i.e., a better comprehension of environmental complexity and more efficient individual collective action in coping with environmental problems.

19. Preliminary Analysis of Results of Environmental Education Pilot Projects. This document is a preliminary analysis of the principal results of pilot projects in environmental education financed and technically supported by IEEP. (Unavailable.)

20. Environmental Education: Principles of Teaching and Learning (1985) 228 pp. (EE No. 20), (French only at present). This work is fundamentally a basic teacher's guide designed to aid primary and secondary school teachers in the problem of incorporating environmental education into current educational systems. A first draft was prepared by the National Pedagogical Research Institute of France; a revision was undertaken by the Environmental Education Laboratory of Geneva University, Switzerland. This guide to the principles of teaching and learning environmental education comprises three parts. Part One presents and explicates the guidelines, aims and goals of environmental education as a common denominator in the overall renovation of the educational process. Part Two describes and analyzes the pedagogical approaches and experiences to be employed according to the age and educational level of the learner in terms of current as well as to-be-developed pedagogical practises. Part Three develops at length the essential elements of EE, such as interdisciplinarity, problem-solving, clarification of values, etc.

21. Environmental Education Module on Health, Nutrition and the Environment. (To be announced.)

22. Procedures for Developing an Environmental Education Curriculum. (1986), 100 pp. (EE No. 22), (English, French). This document served as a discussion guide in a series of regional and subregional training workshops in environmental education, organized in the framework of the Unesco-UNEP International EE Programme. The document includes sample activities and instructional models as well as guidelines.

A summary of the major principles, strategies, and guidelines in the document is presented as follows:

(a) Formats for EE curriculum design may be either interdisciplinary or multidisciplinary (infusion). Both approaches have utility in a comprehensive curriculum and should be selected for use where most appropriate.

(b) EE must provide not only for the acquisition of knowledge, cognitive skills and attitudes, but for their transfer to decision-making by learners. Thus the content, sequencing and teaching strategies encompassed by an EE curriculum must reflect appropriate principles of learning and cognitive development.

(c) The content, sequencing, and teaching strategies of the EE curriculum should reflect the priorities established by worldwide, professional environmental educators.

(d) The criteria for decision-making in environmental education are inherent in operational goal levels (e.g. Goals for Curriculum Development in Environmental Education). Selection of objectives, content, and teaching strategies must be consistent with these operational levels.

(e) A proven, internally consistent instructional model must be used in the development of EE curricular materials if desired outcomes are to be achieved and evaluated.

(f) The development and implementation of an effective EE curriculum will require the combined efforts and expertise of internal (e.g., in-school) personnel supported by consultation with external consultants and resource people.

(g) Since "teacher-proof curricula" are not possible and few existing pre-service teacher education programmes adequately prepare teachers to adapt and/or utilize EE materials, an EE curriculum development project must consider the need for in-service teacher training. The training programme should reflect accepted guidelines to maximize efforts.

(h) Implementation plans must provide for programme approval by both in-school and out-of-school interest groups and for other critical concomitant variables such as programme coordination, programme facilities, resource utilization, and budget considerations.

(i) A comprehensive programme for evaluating the EE curriculum is necessary to determine the need for revision in order to achieve programme goals. Components of a comprehensive evaluation plan include evaluation of goals, objectives, concomitant variables, and instructional effectiveness.

(j) Results of EE curriculum evaluation may result in the modification of the implementation process as well as the curriculum itself.

23. Guidelines for the Development of Nonformal Environmental Education. (1986), 94 pp. (EE No. 23), (English, French). This document has been similarly designed to serve regional and subregional training workshops in nonformal environmental education, organized by the IEEP. It discusses, among other things, methods, materials, personnel training and evaluation in the field of nonformal or out-of-school environmental education.

The objectives in producing the guidelines for the development of non-formal environmental education are threefold: (1) to define the concept and elaborate the importance, needs and target groups; (2) outline the ways of developing nonformal environmental education; (3) enhance the exchange of information.

The need for environmental education is amply illustrated in the review of environmental problems. Population pressures, rising energy consumption, resource depletion, pollution, ecosystem degradation and urban population explosions are all indicative of the need to alter man's exploitative attitude towards the environment. The role of nonformal environmental education and a process through which it can be developed is considered here.

24. Environmental Education in Technical and Vocational Education. (1986), 42 pp. (EE No. 24), (Arabic, English, French, Spanish). This document has also been designed to serve IEEP training seminars, in this case in the area of technical and vocational education. It is primarily addressed to administrators, curriculum developers and others involved in the training of workers, technicians and engineers in various areas of economic activity, particularly in industry and agriculture.

The content of EE should cover with reference to the particular field in which the individual student is likely to be engaged or is already working:

- the elements within his/her particular field of economic activity that may have an impact on the outer environment, put people, flora and fauna at risk if the process gets out of control or, more commonly, if wastes are dispersed indiscriminately;

- what can and should be done to eliminate the risk factors or to keep them under control within permissible limits -- and how this is done;

- how to estimate the risks and to calculate costs and benefits -- including long-term environmental cost -- of eliminating them.

The risks found in the interior environment can be ranged under the following headings:

Equipment-related risks. These are primarily concerned with the safety and health of the individual.

Process-related risks. These include the safe handling of raw materials, and intermediate and final products.

Product-related risks. These include the precautions that should be taken by the users of the product and relate in the first instance to communications from the producer to the client.

25. Strategies for the Training of Teachers in Environmental Education (1987) 152 pp. (EE No. 25), (English and French). This document served as a discussion guide in a series of regional and subregional training workshops in environmental education, organized in the framework of the Unesco-UNEP International EE Programme. It assists interested persons and institutions in the development of strategies for incorporating EE into content and teaching methods of pre- and in-service teacher-training programmes. The guide is primarily in three parts. Part One describes current teacher education efforts and programmes in environmental education. Part Two presents strategies for the training of teachers in EE: the need, the competencies required for an effective environmental educator, a process for curriculum development in teacher-training programmes, infusing EE into teacher training programmes, methods courses for elementary and secondary level education, implementation of pre-service and in-service teacher training.

26. Environmental Education: A Process for Pre-Service Teacher Training Curriculum Development (1988) 175 pp. (EE No. 26), (Arabic, English). This document presents in ten chapters: the development of environmental education; EE goals, objectives and guiding principles; the need for EE in teacher training; essential elements of EE in teacher training; a process of curriculum development in EE for pre-service teacher training; teaching methodologies and strategies; evaluation in the context of EE learning; mechanisms for curriculum development.

27. An Environmental Education Approach to the Training of Elementary Teachers: A Teacher Education Programme (1988) 156 pp. (EE No. 27), (English, Spanish). The major focus of this document is the infusion, or incorporation, of environmental content and methods into existing or planned courses of instruction in a teacher-education programme (TEP). Part One discusses goals, learner's objectives, the role of environmental responsibility and sensitivity. Part Two deals with infusing EE into the teacher-training programme. Part Three considers TEP in its entirety, course by course, and suggestions for the infusion of EE into appropriate courses. Part Four concentrates on the

critical variables of instruction and methods, community resources, field trips, problems solving, etc. Part Five presents sample infusion efforts for use in TEP.

Social studies methods instructors often deal with a "problems/issues" component of social studies for elementary and secondary schools. The intent of this component is to teach pre-service teachers how to deal with the major problems/issues of society in their classrooms. This "problems component" could demand that students learn how to develop case studies, or how to teach students the basics of issue investigation so that they can investigate social problems independently, or both. In an environmentally-infused programme, the problems/issues component of social studies methods could focus on environmental content. The environmental content might emphasize human population issues, energy issues, urban environmental issues, nuclear waste disposal issues, various pollution issues, or a host of others.

The diagram, "Infusing Environmental Content Into a Course Entitled, Science Process for Teachers", provides a sketchy example of science education content that can be infused with environmental content/methods.

When a teacher education curriculum/programme is finally infused with environmental content, it is crucial to carefully supervise the infused programme to ensure that the knowledge, skills, and attitudes being taught bear a one-to-one correspondence with what should be experienced by students at the elementary school level. It is important to teach upper elementary students how to analyse issues; we must also make certain that pre-service teachers are taught these same skills. This is not to say that the knowledge, skills, and attitudes should be taught at an elementary student's level. These elements should be taught at an adult learner's level. As an example, issue awareness concepts should be taught at the adult level in the teacher education programme, resulting in a much more thoroughly developed concept than one would expect from elementary grade students. A continuing in-service training effort for college-level instructors is almost mandatory. This in-service training programme should probably be planned as an in-depth institute, accomplished during the summer or academic year (or both).

A representative institute would focus on the structure and goals of environmental education as well as infusion strategies and the content/methods associated with them. In addition, it would allow participants to identify barriers to infusion and develop mechanisms for removing these barriers. This problem-solving strategy would counteract a common propensity for looking at problems more diligently than solutions.

28. Environmental Education in Vocational Agriculture Curriculum and Agriculture Teacher Education in Michigan, U.S.A. -- A Case Study (1988) 97 pp. (EE No. 28), (English). This case study is organized into eight major parts. First, after an introduction there is a brief description of the educational system involved, specifically vocational education in agriculture in Michigan,

USA. Then follows a section on EE as integral part of both the school curriculum for vocational agriculture and the agricultural teacher-education programme. Subsequent parts are: major achievements in the incorporation of EE into agricultural education; major constraints in this incorporation process; guidelines and strategies for such incorporation; suggested documents and activities to be developed at the international level; and conclusions.

The vocational agriculture programme in Michigan has made a slow but effective move toward integrating more environmental education concepts into the local vocational agriculture programme. The increased involvement of vocational agriculture instructors is result of (a) an increased awareness of the public of the value of conserving and improving the quality of our environment; (b) an improved understanding of how environmental concepts are important in the agriculture industry; and (c) improved materials and procedures for teachers to use to integrate environmental concepts into their vocational agriculture programme.

Teachers of agriculture have always taught a set of environmental concepts in their classes. However, the pressures of modern life require that additional emphasis be placed on integrating more environmental education into vocational agriculture. Progress has been made, but there is still more that must be done to help teachers maximize their potential for teaching students to make wise decisions concerning the environment.

29. A Prototype Environmental Education for the Middle School (1989) 161 pp. (EE No. 29), (English). This document (to describe it more fully than its title) presents a prototype EE curriculum and important associated materials for the middle school. Chapter I focuses on the commonly accepted goals for curriculum development at this level, Chapter II on EE and the middle school learner. Chapter III presents the prototype curriculum itself, in outline form (ecological foundations, environmental science and environmental health, and issue investigation and citizenship action training). Chapter IV discusses the infusion of environmental content and skills into existing courses at the middle school level with examples of infusion and team-teaching approaches. Appendices offer models of implemented curricula.

The authors argue that emerging adolescents display a wide range of skills and abilities unique to their developmental patterns. Students will range in development from the concrete-manipulatory stage of development to the ability to deal with abstract concepts, the youngster is intensely curious and growing in mental ability. Middle school learners prefer active over passive learning activities; prefer interaction with peers during learning activities. Students in the middle school are usually very curious and exhibit a strong willingness to learn things they consider to be useful. Students enjoy using skills to solve "real-life" problems and often display heightened egocentrism and will argue to convince others or to clarify their own thinking. A variety of materials and approaches in the teaching-learning process should be utilized in the middle

school. The middle school should treat students at their own intellectual levels providing immediate rather than remote goals. All subjects should be individualized. Skill grouping should be flexible. Physical movement should be encouraged with small group discussions, learning centers, and creative dramatics to provide a programme of learning that is exciting and meaningful. Curricula and activities should be organized around real-life concepts in both formal and informal situations, to improve reasoning powers. Studies of the community environment are particularly relevant to the age group. Organized discussions of ideas and feelings in peer groups can facilitate self-understanding.

In an effort to provide some assistance to schools desiring to infuse environmental content across the curriculum, the writers have constructed a series of three tables which provide insight into the potential for infusion.

30. An Environmental Education Approach to the Training of Middle Level Teachers: A Prototype Programme (1990) 177 pp. (EE No. 30), (English). This publication describes that portion of a Middle-Level Teacher-Education Programme (TEP) designed specifically to train middle-level school teachers in environmental content and methods, namely, a Middle-Level Specialization in Environmental Education (SEE). The SEE portion, as presented in this publication, contains two sets of courses: a core set, which exclusively emphasizes EE content and methods and a set of more traditional disciplinary courses into which an environmental dimension has been "infused" or integrated to a greater or lesser degree.

Part I includes goals for SEE, translation of these goals into learner objectives, a model of environmental literacy and several crucial components of this model as they relate to the goals. Part II provides background and assumptions concerning TEP as a whole. Part III outlines SEE, providing a full description of core courses, an outline of suggestions for the inclusion of content and/or methods in "infusion" courses, and suggestions regarding the scope and sequence of the SEE courses. Part IV focuses upon the key variables of instructional design, resources and methods, present a teaching model as well as a set of relevant instructional methods and resources reflecting the goals described in Part I. Part V also includes sample activities for the SEE courses.

Audiovisual Materials of the IEEP

1. Audiovisual Packages on Environmental Problems. A series of audiovisual programmes, primarily aimed at environmental education of the general public, but also applicable as didactic aids in formal education, was undertaken between 1983 and 1985. More than 350 original pictures were developed in relation to the following environmental themes and problems: the human environment; soil management in arid ecozones; soil management in mountainous ecozones; energy utilization and production; environmental sanitation; and preparedness to natural disasters. Each audiovisual programme is constituted by a series of slides,

developed from the original pictures above, a printed script in the form of a text guide for educators. Thirty copies of the above packages are being produced.

2. Film: "With Love to Nature" (A Case Study). This film on general nonformal environmental education has been prepared by the Ukrainian Studio of Scientific and Pedagogical Films (Kiev) for the IEEP and the Ukrainian Association of Nature Protection. The film shows the experience of in-school, out-of-school and nonformal education in the field of the environment in different regions of the Ukrainian SSR.

3. Film for developing an EE pilot project aiming at presenting environmental problems and their educational solutions in small Mediterranean islands. This film is devoted to primary school, secondary school and the general public. It is prepared with the cooperation of the "Centro Televisio d'Atenco, Universita di Siena", Italy. It will be completed in October 1990.

Basic Documents

1. Trends in Environmental Education (1977), 244 pp. This book is based on trend papers which served as working documents for the Belgrade International Workshop of 1975 (see Reports, below). The chapters describe the "state-of-the-art" in environmental education in all regions of the world, covering many of its aspects and all of its age levels. Their authors came from thirteen countries representing a wide variety of regions - Argentina, Canada, Czechoslovakia, Egypt, Italy, Japan, the Netherlands, Sierra Leone, Sri Lanka, Sweden, the United Kingdom, the United States of America and Venezuela. A primary objective was the identification of relevant writings from every corner of the earth published during the previous four or five years. Older materials of enduring significance were added by hundreds of individuals solicited by letter because of their special professional interest in environmental education.

Each of the multinational working groups at the Belgrade Workshop extensively discussed the transferability of the concepts -- and the accuracy of the information of the trend papers -- in terms of their particular countries and regions. They also contributed case histories. In the light of these comments and contributions, the authors completely revised their preliminary papers, which are now published as Trends in Environmental Education.

The current edition of Trends in Environmental Education has been conceived by Unesco as addressed to all those concerned in -- or about -- environmental education in every corner of the world, from government planners to environmental educators and individuals of an increasingly concerned general public. Environmental education, in the view of Unesco and in the words of the Belgrade Charter, "considers the environment in its totality - natural and manmade, ecological, political, economic, technological, social, legislative, cultural and aesthetic".

The purpose of each paper is to present a comprehensive, balanced and scholarly analysis of the subject area in question -- what activities are under way, what results have been obtained, what are the major problems, and what needs to be done in the future. Every reasonable effort has been made to include significant activities from all around the world. The papers provided important documentation for the Workshop and now serve as a baseline for assessing future trends in environmental education. They contain a wealth of information that will be useful in the establishment of environmental education programmes in nations everywhere. An extensive annotated bibliography and a world survey on environmental education needs, resources and priorities were prepared to aid the authors and the Unesco-UNEP programme to chart the course. In an effort such as this, it was recognized that many relevant, exemplary activities were being, or had been, conducted that did not necessarily carry an environmental education title. Rather than limit the coverage to programmes and projects that were catalogued as "environmental" each author reviewed materials which espoused education objectives such as the following, agreed upon at the Belgrade Workshop:

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

(b) Knowledge: to help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity's critically responsible presence and role in it.

(c) Attitude: to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement.

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

(e) Evaluation ability: to help individuals and social groups evaluate environmental measures and education programmes in terms of ecological, political, economic, social, aesthetic and educational factors.

(f) Participation: to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems so as to ensure appropriate action to solve those problems.

Given such objectives, it was possible for the authors to draw on a wide range of educational experience and thus enrich the overall effort.

The material contained in this book furthers the development of the scholarship necessary for the focusing and implementation of effective environmental education programmes.

2. Environmental Education in the Light of the Tbilisi Conference (1980) 100 pp. (Arabic, English, French, Russian). The Tbilisi Conference was the world's first Intergovernmental Conference on Environmental Education, held in Tbilisi, USSR, 14-26 October 1977 (see Reports, below). In addition to the Declaration and Recommendations of the Conference, this publication contains the following chapters, which describe its content: (1) education and environmental problems; (2) ultimate aim and characteristics of environmental education; (3) incorporating EE into education systems: strategies and procedures; and (4) international co-operation in the field of EE.

Strategies for the integration of environmental education into formal education should take into account the various components of the educational process, that is to say, the objectives, content and methods, teaching materials, training of personnel and research and evaluation activities.

So far as objectives are concerned, those pertaining to the understanding and solving of environmental problems need to be clearly included among those of education in general, at all levels and in all sectors.

The inclusion of environmental education in formal education is currently envisaged through a variety of procedures, all of which, in varying degrees, presuppose an interdisciplinary approach. These procedures range from the mere introduction of an environmental component into the different traditional subjects to the total integration of those subjects around a project for community activities relating to the environment, and include an approach combining several disciplines with some affinities as regards their ideas and methods. The approach which seems most at variance with what is needed would be to introduce environmental education as a separate subject simply superimposed on those already taught.

The development of environmental education gives rise to specific problems with regard to teaching methods. A comprehensive view is lacking in most educational programmes today, which tend to emphasize specialization and encourage too narrow a view of reality. They often fail to make sufficient allowance for modern educational concepts, based on participation, research and experimentation, or for methods of evaluation which are a prerequisite for a teaching approach centred on learning.

Most teachers are unfamiliar with the interdisciplinary techniques directed towards solving specific problems and evaluating ways of responding to actual situations.

Teaching strategies should henceforth adopt a holistic approach and encompass the various ecological, social, cultural and economic aspects of the environment; in other words, they should be interdisciplinary. To achieve this, various solutions may be envisaged which do not necessarily call for a complete transformation of education systems.

In primary schools, environmental topics should be in a context of general education, as part of general cultural activities, for example, in addition to basic activities relating to the study of the mother tongue, mathematics, physical and creative expression.

In secondary schools, recourse should be made to teaching methods encouraging increased awareness on the part of pupils. It is then important to study not only the protected natural environment, but also the places most frequented by the pupils; subjects such as transport, safety, overcrowding, food and hygiene should be studied.

This education can go on to university level. There, it will involve giving students a thorough knowledge of the functioning of ecosystems and the socio-economic factors governing relations between man and the environment, in the context of development. Case studies in particular will have to

be included and students will have to be trained in the techniques of systems analysis and economic and social cost-benefit analysis.

3. International Strategy for Action in the Field of Environmental Education and Training for the 1990s (1988). IEEP and the scientific programmes for research and the training of specialists developed by Unesco-UNEP have made a significant contribution, both nationally and internationally, to the development of environmental awareness, education and training for sustainable development. However, owing to the magnitude of the conceptual, educational and institutional changes necessitated by the universalization of a new "environmental culture", and in view of the problems newly created by human action on the environment, the efforts already made must be continued and intensified through the adoption of such measures as will enhance their effectiveness and their relevance. Such is the main objective of this document which sets forth an international strategy for action in the field of environmental education and training for the 1990s, as discussed and approved by the Unesco-UNEP International Congress on Environmental Education and Training, held in Moscow, USSR, 17-21 August 1987. The principal elements state the following:

Environmental education seeks to clarify and harmonize the ethical, aesthetic and economic concerns and values of individuals and communities, in so far as these influence their perception of the environment.

By virtue of its objectives and its functions EE is necessarily a form of educational practice attuned to the life of society. It can only be effective if all members of society -- workers, students, specialists, decision-makers -- take part according to their abilities in the complex and manifold task of improving people's relationships with their environment. This can only be achieved if people take their own education in hand and become aware of their involvement and their responsibilities.

The exchange of information and experience is imperative for the achievement of universal environmental education. The prevalent information strategies are ill-suited to meet new needs. For swifter and more systematic collection of the findings of environmental research and other information relevant to environmental education, and their dissemination to pedagogical research institutions, as well as to improve the flow of information between the latter and the institutions and specialists responsible for preparing educational and training programmes, an International Computerized Information Service for EE -- ICISEE -- should be set up. Unesco-UNEP, as a matter of high priority, should jointly examine the requirements and methods of its establishment.

The ICISEE would be responsible for processing and disseminating general and technical information capable for promoting EE and helping to enhance the effectiveness of efforts in this direction. To this end, it ought gradually to implement over the next ten years, a series of data bases containing selected, annotated bibliographies, summaries of articles and

books, and progress reports on national action, news on current events, as well as directories of institutions, programmes and people involved in environmental education activities.

A general research and experimentation project should be organized aiming at the identification of basic components of the theory and methods of environmental education. It could be conducted by a group of Unesco-UNEP experts in co-operation with IUCN and the International Society on Environmental Education (ISEE). The project should include: (a) the basic concept of an ecological culture; (b) ethical and legalistic approaches to attitudes concerning society and nature, war and peace; (c) approaches to the economic evaluation of use of natural resources; and (d) psychological and pedagogical approaches to the education of all layers and sectors of the population.

To assist Member States in their efforts to incorporate environmental concerns into their educational policy-making and planning, it would be worthwhile undertaking a number of case and comparative studies of the legislation concerning environmental education in various countries, and on the institutional machinery established in this regard. Similarly, in order to assist Member States in strengthening their framework of environmental law, comparative studies of laws relating to natural resources and environmental management should be undertaken. The information resulting from these studies should be widely circulated through existing networks and information systems.

Taking into account of the fact that worldwide development of environmental education is a lengthy and complex process, and the need for advance planning, it is desirable to designate 1990-2000 as a "World Decade for Environmental Education". Programmes developed for this decade should emphasize interrelationships between people and the biosphere in their full range of economic, social, political, cultural and ecological manifestations. It is suggested that Unesco-UNEP be designated as the leading agencies for programme planning and co-ordination and developing criteria for evaluation on progress.

In view of the fact that the worldwide development of environmental education and training (EE and T) is a lengthy process, and that educational, environmental and development problems are bound to change during the coming decade, it is envisaged to hold another international congress on EE and T in 1997 to take stock of the progress achieved and to draw up, in the light of needs, priorities and means, an EE and T plan of action for the first decade of the twenty-first century.

4. Living in the Environment: A Sourcebook for Environmental Education (1985), 232 pp. (English and Russian). Illustrated with charts, tables and color photographs, this sourcebook covers basic ecological components of environmental problems and of the people-environment interaction, a new approach to studies and protection of the environment (from the local to the global level); and contains a glossary of terms as well as bibliographic references.

The progress and welfare of present and future generations depend to a great extent, on positive and timely solutions to socio-economic and ecological problems which arise from the relationships between the human population and nature.

A series of publications on contents and educational methodologies for different levels of the education system and varying audiences has been undertaken and the present sourcebook is one of this series. These publications (as explained in the sourcebook) are part of the activities of the International Environmental Education Programme (IEEP), organized by Unesco in co-operation with the United Nations Environment Programme (UNEP). The objectives of the programme are to co-ordinate and act as a catalyst for national, regional and international activities relative to implementing the recommendations of the Intergovernmental Conference on Environmental Education (Tbilisi, USSR, 1977), including the incorporation of the environmental dimension into education and training programmes, curricula, textbooks, and other instructional materials.

This sourcebook stresses the need for increased awareness of the relationship between people and their social, physical and natural environment and the need to increase the role of environmental education as a factor in the improvement of the environment. It is a survey of ideas that have emerged to date concerning various environmental issues and of a type of education whose purpose is to contribute to a better understanding of the human environment and to the solution of its problems. It also contains information for use in education, which takes into account natural and socio-economic aspects of the environment. Its content is directed primarily at curriculum developers and university lecturers.

It is of crucial importance to take into account various aspects of environment control in primary and secondary education so as to teach the fundamentals of ecological information on the situation of the modern world and the possibilities of its transformation. Nevertheless, the presentation of this new subject in the existing curricula of a number of countries is based upon traditional methods of teaching regardless of the interdisciplinary and international nature of the problems concerned.

This situation may be largely explained by the inadequate training of teachers themselves and by a lack of necessary printed materials -- reference books, manuals and teaching aids -- through which it might be possible to inculcate basic information on the organic interrelationship between the natural and man-made environment, and on the importance of maintaining a permanent ecological balance as well as a sense of responsibility for the careful and rational use of natural resources.

Among the key ecological problems of the world is conservation of the oceans and their biological resources. The sharp increase of waste products as well as the application of mineral fertilizers and chemical techniques for the control of

weeds, pests and diseases in farm crops at an ever-increasing rate may lead to irreversible processes in the biosphere, to a deterioration in the quality of life.

The problem of creating new highly productive ecosystems in arid and semi-arid areas is of great importance, and its solution also depends on joint action by many countries. Such a solution would make it possible to expand forest areas and sharply increase the output of agricultural produce.

Air pollution control is of exceptional importance in improving the ecological situation. The standard of development and well-being of present and future generations largely depends upon positive and timely solutions to these problems. Relating these realities to the task of increasing the socio-economic and cultural development process, especially in developing countries, leads to a realization of the need for an entirely new approach to existing interrelations in the "humanity/environment" system.

5. Environmental Education: Training of Teacher Educators Curriculum Developers and Educational Planners and Administrators (1988) 327 pp. (English). This document is the substantive output of a consultative meeting on the subject of the title, held in New Delhi, India, 11-15 February 1985 (see Reports, below). The document is largely presentations by a number of the participants as well as country reports on Afghanistan, Bangladesh, India, Malaysia, Nepal and Sri Lanka.

The objectives of the meeting were designed: to study in a holistic and comprehensive manner, ways and means of incorporating environmental education into the pre-service and in-service teacher training curriculum and training of curriculum developers and educational planners; and to exchange information and experience concerning the development of environmental education.

In most of the countries under review, the need for including environmental education in school curriculum has been felt for sometime. Inclusion of environment related components in the formal curriculum has been initiated either indirectly through the related areas of science, social science, and other disciplines, or, as environmental studies at the primary level. The curriculum components related to environmental education as an area of study are not included in the curriculum of the secondary level in the countries represented.

In India and Malaysia, an integrated science component is present during the first three years of secondary education. The objective of integrated science is the cohesion of various concepts and conceptual themes which cut across all areas of science. The environment related concepts are included in the course. In most of the participating countries the pre-service and in-service training of teachers does not feature an environmental education component except indirectly in related science course. Participants indicated several difficulties faced by them in implementing environmental education programmes in their respective countries. These constraints include: rigid specialisation of teacher educators in their respective

subjects; the interdisciplinary nature of EE is complex and the discipline-wise training of teachers is often weak and inadequate; lack of proper resources in terms of equipment, supplementary materials and reference materials.

The meeting discussed the framework for the training of curriculum developers in environmental education. It was proposed that curriculum developers be given orientation in the basics of environmental education and curriculum construction so as to be able to translate the goals of environment education into meaningful action. The meeting also addressed itself to various aspects of the training of educational planners and made some important observations and recommendations.

6. International Directory of Institutions Active in the Field of Environmental Education -- Revised and Enlarged Edition (1989), folio-size 526 pp. (English, French and Spanish). The previous edition of this directory contained 303 pages, which indicates the corresponding increase of institutions included in the present edition. As before, the directory lists the names and addresses of institutions active in EE by country and specifies their type, working languages, geographical coverage, fields of interest, functions and target groups as well as their services, publications and materials offered. There are three indexes in addition to the listing, an index of fields of interest of functions and of target groups.

7. Education and the Challenge of Environmental Problems, 1977. This considers the theme of its title in four parts -- major environmental problems in contemporary society, the role of education confronting this challenge, strategies for the development of EE at national level and international and regional cooperation for EE development. This document served as the main working document of the Tbilisi Conference.

8. Needs and Priorities in Environmental Education -- An International Survey, 1977. This is based upon (1) a detailed questionnaire to which Member States replied, (2) special reports of consultants sent on missions to 81 of these States, (3) UN statistics and (4) reports of regional EE meetings. The report analyzes needs and trends at world and regional levels, and EE problems and priorities at national level. This document served as one of the reference documents of the Tbilisi Conference.

9. Glossary of Environmental Education terms (1983). This small brochure contains said glossary in both English and Russian.

Environmental education is now a subject which attracts international interest and one which has many aspects. Broadly, it is an educational process designed to increase individual awareness of, and concern about, the environment and to involve individuals and the community in environmental problem-solving and decision-making.

It should be noted that, because of the rapid development of environmental education, there is now a lack of uniformity in the terminology used in different countries, even among those

belonging to the same language groups. If there is to be understanding between specialists of different disciplines speaking different languages, then there is a need to explain and harmonize the usage of the words and terms which are now in wide circulation.

In this connection, the Intergovernmental Conference on Environmental Education (Tbilissi, USSR, 1977) recommended that Unesco promote the standardization of environmental education terminology through the compilation of a multilingual glossary. More elaborate works will undoubtedly be needed in the future to establish norms and standards and provide comprehensive definitions and analyses of usage to serve the needs of modern information practice.

The present glossary is directed at defining and harmonizing common terms used in environmental, educational and training contexts, and does not duplicate the functions of specialist dictionaries and glossaries. It is oriented toward interdisciplinary and international concerns, and is primarily designed for teaching and training personnel in the formal educational system, particularly those in developing countries. It is also designed within an overall orientation to provide help and assistance to general readers, including decision-makers, planners, students, and ordinary citizens, to develop their knowledge and understanding of, and attitudes towards, term usage, education and training in respect of the environment.

The main professional literature, dictionaries and glossaries, were utilized in its preparation, in addition to independent research. Special efforts were made to incorporate some of the concepts and terms from the various disciplines and related fields associated with environmental education as well as from the World Conservation Strategy (IUCN/WWF/UNEP/Unesco, 1980).

10. Research Project: Interdisciplinary Forms and Methods of EE in General Education Polytechnical Schools and Higher Education Institutes of Bulgaria (1983), 190 pp. (English). This research project was conducted under the guidance of the Council of Ecological Education of the Bulgarian Ministry of Public Education. The results are contained in this brochure.

Ecological education is complex because it examines the questions related to conserving the environment from different aspects: philosophical, natural-scientific, organization and law, socio-economic, hygienic, aesthetic, technical, etc. It is integral, because it throws light upon the unity and interrelations and interdependence of the components of the "Man-Society-Nature" system.

In the detailed elaboration "interdisciplinary forms and methods of environmental education in the general educational polytechnical schools and the higher educational establishments" of Bulgaria, general conclusions are drawn from experience in this sphere and the trend for its improvement is outlined.

In the introduction the methodological basis for the development of the ecological instruction and education are treated. In the following part of this work the way in which elements of the ecological culture can be formed in the kindergarten are given. The second part of this work reveals the objective necessity of interdisciplinary forms, methods and means of ecological education in the general educational polytechnical schools and works out specific methods of putting them into practice on the basis of three levels of interdisciplinarity; pluridisciplinarity, cross-disciplinarity and transdisciplinarity. The third part dwells on the interdisciplinarity of ecological education in the higher educational establishments/brief notes on the history, analysis of the general ecological training, analysis of the special ecological training, questions related to the interdisciplinarity of ecological education in the higher educational establishments and ways for their being settled. In this part questions related to the ecological training of the postgraduate qualification and the training of personnel are treated as well. In the fourth part some basic questions involved in the building of a concept of the unified system of ecological instruction and education in Bulgaria are dwelt on.

11. The International Environmental Education Programme (IEEP) (1985) (English, French and Spanish). An illustrated folder describing in condensed form the IEEP, its principle practises and main results (1975-1985). IEEP activities are pinpointed on a world map in color.

The headings include: What is the IEEP? What Use is Environmental Education? Target Populations for Environmental Education; How the International EE Programme Works for International EE? Actions of the IEEP. Principle Results of the IEEP (1975-1985).

Inside the folder are photographs illustrating some major environmental problems: pollution, deforestation, urban crowding, desertification and a World Map showing the location of various IEEP activities such as: pilot projects, experimental and research projects; national training workshops; international, regional and subregional training seminars; international and regional conferences and meetings; institutions involved in the preparation of EE materials; and technical and advisory missions to Unesco's Member States.

12. Activities of the Unesco-UNEP International Environmental Education Programme (1975-1983) (1984) (English and French). A small brochure detailing the principle achievements of the programme (IEEP) during the period covered: exchange of information and experience; research and experimentation (studies, surveys, pilot projects, etc.); EE training of personnel (workshops from national to the global level); and publications of the IEEP.

13. The Environmental Dimension in General University Education (1985), 71 pp. (English). This is a report on a project as to how and what to incorporate in an environmental dimension for undergraduate university education. The project was conducted

under the guidance of the Faculty of Science, Jadavpur University, Calcutta, India. A large part of the report deals with outlines of the syllabus for an undergraduate course on environmental science.

The first degree (undergraduate) course may be regarded as the initial significant step towards the attainment of professional competence in the subject concerned. Environmentally oriented science and technology courses, therefore, have two-fold objectives to satisfy. First of all the specific aims related to the specialisation in the particular discipline under consideration must be attained; at the same time, the fundamental objectives of the environmental education have also to be achieved as well. The latter involves not only scientific and technological disciplines but also humanities like ethics, politics, anthropology, etc. Due to this duality of objectives, environmental science and technologies require pedagogical and institutional resources which are qualitatively and quantitatively more demanding than those required by classical interdisciplinary sciences like biophysics, physical chemistry or mathematical biology. Introduction of these new disciplines, therefore, might be beyond the currently available facilities in many colleges and universities and suitable strategies have to be developed to solve their problems. Different approaches have to be developed for the incorporation of environmental sciences and technologies in the undergraduate curriculum under diverse resource constraints.

There may be two strategies for introducing this course at the undergraduate level. The simpler of them is to, as it were, absorb some of the ideas of environmental studies into the existing courses on natural sciences without introducing study of environment formally as a separate entity. Such a grafting has to be necessarily adroit and subtle so as to be capable of dispelling an impression of being too heavy and or ill-assorted. This exercise has been undertaken and possible outlines of courses on natural sciences are also worked out in Appendix I. Outlines of some other important but wider aspects of environmental studies may be appropriately used to fit in with courses. Appendix II gives an inkling of such wider studies. The courses given in Appendix I are merely suggestive in character, but have a studiedly environmental tilt.

14. Documentation et information pédagogiques: tendances mondiales de l'éducation relative à l'environnement. Bibliographie annotée, 1980-1985 (1987), 102 pp. As indicated in the title, this brochure contains an annotated bibliography of documents and periodical articles of use to environmental educators. Periodicals and documents of 65 countries were analyzed in the process. The bibliographic references total 425. Annotations are in French.

References to documents in 13 different languages are included in this bibliography; two thirds of the total number of documents are either in English (40%) or in French (30%), about 60 periodicals were consulted. In addition to the authors and

publishers index, there is also an index of periodicals and a list of addresses of periodicals. The entries are divided into 15 headings.

15. Environmental Education in Asia and the Pacific, theme-title of the annual Bulletin of the Unesco Principal Regional Office for Asia and the Pacific, June 1981. This issue, in English only, contains 324 pages plus a 61-page bibliography, all devoted to the subject of EE in Asia and the Pacific; and consists of an overview of the regional situation, 18 country reports and nine special articles on selected EE aspects of the region.

16. Suggestions for Developing a National Strategy for Environmental Education, 1980. This publication, prepared and disseminated by IEEP, presents possible strategies for the development, management, implementation, evaluation and revision of a national environmental education plan and policy in terms of the nation's particular physical, socio-cultural, economic and political situation and condition.

17. Universities and Environmental Education, 1986. Prepared by Unesco and the International Association of Universities. This publication contains the background paper for a seminar on the Role of the University in Environmental Education, held in Budapest, Hungary, 17-21 October 1983, as well as articles on the concept, content, teaching staff and methods of EE at the university level.

18. Guide for the Training of Technical and Vocational Education Teachers in Environmental Education, 1989. The guide was prepared by IEEP in collaboration with the Colombo Plan Staff College for Technician Education, Philippines. The guide focuses on EE and its role in educational renewal, the need and place of EE in technical and vocational education (TVE) and in teacher education for TVE, ways and means of providing EE training for TVE teachers, essential environmental knowledge for TVE teachers and EE methodologies and evaluation techniques to be emphasized in TVE.

19. Environmental Education Handbook for Educational Planners and Administrators, 1989. The handbook was prepared by IEEP in collaboration with the National Institute of Educational Planning and Administration (NIEPA), New Delhi and its first draft was tested in the International Training Course for Educational Planners and Administrators, held in India, early 1989. The handbook covers the role of educational intervention in environmental action; framework for a national environmental education strategy; formulation of a national policy on environmental education; planning for environmental education; management of environmental education programmes; training of educational planners and administrators in EE; management information system for EE.

Reports of Meetings

Following are the final reports of selected IEEP meetings presented in chronological order.

1. The International Workshop on Environmental Education, Belgrade, Yugoslavia, 13-22 October 1975. This workshop was conceived and organized as the springboard for the Unesco-UNEP International Environmental Education Programme (IEEP). The Final Report includes the historic "Belgrade Charter" as well as the workshop proceedings, recommendations and evaluation.

There were 96 participants and observers from about 60 countries and all the five World Regions: Africa, Arab States, Asia, Europe, North and South America were represented.

Environmental education at all levels primary, secondary, post-secondary for adults and youth was discussed. Fifteen working documents were prepared and discussed at the workshop. (English, French, Spanish)

2. Regional Meeting of Experts on Environmental Education in Africa, Brazzaville, People's Republic of the Congo, 11-16 September 1976. First of the series of regional EE meetings organized in the framework of the IEEP which led to the Intergovernmental Conference on EE, Tbilisi, USSR, 14-26 October 1977 (see below). Each meeting discussed problems concerning the environment and environmental education in the region and then went on to define strategies for the development of EE at the national, subregional and regional levels both inside and outside the formal school system. Meetings ended with concrete recommendations. (English and French).

3. Regional Meeting of Experts on Environmental Education in Asia, Bangkok, Thailand, 15 - 20 November 1976. In the light of current environmental education developments in Asia, the meeting was to: identify and discuss regional environmental education activities; review the guidelines and recommendations of the Belgrade International Workshop; and formulate strategies for further action in environmental education at the regional level.

Twenty four participants from 17 countries attended the meeting in their individual capacities. Organizations of the UN system, intergovernmental organizations and other organizations were also represented by seventeen observers.

The Belgrade Charter, the Belgrade Recommendations, Needs and Priorities - A Preliminary Survey of the Asian Region, Dynamics of the International Environmental Education Programme, The Environment in Asia - Can We educate for its Reality, and 17 country reports formed the working documents of the meeting. (English)

4. Regional Meeting of Experts on Environmental Education in the Arab States, Kuwait, 21 - 25 November 1986. See 2 (French).

5. Regional Meeting of Experts on Environmental Education in Latin America and the Caribbean, Bogota, Colombia, 24 - 30 November 1976. See 2. (English and Spanish)

6. Regional Meeting of Experts on Environmental Education in Europe, Helsinki, Finland, 27 - 31 January 1977. Unesco invited experts from the Member States of the European Region to attend in a personal capacity. Experts from Austria, Bulgaria, Byelorussian SSR, Canada, Cyprus, Czechoslovakia, Denmark, France, Finland, Federal Republic of Germany, German Democratic Republic, Hungary, Iceland, Italy, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, Ukrainian SSR, United Kingdom, USA, USSR and Yugoslavia, participated in the meeting.

The following document which was specially prepared for the meeting was made available to participants: "Environmental Education Needs and Priorities: A Preliminary Survey of the European Region". The following reference documents were also made available to the participants: (1) the Charter and Recommendations from the Belgrade International Workshop; and (2) a large number of country reports, as well as other information material on environmental education, was supplied by experts and observers attending the meeting. (English)

7. Intergovernmental Conference on Environmental Education, Tbilisi, USSR, 14 - 26 October 1977. This ministerial-level Conference was the most important held in the framework of the IEEP until this time. The Final Report contains the Declaration and recommendations of the Conference as well as the proceeding and the opening and closing speeches. The Conference established the principles and guidelines for the development of EE internationally.

The role of education in the face of environmental problems and opportunities is 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 education purposes would also help create widespread awareness and understanding.

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.

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.

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 nonformal, 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. (Arabic, English, French, Russian and Spanish)

8. Regional Training Workshop on Environmental Education in Africa, Dakar, Senegal, 11 - 20 December 1978. The workshop was convened as a follow-up to a recommendation of the Tbilisi Conference that such workshops be held for key personnel for the development of EE.

The workshop adopted the following agenda: (a) goals, objectives and principles of environmental education; (b) strategies for establishing environmental education programmes; (c) strategies for curriculum development and teaching-learning materials preparation for primary schools, secondary schools, teacher education institutions; (d) strategies for training of teachers in environmental education for primary and secondary schools and teacher education institutions through pre- and in-service teacher education.

Participants, prior to coming to the workshop, had prepared country reports presenting an overview of innovative efforts in environmental education development at the national level, in particular with reference to the workshop agenda items and future strategies and plans in this regard. The presentation of these reports enhanced the exchange of information among participants

with respect to the development of environmental education in the region and set the stage for concrete work on the agenda items. Working papers included: "Suggestions for Developing a National Strategy for Environmental Education - a Planning and Management Process"; "Curriculum Development and Teaching-Learning Materials Preparation in Environmental Education for Primary and Secondary Schools"; and "Training of Teachers in Environmental Education for Primary and Secondary Schools and Teacher Training Institutions - Pre-service and In-service". (English)

9. Regional Training Workshop for Latin America. This workshop was organized on 29 October to 7 November 1979 in San José, Costa Rica. There were 22 participants from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay and Venezuela as well as 10 observers from Costa Rica, Guatemala and Venezuela.

The workshop focused on the identification and formulation of ways and means for planning development policies for EE; strategies for incorporating an environmental dimension into the training of teachers and into the curricula and didactic materials for primary and secondary schools.

The general objective of the workshop was to examine effective strategies for developing environmental education at the national level. Within this, the more specific objectives of the Latin American Meeting were the following: to identify and formulate alternative ways and means of planning development policies for environmental education at the national level; to identify and formulate strategies for incorporating an environmental dimension into the training of teachers within formal education at primary and secondary levels; to develop strategies for incorporating an environmental dimension into the curricula and didactic materials used at primary and secondary levels. (English and Spanish)

10. Towards Interdisciplinary Environmental Education. In 1980, between the 10th and 14th November a Conference was held in Budapest on the interdisciplinary education of environment protection, called EDEN seminar (Education and Environment). The seminar was organized by the Hungarian National Commission for Unesco, the Hungarian National Authority for Environment Protection and Nature Conservation, and the National Centre for Educational Technology in collaboration with the Unesco-UNEP International Environmental Education Programme of the Division of Science, Technical and Vocational Education.

This volume is a selection of lectures delivered at the seminar by the representatives of the above-mentioned international organization and more than 200 participants from 16 countries. It consists of the following main chapters: I. General views on environmental education; II. Towards National Environmental Planning; III. National experiences in environmental education; IV. Hungarian studies.

This collection of articles, as well as the topic of the EDEN Seminar, deals with the education of environment protection for pupils at elementary and secondary school (age 6-18). At the beginning mainly biology and geography undertook this task. Owing to the universal awareness of the importance of protecting nature, which became evident in the seventies, the need to devote a new school-subject to environment education has increasingly been discussed. The necessity of new curricula, textbooks and perhaps examinations has also been dealt with. The application of systems theory in pedagogy, experiments aiming at integrated education of certain schoolsubjects, indicate that the protection of the environment must be taught in more and more schoolsubjects, and it must be dealt with outside the school as well. (English)

11. Regional Training Workshops for Europe. This workshop was organized December 1980 in Essen, Federal Republic of Germany. There were 40 participants from Austria, Bulgaria, Canada, Czechoslovakia, Denmark, Finland, Federal Republic of Germany, Hungary, Ireland, Israel, Italy, Malta, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland, United Kingdom, USA as well as observers from the Commission of the European Communities and IUCN.

The workshop focused on the review of trends and prospects, including the development of national mechanisms in EE in Europe since the Tbilisi Conference; development of EE in primary and secondary schools, curriculum development and teacher training; EE in technical and vocational schools; EE in adult education and information of the general public with regard to environmental issues; promotion of regional co-operation in EE. 19 country reports were presented which have been published in English.

The main conclusion resulting from the discussions is that the greatest shortcomings in environmental education are to be found in vocational training. However, in most countries successful attempts have been made to introduce environmental subject matter into the general principles for school curricula and in some cases into training programmes of industry. The first steps in the right direction and in-service training are based on the realisation that without qualified teachers acting as catalysts the trainees and future skilled workers cannot achieve the educational objectives of "environmental awareness in social and working life".

Special efforts will be required in the future in order to incorporate environmental aspects in practical training in industry, and to take account of them in the development of training materials for specific target groups. So far only marginal activities aimed at linking environmental protection directly to the trainees' role in working life can be noted in this field.

Discussions also revealed an intense mutual interest in the strategies pursued and the results achieved by colleagues from other countries. An even more intensive exchange of information would appear to be useful. Frequent meetings, including those of a bilateral nature and perhaps covering individual aspects of

environmental education (for instance in vocational training), as well as a constant exchange of results and materials could well go a long way to improving the efficiency of all concerned. Unesco translations would give sustained support and assistance to these efforts. In this way unnecessary duplication could be largely avoided. (English)

12. International Training Course on Environmental Education, Czechoslovakia, September 1982 (Report and Lecture Materials). Part I: Environmental Problems. Part II: Environmental Education. The course was organized by the Institute of Applied Ecology and Ecotechnology, University of Agriculture, Prague, Czechoslovakia in co-operation with IEEP. Part III: is a separate brochure on EE in Czechoslovakia.

In its programme the course included a theoretical section -- lectures and discussions, and a practical section -- visits to schools of different types and levels, excursions to natural environments, namely, to protected landscape areas, to areas with a developed industry and agriculture, excursions to areas with protected cultural monuments and attendance of cultural events, viewing audiovisual media, such as short films slide projections, etc.

The theoretical section was subdivided into two parts, namely, a survey of environmental problems and environmental education as such where attention was devoted to general information on the system of environmental education and to concrete forms and problems of environmental education as shown in examples from Czechoslovakia.

The present document gives a detailed report on the content of the theoretical part of the course. It may serve as an example and a stimulus for similar courses for educationalists. The material is divided into three parts with regard to its possible practical use: (1) brief contents of main papers related to the environment; (2) information on the system of environmental education in the school (formal), in teacher education and in nonformal education; (3) information on environmental education in the Czechoslovak Socialist Republic and information on nature conservation in Czechoslovakia. (English and French)

13. International Expert Meeting on Progress and Trends in Environmental Education since the Tbilisi Conference, Unesco Headquarters, Paris, France, 6 - 10 September 1982. Participants came from twenty-eight Member States.

The participants conveyed their experiences and information to the meeting concerning the evolution of environmental education since the Tbilisi Conference. In this context, they began by agreeing to recognize that in recent years, and particularly since the Tbilisi Conference, there had been a significant development in people's awareness of the environment at the international level. Generally speaking, they drew attention in their statements to the paramount role played in

this respect both by the mass media and by the great range of environmental education activities undertaken in the vast majority of countries in every region.

Some participants nevertheless stressed that, while the economic crisis had sometimes led, at government level, to less importance being given to environmental education policies, particularly in certain countries of the European and North American Region, an awareness of the question had already become sufficiently firmly established among the public for it to take over the task of stimulating and pursuing new schemes. In this context one participant noted the increasing role played by the productive sectors, in particular industry, in developing lifelong environmental education as a consequence of a significant shift in their traditionally rather qualified attitude towards technical and educational measures aimed at preserving and enhancing the environment in general.

As regards the evolution of the concept of the environment, the environment is now perceived as whole, embracing all its natural and social dimensions (natural resources, technology, economics, cultural and aesthetic aspects, etc.). Likewise, the preservation and enhancement of the environment's quality are emerging more clearly as a problem to be tackled by taking account of its various scientific and ethical aspects and dimensions, and requiring the participation of all sectors of the population.

Environmental education was seen as being a form of education that had already played, and should continue to play, a key role in stimulating the development of values and attitudes conducive to the enhancement of the environment; two speakers added that it could also foster the development of better international understanding, thereby helping to ensure lasting peace throughout the world, as an essential precondition for safeguarding the human environment.

Most participants reported on the legislative provisions adopted by their countries to implement environmental education schemes and on the organizational mechanism set up to achieve greater co-ordination and rationalization of the efforts made by the different administrations concerned with such education. Some speakers nevertheless pointed out that this trend was not a general one, and that major efforts still had to be made to achieve concerted and effective national policies in this field. In this connection, it was suggested that recourse be made to existing structures, making full use of their potential and strengthening their resources, rather than set up new institutions.

Several participants pointed out that national environmental education schemes had initially related to the school system, but that a clear trend was now emerging in favour of leaving much more room for local initiatives, so as to develop and strengthen a form of out-of-school environmental education that would be linked more closely to the environmental problems encountered during the educational process. (English and French)

14. Subregional Workshop on Teacher Training in Environmental Education, New Delhi, India, 3 - 16 March 1983. The workshop was organized by the Department of Education in Science and Mathematics of India's National Council of Educational Research and Training in co-operation with IEEP.

The successful implementation of EE programme calls for an intensive training programme for teachers, teacher educators and supervisors. In view of this Unesco has developed two documents, titled "Strategies for Developing an Environmental Education Curriculum" and "Strategies for Training of Teachers in Environmental Education". These two documents were meant to serve as discussion guides for Unesco training workshops in EE.

In continuation of this, Unesco initiated the development of a series of modules for pre and in-service training of primary and secondary-school teachers and supervisors in environmental education which are fed into a series of subregional workshops on teacher training in EE.

This workshop, the first in the envisaged series had the following objectives: (1) to familiarise teacher educators with the content of the series of teacher training modules in environmental education prepared by Unesco; (2) to explore efficient and economic ways for the local adaptation and use of teacher training modules; (3) to explore the possibilities and identify institutions for local adaptation of the teacher-training modules in the participating Member States; (4) to exchange information and experience in the development of environmental education in the sub-region.

The participating countries were Afghanistan, Bangladesh, Sri Lanka and India. Each country was represented by one participant except the host country India which had five participants. The resource persons comprising teacher educators and curriculum developers were from National Council of Educational Research and Training (NCERT) India. (English)

15. Subregional Workshop on Teacher Training in Environmental Education for the Caribbean, Mona, Jamaica, 18 - 29 July 1983. The Workshop was organized by the School of Education, University of the West Indies in co-operation with IEEP.

The School of Education of the University of the West Indies in consultation with Unesco, invited thirteen (13) Member States to send participants to take part in their personal capacity in the workshop. Nine participants from nine territories in the Caribbean attended the workshop. These territories included the Bahamas, Barbados, Belize, Dominica, Grenada, Jamaica, St. Lucia, St. Vincent, and Trinidad and Tobago.

The document "Strategies for Developing and Environmental Education Curriculum" served as a discussion guide for elaborating environmental education curriculum development as a fundamental base for teacher training in environmental education. A study of the above document was carried out along the following lines: (1) general overview of the curriculum development process; (2) overview of the environmental education curriculum

development process; (3) choice of a format for environmental education curricula; (4) principles and goals of environmental education. Aspects of curriculum for environmental literacy; (5) developing environmental education curricula - scope and sequence; (6) implementing environmental education curricula; (7) evaluating environmental education curricula.

The discussion focussed on relating the principles and strategies presented to the Caribbean situation. The following broad questions formed the central theme of the presentation: (1) What strategy should be adopted?; (2) What model should be adopted?; (3) What steps/procedures should be followed?. Emphasis was on technical aspects.

The Preface, Chapter 1 and Chapter 2 were briefly introduced. The major goals of environmental education and the educational implications of these goals were presented and discussed. Participants were also introduced to the history of the environmental education movement and a brief summary of the "State-of-the-Art" in EE. It was noted that diversity would characterise the activities of territories in formulating organizational patterns and strategies for environmental education. (English)

16. National Seminar on Environmental Education, Kinshasa, Zaire, 26 - 29 March 1984. The seminar was organized by the host country's National Commission for Unesco with the co-operation of IEEP. There were 50 participants. The objective of the seminar was the training of teachers, research workers and planners in the field of environmental education. The following topics were discussed: the present environmental problems in Zaire; environmental education component in primary, secondary and higher education; out-of-school environmental education; environmental education in relation to development; the concept of environmental education; strategies for implementation of environmental education; methodologies of environmental education; training of personnel for environmental education. (French)

17. Consultative Meeting on the Training of Curriculum Developers, Teacher Educators and Educational Planners in Environmental Education, New Delhi, India, 11 - 15 February 1985. The consultative meeting was organized by India's National Institute of Educational Planning and Administration in co-operation with IEEP. The meeting was designed on the basis of the following objectives: (1) to study in a holistic and comprehensive manner, ways and means of incorporating environmental education into the pre-service and in-service teacher training curriculum and training of curriculum developers and educational planners; and (2) to exchange information and experience concerning the development of environmental education.

The countries that participated in the meeting were, Malaysia, Pakistan, Afghanistan, Sri Lanka, Bhutan, Bangladesh, Nepal, and India. A number of experts working on the several

aspects of EE at various institutions in Delhi, were invited to attend the meeting as observers. They participated in the proceedings of the workshop. (English)

18. Subregional Training Workshop on Nonformal Environmental Education in Asia, Serdang, Selangor, Malaysia, 18 - 22 November 1985. The workshop was organized by University Pertanian Malaysia, in co-operation with IEEP. The Final Report is in two volumes; the second volume contains country reports presented by participants.

The objectives of the workshop were (i) to familiarize participants with the contents of a Sourcebook on Nonformal Environmental Education prepared under IEEP and obtain their comments for its revision, (ii) to explore ways and identify institutions for local adaptation of the Sourcebook in the participating Member States, and (iii) to exchange information and experience in the development of environmental education in the subregion.

Both governmental and nongovernmental organizations are active in the field of nonformal education. Use of mass media as an effective instrument in reaching the population at large is common in all participating countries. There was evidence however that Malaysia relies on the use of TV to a greater extent than other countries due to availability to TV among large segment of the population. The other countries pay greater attention to radio as a more widely used medium. Reference was often made to the newspaper as a frequently used medium. Periodicals and pamphlets are also being produced.

Seminars, talks and exhibitions are used in all participating countries. Special mention is made of a series of seminars in Sri Lanka covering all administration districts where all important public officials are participating.

The Sri Lanka participant referred to a special programme in Sri Lanka called the "100 Million Trees Programme" and the involvement of school children in environment by forming pioneer brigades committed to environmental improvement by a special oath.

The incorporation of environmental education to the adult education programme in India has a special significance as the country has launched a well layed out adult education programme. The use of traditional media of communication like puppet plays and dance drama to convey the environmental message is receiving emphasis in India.

A great deal of programmes and strategies have been organized and adopted to boost nonformal environmental education both by governmental and nongovernmental institutions. However, since the nature of the environmental issues are constantly changing strategies and methods must be constantly reviewed and revised to suit changing circumstances. (English)

19. Subregional Workshop on Teacher Training in Environmental Education for the Arab States, Bahrain, 25 - 30 January 1986. The workshop was organized by the Bahrain National Commission for Education, Science and Culture in collaboration with USI Arab Regional Office and IEEP. Participants came from Bahrain, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria and the UAE. The workshop had the following objectives: (a) to familiarise participants with a series of modules on teacher training in environmental education prepared under IEEP; (b) to identify institutions for possible local adaptation of the modules in the participating Member States; (c) to identify documents and activities on teacher training in EE to be developed by IEEP at the subregional, regional and international levels; (d) to enhance exchange of information and experience in this field.

Nine country reports from the participating countries were presented at the Workshop. Each report provided information on (i) the physical, social, economic and cultural aspects of the country relevant to environmental education, (ii) major environmental problems, their causes and some measures taken for their solution and prevention, (iii) current elements of environmental education in formal and non-formal education, (iv) future reflections on the development of environmental education and teacher training in this field. Recommendations of the workshop were: (a) to prepare a teacher training module suitable for training elementary teachers in Arab countries; (b) to organise a workshop to discuss the module referred to in section (a); (c) that mass media should help increase environmental awareness of students through various methods such as cultural activities; (d) that Unesco should prepare the following: (i) a working document for elementary and secondary teachers in environmental education, to be used by supervisors to achieve the objectives of environmental education; (ii) television films on environmental education; (iii) comprehensive guidelines for teacher-training institutions in environmental education. (English and Spanish)

20. Consultation Meeting on the Incorporation of Environmental Education into Technical and Vocational Education, Singapore, 10 - 14 March 1986. The consultation meeting was organized by the Colombo Plan Staff College for Technician Education in co-operation with IEEP. The objectives were: (1) to study the need and place of environmental education in technical and vocational education; (2) to develop guidelines and strategies for the incorporation of environmental education into technical and vocational education mainly into school curricula and teacher training for industrial and agriculture schools; (3) to recommend activities and documents to be developed by Unesco-UNEP International Environmental Education Programme for fostering the incorporation of environmental education into technical and vocational education at national, subregional, regional and international levels; (4) to exchange information and experience in the development of environmental education in technical and vocational education.

Seven participants and one observer from Australia, Egypt, Indonesia, Union of Soviet Socialist Republics, Sri Lanka, Malaysia and Switzerland as well as the director and 2 Faculty members of CPSC and the Unesco Programme Specialist in Environmental Education attended the meeting. The following documents were presented: (1) the Unesco-UNEP International Environmental Education Programme (IEEP); (2) six country reports (Australia, Egypt, Indonesia, USSR, Sri Lanka, and Malaysia); (3) a document entitled "Environmental Education in Technical and Vocational Education"; (4) the working document entitled "Guidelines for the Incorporation of Environmental Education into Curriculum and Teacher Training for Industrial and Agricultural Schools"; and (5) three case-studies on the incorporation of environmental education into technical and vocational education in Czechoslovakia, the State of Michigan, USA and Singapore. (English)

21. Subregional Workshop on Teacher Training in Environmental Education for Africa, Nairobi, Kenya, 13 - 26 April 1986. The workshop was organized by Kenya Science Teachers College in co-operation with IEEP. Member States invited to the workshop were Ethiopia, Kenya, Malawi, Rwanda, Somalia, Sudan, Tanzania, and Uganda. Seventeen participants and five observers from Ethiopia, Kenya, Malawi and Tanzania attended the workshop. The objectives of the workshop were: (1) to familiarize teacher educators with the contents of a series of pre-service and in-service teacher training modules in environmental education prepared by Unesco-UNEP International Environmental Education Programme; (2) to explore ways and identify institutions for local adaptation and use of the teacher training modules in environmental education in the participating Member States; (3) to identify activities and documents on teacher training in environmental education to be developed by IEEP at subregional, regional and international levels; (4) to foster exchange of information and experience in the development of environmental education in the subregion. (English)

22. National Training Workshop on Environmental Education in Malta, 6 - 10 April 1987. The workshop was organized by the Maltese government's Institute of Design for Environmental Action in co-operation with IEEP. There were 53 participants in this workshop, topics discussed were: (1) What is the environment, the natural, human and built environment?; (2) people and the environment, the local environment, the chemical stress on the environment, urbanization; (3) environmental education, its needs, implications and methodology.

Four separate working groups discussed environmental education at the primary, secondary, postsecondary and nonformal levels. There were field trips to Dingli, a typical Maltese village, and to the Ghadira Natural Reserve and the adjoining Saud Dunes. (English)

23. National Workshop on Teacher Training in Environmental Education and Rational Utilization of Natural Resources, Nairobi, Kenya, 4 - 8 August 1986. The workshop was organized by Kenya Science Teachers College in co-operation with IEEP, MAB and the National Environment Secretariat.

Kenya Science Teachers College issued invitations to the Principals of all Primary Teachers Colleges, the National Environment Secretariat, Moi University, Kenyatta University, Kenya Institute of Education, requesting them to send participants to the National Workshop. KSTC provided all the facilities necessary for the workshop. KSTC identified and invited resource persons who made a résumé of and a discussion guide on each of the working documents of the workshop provided by Unesco. KSTC prepared the final report of the workshop and reproduced it after consultation with Unesco. The objectives of the workshop were: (1) to familiarize teacher educators with the need for environmental education and rational utilization of natural resources; (2) to familiarize teacher educators with scientific documents prepared by UN Agencies (Unesco-UNEP, MAB, FAO) which deal with implementation of environmental education; (3) and to explore means and ways for local adaptation and use of teacher training modules in the country. (English)

24. National Training Workshop in Environmental Education in Tanzania, Dar es Salaam, December 1986. The workshop was organized by the Department of Teacher Education of the Ministry of National Education of Tanzania in co-operation with IEEP.

In preparing and organizing the workshop, the Department of Teacher Education identified institutions and personnel for the workshop and met transport costs for the participants to and from the venue, provided lecture rooms, vehicles for the workshop, and local materials for the workshop. The Teacher Education Department provided ten resource persons, each of whom prepared a paper and a discussion guide on each of the papers presented, using reference materials on environmental education provided by Unesco. The Teacher Education Department prepared the final report of the workshop and reproduced it after consultation with Unesco.

Objectives of the workshop were: to increase awareness and knowledge of participants about environment and its problems; to acquaint participants with the goals, objectives, principles and teaching methodologies in environmental education; to determine some of the urgent needs and priorities in environmental education; to establish strategies for incorporation of environmental education into school curricular and teacher education (pre-service and in-service) and nonformal education at the national level. (English)

25. Subregional Training Seminar on the Incorporation of Environmental Education into Industrial Education for Asia, New Delhi, India, 20 - 27 April 1987. The seminar was organized by India's National Council of Educational Research and Training in co-operation with IEEP.

Member States invited to the seminar were Afghanistan, Bangladesh, Bhutan, India, Iran, Nepal, Pakistan, Sri Lanka and Thailand. In addition, a number of India technical and vocational education experts from outside NCERT and from NCERT were also invited as observers. The agenda of the meeting was as follows: (1) Opening of the seminar; (2) presentation of the Unesco-UNEP International Environmental Education Programme; (3) presentation of country reports; (4) the place and need of environmental education in technical and vocational education; (5) review of strategies for the incorporation of EE into the curriculum and teacher training for industrial schools; (6) presentation of case-studies -- Czechoslovakia and Singapore; (7) suggested documents and activities on the incorporation of EE into industrial education to be developed by IEEP at subregional, regional and international levels; (8) educational field trip; (9) presentation and study of draft final report; (10) Closing of the seminar. (English)

26. Subregional Training Seminar on Nonformal Environmental Education for the Caribbean, Guyana, 25 - 31 May 1987. The seminar was organized by the University of Guyana in co-operation with IEEP. The working documents which provided background information and guidelines for the Seminar on Nonformal Environmental Education were as follows: (1) Guidelines for the Development of Nonformal Environmental Education (Environmental Education Series No. 23, Unesco 1986); (2) Unesco Report on "Subregional Training Workshop on Environmental Education for the Caribbean", Antigua, June 1980; (3) Final Report, Intergovernmental Conference on Environmental Education, Tbilisi, USSR, 1977.

Participants came from the Caribbean countries of Barbados, Cuba, Dominica, Grenada, Guyana, Jamaica, St. Lucia and St. Vincent. (English)

27. National Training Workshop on Environmental Education, Islamabad, Pakistan, 13 - 18 June 1987. The workshop was organized by the Co-ordinated Environmental Education Programme of Pakistan's Ministry of Education in co-operation with IEEP.

The six-day workshop was organized in June 1987 in close collaboration with Unesco and the Environment and Urban Affairs Division (EUAD) of the Ministry of Housing and Works. Administrators, curriculum developers, school supervisors, educational planners and teacher trainers from every corner of the country constituted the participants of the workshop, which aimed at creating environmental awareness. The participants were provided basic materials on environmental education by the organiser, which they discussed with interest and enthusiasm, as the subject was quite new to most of them.

The Final Report contains group reports suggesting different strategies for the introduction of EE as well as lectures delivered by various experts for the creation of general awareness and knowledge about environment, its problems and the possible strategies for tackling them. (English)

28. National Training Workshop in Environmental Education in Swaziland, August 1987. The workshop was organized by the Swaziland National Commission for Unesco in co-operation with IEEP. The workshop was intended primarily to: (1) increase the participants' awareness and knowledge of their environment and of environmental education, as such; and (2) to enable them to identify urgent needs and priorities in this area and devise strategies for the incorporation of environmental education into both formal and nonformal education.

In order to increase the participants' knowledge and awareness of the Swaziland environment, a number of resource people working in the area of natural resources (e.g., land utilisation, water monitoring) were invited to share their experience in an informal and practical manner through slide and film presentations and demonstrations. There were field trips to demonstrate urban population pressure, soil erosion, wildlife conservation and a rural development area cattle management scheme. Through slide presentations and overhead transparencies participants were acquainted with some of the formal and nonformal environmental education endeavours presently taking place. Participants were also involved in brainstorming sessions and small group discussions (with plenary-session input) to identify priorities in environmental education and to formulate strategies for incorporating environmental education into ongoing formal and nonformal education programmes. (English)

29. National Training Workshop in Environmental Education in Somalia, 17 - 23 August 1987. The workshop was organized by the Somali Ministry of Education in co-operation with IEEP. (English)

30. International Consultation Meeting on Developing Nonformal Environmental Education, Cairo, Egypt, 26 September - 1 October 1987. The meeting was organized by the Faculty of Education, Ain Shams University, in co-operation with IEEP. Member States which were invited to send participants to the meeting were Brazil, Egypt, India, Czechoslovakia, Denmark, Jordan and Nigeria. Nineteen participants and observers attended the meeting. The objectives of the meeting were: (1) to examine the concept, importance, needs, and target groups for nonformal environmental education; (2) to establish a process for developing nonformal environmental education; (3) to identify major environmental issues and problems to be treated by nonformal environmental education; (4) to establish guidelines for developing methods, materials, training of personnel, evaluation, legislation, administration, financing, and co-ordination mechanisms for nonformal environmental education; (5) to suggest documents and activities in nonformal environmental education to be undertaken by IEEP; and (6) to promote exchange of information and experience in the development of nonformal environmental education.

The following documents were presented at the meeting: (1) The Unesco-UNEP International EE Programme; (2) Guidelines for Developing Nonformal EE, prepared by Unesco and presented by its representative; (3) Concepts, Importance, Needs and Priorities and

Target Groups in Nonformal EE; (4) A Process for Developing Nonformal EE; (5) Major Environmental Issues and Problems to be Approached through Nonformal EE; (6) Methods, Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing and Co-ordination in Nonformal EE; (7) Country Report on Nonformal EE in Egypt; (8) Country Report on Non-formal EE in Jordan; and (9) Country Report on Nonformal EE in Nigeria. (English)

31. National Training Workshop on Environmental Education in Jordan, Irbid, Jordan, 10-14 October 1987. The workshop was organized by Yarmouk University in co-operation with IEEP. The short-term objectives of the workshop may be stated as follows: (1) increasing the awareness and knowledge of the participants about the environment and its problems and to acquaint them with the goals, objectives, principles and teaching methodologies of EE; and (2) training university teachers in the needs and priorities of EE for schools, so that they would include EE in their courses.

The long-term objectives of the workshop were: to introduce the environmental approach in the teaching and learning process in schools; to give more attention to incorporating EE into university courses, specially in the teacher-education programmes, at both the undergraduate, diploma of education, and postgraduate levels; and implementation of the recommendations resulting from the workshop. (Arabic and English)

32. Subregional Seminar on Teacher Training in Environmental Education for Asia, University Pertanian Malaysia, 15 - 22 November 1987. The seminar was organized by University Pertanian Malaysia in co-operation with IEEP. An accompanying volume contains country reports presented by participants.

The objectives of the seminar were as follows: (1) to familiarise teacher educators with the contents of the series of teacher training modules in environmental education prepared by IEEP; (2) to prepare prototype environmental education units for incorporation into teacher training programmes; (3) to identify institutions for local adaptation and use of teacher training modules in participating Member States; (4) to identify activities and documents on teacher training in environmental education to be undertaken by IEEP at subregional, regional and international levels; and (5) to enhance exchange of information and experience in the development of teacher training in environmental education in the subregion.

Member States invited to the seminar were Bangladesh, India, Indonesia, Malaysia, Philippines, Sri Lanka and Thailand. However, Bangladesh and India were unable to send representatives. Fifteen participants and observers attended the seminar. Seven documents on teacher training in environmental education, prepared by Unesco, and five country reports, prepared by the participants, were presented and discussed at the seminar.

33. Subregional Training Seminar on Curriculum Development in Environmental Education for Africa, Lilongwe, Malawi, 7 - 12 December 1987. The seminar was organized by the Malawi Institute of Education in co-operation with IEEP. The objectives were: (1) to study procedures for developing an environmental education curriculum; (2) to familiarize participants with the concepts of a series of modules in environmental education prepared by the Unesco-UNEP International Environmental Education Programme; (3) to explore efficient ways and identify institutions for local adaptation and use of the EE modules in the participating Member States; (4) to identify documents and activities in curriculum development in environmental education to be developed by IEEP at subregional, regional and international levels; and (5) to promote exchange of information on EE development in the subregion.

Environmental education documents, prepared and provided by Unesco, and their summaries, prepared by the Malawi Institute of Education, constituted the basis for the discussions of the seminar. The summaries are appended to the Final Report. (English)

34. National Training Workshop on Environmental Education in Egypt, Cairo, Egypt, 5 - 17 March 1988. The workshop was organized by the Institute of Environmental Studies and Research, Ain Shams University, in co-operation with IEEP.

The workshop was directed to religious teachers and Imams of Egypt's Mosques. The objective was to clarify Islam's attitudes towards the environment, its conception of the universe, man's place in it, and man's use of natural resources for his own benefit, while at the same time considering man as a custodian of the environment and its resources. More than 60 participants took part in the course and co-operated in preparing teaching units for religious schools, as well as modules for Friday services. Evaluation of the course indicated its effectiveness and the need for further expansion of this type of activity, and pinpointed EE requirements in regards to physical facilities, trained personnel, and finances. (English)

35. National Training Workshop for Teachers in Environmental Education, La Paz, Bolivia, 28 - 31 March 1988. The workshop was organized by the Ministry of Education and Culture of Bolivia in co-operation with IEEP. (Spanish)

36. Subregional Training Seminar on the Incorporation of Environmental Education into Industrial Education for the Caribbean, Kingston, Jamaica, 9 - 16 May 1988. The seminar was organized by Jamaica's College of Arts, Science and Technology in co-operation with IEEP. The aim of the seminar was to provide training of participants from Member States within the subregion and was organized in keeping with the following objectives: (1) to study the place and need of environmental education in the context of technical and vocational education (TVE); (2) to develop strategies for the incorporation of EE into the curriculum and teacher-training for pre-university industrial schools; (3) to develop prototype EE materials for incorporation into the curriculum and teacher-training for

industrial schools; (4) to enhance exchange of information and experience through the preparation and presentation of country reports on the development of EE in the context of technical and vocational education among participating Member States; and (5) to identify documents and activities to be developed by IEEP at subregional, regional and international levels on the incorporation of EE into technical and vocational education.

Seminar working sessions were enhanced by utilisation of the following documents: (1) Environmental Education in Technical and Vocational Education, Unesco (EE Series No. 24); (2) Strategies for the Incorporation of Environmental Education into Curriculum and Teacher Training for Industrial Schools (Unesco); (3) Case-study on the Incorporation of Environmental Education (EE) into Curriculum and Teacher Training of Technical schools in Singapore (Unesco); (4) Case-study on Incorporation of Environmental Education into Curriculum and Teacher Training of Technical Schools in Czechoslovakia (Unesco); and (5) Case-study on the Incorporation of Environmental Education into Curriculum and Teacher Training of Technical Schools in Jamaica (Unesco).

There were 18 participants and observers who came from Antigua, Barbados, Cuba, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines. (English)

37. Second National Seminar in Environmental Education, Riobamba, Ecuador, 23 - 27 May 1988. The seminar was organized by the Ministry of Education and Culture and the Ministry of Agriculture and Animal Husbandry in co-operation with IEEP. (Spanish)

38. Regional Seminar on the Integration of an Environmental Dimension into General University Education in Africa, Dakar, Senegal, 24 - 27 May 1988. The seminar was organized by Senegal's Institute of Environmental Sciences of Cheikh Anta Diop University of Dakar in co-operation with IEEP. (French)

39. Afro-Arab Training Course on the Incorporation of Environmental Education into Industrial Education. This training course was organized, 12 - 24 November 1988, by the Institute of Environmental Studies and Research, Ain Shams University, Cairo, Egypt. There were 19 participants and observers who came from Ethiopia, Iraq, Kenya, Kuwait, Nigeria, Somalia, Sudan, Tanzania and the host country Egypt.

Objectives of the training course were to (1) familiarize participants with the development of environmental education and its need and place in industrial education; (2) orient participants through guidelines for the incorporation of EE into school curricula and teacher training for industrial schools; (3) enhance the exchange of information and experience through the presentation of country reports on EE in industrial education in participating Member States; (4) suggest strategies for the incorporation of EE into curricula and teacher training for industrial schools; and (5) develop prototype units for industrial education with EE components.

Seminar working sessions were enhanced by the presentation and discussion of the following documents: (1) Environmental Education and its Incorporation into Industrial Education; (2) Environmental Education in Technical and Vocational Education (Unesco 1984); (3) Strategies for the Incorporation of Environmental Education into Industrial Education (Unesco draft); (4) Case-study on the Incorporation of Environmental Education into School Curricula and Teacher Training of the Technical Schools in Singapore (Unesco draft); (5) Case-study on the Incorporation of Environmental Education into School Curricula and Teacher Training of Technical Schools in Jamaica (Unesco draft); and (6) Case-study on the Incorporation of Environmental Education into School Curricula and Teacher Training of Technical Schools in Czechoslovakia (Unesco draft). (Arabic and English)

40. Interregional Training Course in Environmental Education for Educational Planners and Administrators. This training course was held for one week in February 1989 in the context of the International Diploma Course in Educational Planning and Administration, organized by the National Institute of Educational Planning and Administration (NIEPA), New Delhi, India.

The plenary session included the presentation and discussion of the résumés of the documents on EE by resource persons from different organisations and institutions of India. As part of the plenary sessions, country reports on EE were also presented by the participants. Fifteen country reports were thus presented and discussed during these sessions. Participants and resource persons were divided into three working groups. Each group discussed and prepared a report on one of the following three topics: (1) the role of educational planners and administrators in the development of EE at national level; (2) developing guidelines for incorporating EE into the training of educational planners and administrators; and (3) developing guidelines on incorporating EE into educational objectives, policies and planning at national level.

Each group met separately to discuss its respective topic and prepare a draft group report. After the presentation and discussion of these group reports in a plenary session, they were further revised to compose the Final Report. (English)

D. TRAINING OF PERSONNEL IN ENVIRONMENTAL EDUCATION

The Tbilisi Conference stated that "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 in nonformal activities for young people and adults, administrative personnel and educational planners and researchers with environmental-linked subject matter and educational methodological guidelines." It was further emphasized that environmental sciences and EE should be included in curricula for pre-service teacher education, that Member States should take the necessary steps to make in-service training of teachers in EE available to all who need it and that education and training institutions should have the necessary flexibility to enable them to include appropriate aspects of EE within existing curricula and to create new environmental curricula which meet the requirements of an interdisciplinary approach and methodology.

Main activities of IEEP in this field concern:

International Training Meetings in Environmental Education

1. International Training Course in Environmental Education. This international training course in environmental education was held on 1-28 September 1982 in Prague and other towns of Czechoslovakia. The course was organized by the Institute of Applied Ecology and Ecotechnology of the University of Agriculture in Prague with the cooperation of the Pedagogical Faculty of Hradec Kralové, the College of Mining in Ostrava, the College of Forestry and Timber in Zvolen and Charles University in Prague.

The course was attended by experts from Afghanistan, Bangladesh, Burkina Faso, Colombia, Congo, Cuba, Ethiopia, Guyana, India, Indonesia, Mauritania, Pakistan and Senegal as well as by observers from Czechoslovakia.

The objectives of the course were to (i) provide the participants with knowledge of recurrent environmental problems and the special problem of ecodevelopment; (ii) study the ways and means of incorporating environmental education as a problem-oriented education into disciplines at all school levels; and (iii) acquaint participants with different types of pedagogical materials and teaching support and other audio-visual materials including films of formal and nonformal environmental education. (A final report has been published, as well as lecture materials for the course, in English and French.)

Interregional and Regional Training Workshops in Environmental Education

1. Afro-Arab Training Course on the Incorporation of Environmental Education into Industrial Education. This training course was organized 12-24 November 1988 by the Institute of Environmental Studies and Research, Ain Shams University, in Cairo, Egypt. There were 19 participants and observers who came from Ethiopia, Iraq, Kenya, Kuwait, Nigeria, Somalia, Sudan, Tanzania and the host country, Egypt.

Objectives of the training course were to (i) familiarize participants with the development of environmental education and its need and place in industrial education; (ii) orient participants with guidelines for the incorporation of EE into school curricula and teacher training for industrial schools; (iii) enhance the exchange of information and experience through the presentation of country reports on EE in industrial education in participating Member States; (iv) suggest strategies for the incorporation of EE into curricula and teacher training for industrial schools; and (v) develop prototype units for industrial education with EE components. (A final report has been published in Arabic and English.)

2. Interregional Training Course on the Incorporation of Environmental Education into Technical and Vocational Education. This training course was conducted, 25-30 September 1989, in Manila, Philippines. It was organized by Colombo Plan Staff College for Technician Education in the framework of IEEP. Nineteen participants and observers came from Australia, Canada, Fiji, India, Indonesia, Iran, Japan, Malaysia, Myanmar, Nepal, New Zealand, Papua New Guinea, Philippines, Republic of Korea, Singapore, Sri Lanka and Thailand.

Main points of the agenda covered: an overview of EE; EE in technical and vocational education; guidelines for the incorporation of EE into (a) curricula and teacher training for industrial institutions and (b) agricultural curricula and teacher training; case studies from Czechoslovakia, Jamaica, Singapore and the U.S. (Michigan); and group work on developing prototype materials. Among the principal working documents was IEEP's publication (No. 24) in its EE Series, titled, "EE in Technical and Vocational Education".

A final report, in English, includes: a summary of the proceedings and of the country reports; presentation and discussions of the working documents and case studies; guidelines for the EE training of technical and vocational teachers; suggested strategies for the incorporation of EE into industrial and agricultural education; strategies for interregional cooperation in EE; conclusions and recommendations.

3. Interregional Training Course in Environmental Education for Educational Planners and Administrators. This training course was held for one week in early 1989 in the context of the International Diploma Course in Educational Planning and

Administration which is organized by the National Institute of Educational Planning and Administration (NIEPA), New Delhi, India. Participants and observers from 16 countries attended the course (Afghanistan, Bangladesh, Cuba, Ethiopia, Ghana, Jordan, Lao DPR, Malawi, Nepal, Nigeria, Philippines, Syria, Sri Lanka, Trinidad-and-Tobago, Uganda and Zimbabwe).

Its objectives were (i) the goals, objectives and recent developments of EE at the international level; (ii) the need and place of EE in the curriculum of primary and secondary schools, teacher education programmes, technical and vocational education and nonformal education; (iii) the need and place of EE in national educational objectives, policies and planning; (iv) the strategies for incorporating EE into educational objectives, policies and planning, curriculum, teacher training, technical and vocational education and nonformal education; and (v) the contents of an EE manual for educational planners under preparation at NIEPA. Input to the course consisted of IEEP documents (EE Series No. 22, 23, 24 and 26; and the Unesco-NIEPA EE Handbook for Educational Planners). The final report of the course was printed and distributed.

4. Regional Training Workshop for Africa. This training workshop for key educational personnel for the development of environmental education through the formal education process was held December 1978 in Dakar, Senegal. The workshop was attended by 21 participants from Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Guinea, Guinea-Bissau, Kenya, Mauritania, Mauritius, Niger, Senegal, Sierra Leone, Togo, Uganda, Zaire and Zambia, and 7 observers from UNEP, NEIDA and national institutions of Senegal.

The workshop focused on the goals, objectives and guiding principles of EE, strategies for programme formulation, curriculum development and pre-service and in-service teacher training in EE. (A final report has been published.)

5. Regional Training Workshop for Latin America. This workshop was organized on 29 October to 7 November 1979 in San José, Costa Rica. There were 22 participants from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay and Venezuela as well as 10 observers from Costa Rica, Guatemala and Venezuela.

The workshop focused on the identification and formulation of ways and means for planning development policies for EE; strategies for incorporating an environmental dimension into the training of teachers and into the curricula and didactic materials for primary and secondary schools. (A final report has been published in English and Spanish.)

6. Regional Training Workshop for Asia. This training workshop for Asia and Oceania was held, September 1980, in Bangkok, Thailand. The workshop was attended by 19 participants from Afghanistan, Australia, Bangladesh, China, India, Indonesia, Iran, Japan, Malaysia, Nepal, New Zealand, the Philippines,

Republic of Korea, Singapore, Sri Lanka, Thailand and the USSR as well as 12 observers from international governmental organizations.

The workshop reviewed EE progress in the region and established concrete steps that may be taken to enhance environmental education for both in-school and out-of-school populations. Seventeen country reports were presented and discussed. These reports were published in Bulletin No. 22, June 1981, of the Unesco Principal Regional Office for Asia and the Pacific. (A final report was also published.)

7. Regional Training Workshop for Europe. This workshop was organized December 1980 in Essen, Federal Republic of Germany. There were 40 participants from Austria, Bulgaria, Canada, Czechoslovakia, Denmark, Finland, Federal Republic of Germany, Hungary, Ireland, Israel, Italy, Malta, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland, UK, USA as well as observers from the Commission of the European Communities and IUCN.

The workshop focused on the review of trends and prospects, including the development of national mechanisms in EE in Europe since the Tbilisi Conference; development of EE in primary and secondary schools, curriculum development and teacher training; EE in technical and vocational schools; EE in adult education and information of the general public with regard to environmental issues; promotion of regional cooperation in EE. Nineteen country reports were presented which have been published in English. (A final report has also been published.)

8. Regional Training Workshop for the Arab States. This workshop was organized May 1981 in Manama, Bahrain. There were 21 participants from Algeria, Bahrain, Egypt, Kuwait, Morocco, Saudi Arabia, Somalia, Syria, United Arab Emirates and the P.L.O.

The workshop focused on EE concepts, strategies and methods, anthropological ecology, the Arab Environment and how to preserve its equilibrium. Five working documents on the above topics and those on strategies for curriculum development and teacher training in EE prepared by IEEP were used in the workshop. Similarly, ten country reports were presented and discussed. (A final report has been published.)

9. Regional Seminar-Training Workshop for the Arab States. This seminar-workshop was organized 14-18 December 1985 in Qatar. There were 40 participants representing 13 Arab States. The seminar-workshop focused on the incorporation of environmental education into higher (university) education. Discussions were based upon seven principal working documents as well as six documents presented by the University of Qatar. Recommendations and conclusions included curricula, the training and retraining of teachers, the interrelationship of society and the university, future strategies, regional and international cooperation -- all in the field of environmental education. A final report was printed.

Subregional Training Workshops in EE

1. Subregional EE Training Workshop for the Caribbean. This workshop was organized June 1980 in Antigua. There were 19 participants from Antigua, Barbados, Dominica, Grenada, Guyana, Jamaica, ST. Lucia, ST. Vincent, Suriname and Trinidad-and-Tobago.

The workshop focused on developing strategies for curriculum development and teacher training for primary and secondary schools and teacher training institutions in EE and fostering exchange of information and experience. Ten country reports were presented. (A final report has been published in English and Spanish.)

2. Subregional Training Workshop on Teacher Education in EE in Europe. This workshop was organized October 1980 in Prague and Hluboka, Czechoslovakia. The workshop was attended by 25 teacher educators from Bulgaria, Czechoslovakia, Finland, France, German Democratic Republic, Federal Republic of Germany, Hungary, Poland and the USSR.

The main objective of the workshop was to exchange experiences and study the ways and means for incorporating EE into pre-service and in-service teacher training programmes for primary and secondary schools. (A final report has been published.)

3. Subregional Workshop on Teacher Training in EE for Asia. This workshop for Asia was organized in March 1983 in New Delhi, India. The workshop was attended by 25 teacher educators from Afghanistan, Bangladesh, Sri Lanka and India.

The objectives of the workshop were to familiarize teacher educators with the contents of the series of EE teacher training modules prepared by IEEP; explore ways for their local adaptation and use, etc.; and exchange information and experience on EE material development in the subregion. (A final report has been published.)

4. Subregional Workshop on Teacher Training in EE for the Caribbean. This workshop was organized in collaboration with the Faculty of Education of the University of West Indies, in July 1983 in Mona, Jamaica. The workshop was attended by 9 teacher educators from the Bahamas, Barbados, Belize, Dominica, Grenada, Jamaica, St. Lucia, St. Vincent and Trinidad-and-Tobago as well as by 7 observers.

The objectives of the workshop were similar to those of the preceding Asian workshop. (A final report has been published.)

5. Subregional Workshop on the Integration of an Environmental Dimension into the Training of Secondary School Teachers (Honduras, OREALC, August 1985). The workshop was aimed at the development of content and methods for environmental education

and the adaptation of IEEP modules to Central American conditions. Twenty teachers coming from all Central American countries and Panama attended the workshop.

6. Subregional Training Workshop in Nonformal EE for Asia. This workshop was prepared in 1984-1985 by IEEP in cooperation with the Faculty of Science and Environmental Studies of the Universiti Pertanian Malaysia and took place 18-22 November 1985. Its objectives were: to familiarize participants with the contents of the draft Sourcebook in Nonformal Environmental Education prepared by IEEP, and to obtain their comments for its revision; to explore ways and identify institutions for local adaptation of the Sourcebook in the participating Member States; and to foster exchange of information and experience in this field. There were 16 participants and 4 observers from 6 countries (India, Indonesia, Philippines, Malaysia, Sri Lanka, Thailand). (A final report plus an annex of country reports was printed in 1986 and disseminated.)

7. Subregional Workshop on Teacher Training in EE for the Arab States. This workshop was prepared by IEEP in 1985 in cooperation with the Bahrain National Commission for Unesco and the Arab Regional Office of United Schools International, and was held on 25-30 January 1986 in Bahrain. Its main objectives were: to familiarize participants with the content of a series of environmental education teacher training modules; to identify institutions for possible local adaptation of these modules; and to enhance exchange of information and experience in this field in the participating Member States. There were 20 participants from 9 countries (Bahrain, Irak, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates). (The final report prepared in Arabic has been translated and published in English and Arabic in 1986.)

8. Subregional Workshop on Teacher Training in EE for Latin America. This workshop, prepared in 1985 by IEEP with the collaboration of La Serena University, Chile, was held on 13-20 January 1986 in Santiago, Chile. Its main objectives were the same as those mentioned in the above subregional workshops. Experienced teacher educators were invited from 11 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Uruguay and Venezuela.

9. Subregional Workshop on Teacher Training in EE in Africa. This meeting, prepared during 1984-1985 by IEEP in collaboration with the Kenya Science Teachers College, was held on 14-26 April 1986 in Nairobi, Kenya. Its main objectives were the same as those indicated in the previous subregional workshop for the Arab States. There were 17 participants and observers from Ethiopia, Kenya, Malawi, Somalia and Tanzania. Participants were teacher educators and educational administrators. (A final report has been published.)

10. Subregional Training Seminar on the Incorporation of Environmental Education into Industrial Education for the Caribbean. This seminar was organized 9-16 May 1988 in collaboration with the College of Arts, Science and Technology (CAST) in Kingston, Jamaica. Twenty-nine participants and

observers from 8 countries attended the seminar. A main result of the seminar was the preparation of a substantive core of a series of EE modules based on environmental problems of the Caribbean, to be considered for adaptation in the context of industrial education of Caribbean countries. (A final report has been published.)

National Training Workshops in EE

The national training workshops have been organized by national educational institutions under the coordination and supervision, in most cases, of key educational personnel trained through international, regional and subregional training seminars and workshops. IEEP has provided technical advisory and financial support along with the EE Series as resource materials. Following are a few examples in each region.

Africa

1. Burkina Faso. A national EE training workshop was organized December 1979 in Ouagadougou. Seventy science and geography secondary school teachers and administrators participated. The objective of the workshop was to explore ways for incorporating environmental concepts into secondary school subjects. (A final report has been published.)

2. Central African Republic. This national training workshop was organized November 1980. Fifty participants, including directors of educational institutions, primary education supervisors, advisors and senior student teachers, took part.

3. Sierra Leone. This workshop was organized December 1981 with the participation of 60 in-service and student teachers and community leaders from twenty pilot school centres. The objectives were to familiarize participants with the environmental problems of Sierra Leone and to integrate environmental concepts into the primary school curriculum and its teacher training programmes.

4. Rwanda. This workshop was organized 24 August-4 September 1982 in Kigali. Forty-two participants from the Ministries of Primary and Secondary Education, Higher Education and Scientific Research took part. The objectives were to sensitize participants to issues and problems of the environment, to study ways for accomodating environmental problems of Rwanda into teaching/learning processes of its educational system, etc. (A final report has been published in French.)

5. Benin. This workshop was organized September 1982 for 161 participants. Objectives were to analyze primary school curriculum, accomodate appropriate EE concepts and identify teaching methodologies for their implementation. (A final report has been published.)

6. Senegal. This workshop was organized for 50 teachers and 10 key professionals of national parks for the effective use of an adapted version of the publication titled African Heritage in formal and nonformal education. The objective of the training workshop was to sensitize the school and out-of-school population to conservation of natural resources, especially national parks.

7. Malawi. This EE training workshop was organized April 1983. There were 77 participants, drawn from those involved in formal and nonformal education, various ministries and industries involved in the exploitation or preservation of Malawi's natural resources. (A final report has been published.)

8. Ethiopia. This EE training workshop was organized August 1983 in Addis Ababa. There were 47 participants from the Ministries of Education, Agriculture, Public Health, Labour and Social Affairs, and State Farms, the Crop Pest Control Division, colleges of teacher education, the All-Ethiopia Trade Union Association, Asmara University, etc. The principal goal was to elaborate strategies for the promotion of EE in Ethiopia. (A final report was printed.)

9. Zaire. This workshop was prepared and organized March 1984 by the National Commission of Zaire for Unesco in Kinshasa. The main objective was to train educators, teachers, educational planners and researchers in the field of environmental education. Fifty participants studied current environmental problems in Zaire; environmental education in the context of primary, secondary and higher education; problems of environmental education and national development; strategies and methodologies for the development of environmental education at the national level. Ten resource persons prepared working papers on essential themes of the workshop. (A final report was issued.)

10. Guinea-Bissau. This workshop was prepared by the National Commission of Guinea-Bissau for Unesco May 1984. Its main objective was to sensitize national educators to environmental problems and their relationships to environmental education and national development; to study environmental education in the context of formal and nonformal education in Guinea-Bissau; to develop strategies for national development and promotion of environmental education. There were 40 participants coming from Ministries of National Education, Public Health, Rural Development, Social Equipment and Mass Organizations, as well as from the National Commission for Unesco.

11. Ivory Coast. This workshop was organized by the National Commission of Ivory Coast for Unesco October 1984. It was held in Abidjan with the objectives of sensitizing educational personnel to the environment and its problems, increasing their knowledge about the environment and the eventual role of environmental education in the prevention and solution of its problems. Twenty-one participants from the Ministries of Education, Environment, Culture, Agriculture and Industry studied the place of environmental education in the context of formal and nonformal education and developed a national strategy in this regard.

12. Burundi. The main objective of this workshop (December 1985) was to sensitize teachers, researchers, students, et al., to environmental problems of Burundi in order to facilitate a rational management of natural ecosystems in this country.

13. Tanzania. This workshop was held from 24 to 29 November 1986. Its objectives included the increasing of environmental awareness and knowledge among participants, their acquaintance with EE principles, goals, methodologies, needs, priorities and strategies. (A final report was issued.)

14. Benin. This workshop, organized in cooperation with the Benin National Commission for Unesco, was held in 1989 for fifty teachers. Its objectives were to increase the awareness and knowledge of participants on the environment and its problems and to acquaint them with the different aspects of the development and implementation of EE in Benin.

Arab States

1. Egypt. This EE training workshop was organized August 1982 for 70 natural science supervisors and inspectors. The theme of the workshop was ways and means for incorporating EE into the pre- and in-service training of teachers and to develop programmes and curricula in this area. (A case study entitled "The Egyptian Experience in Formal Environmental Education", based on the workshop, has been published.)

2. Sudan. A national training workshop, titled "Planning for Environmental Education in the Sudan", was held in Khartoum, 22 October-3 November 1983. There were 30 participants from research centres, education centres, training institutes, etc. The workshop was essentially a two-week training course in environmental education.

3. Oman. A national training workshop in environmental education was held in Muscat, Sultanate of Oman, 2-7 December 1983. There were approximately 50 participants, composed principally of primary and intermediate level teachers. (A final report was issued.)

4. Tunisia. A national training workshop in environmental education for key personnel, both inside and outside the formal school system, was held in Hammamet, Tunisia, 27-29 December 1983. There were 29 participants, who included university professors and administrators, directors and inspectors of primary and secondary schools, directors of teacher-training institutions, etc.

5. Morocco. This workshop was organized 13-16 February 1984 by the Faculty of Educational Sciences of the Mohammed V University in Rabat. Forty educators and inspectors of natural sciences, social sciences and members of the Population Education Unit of Rabat participated. They discussed goals and objectives of environmental education linked to environmental problems of Morocco; the role of legislation in environmental protection; needs and priorities; strategies and methodology, etc.

6. Syria. This workshop was prepared and organized 12-17 March 1984 by the Supreme Council of Science of Syria in Damascus. Forty-seven participants from Damascus and other parts of Syria attended the workshop. They discussed man and his environment; environment and health; the balance between the physical and biological environment; the philosophy, goals, objectives, guiding principles and strategies for developing environmental education in Syria.

7. Jordan. This workshop was organized 10-14 October 1987 in collaboration with the Yarmouk University for 19 school advisors and officers for environmental awareness in the Royal Society for Conservation of Nature. Themes covered by the workshop were scope and meaning of the environment, major environmental problems, and environmental education objectives, principles, priorities in school curriculum, methodologies and evaluation. (A final report has been published.)

8. Egypt. This workshop was organized 5-17 March 1988 in collaboration with the Institute of Environmental Studies and Research of Ain Shams University, Cairo, Egypt. The objective of the workshop was to clarify Islam's attitude towards the environment, the conception of the universe, man's place in it, and man's use of natural resources for his own benefit, while at the same time man is held as a custodian of the environment and its resources. There were 60 participants in the workshop: they were religious teachers and Imams of Mosques in Egypt. The participants collaborated in preparing teaching units for religious schools, as well as modules for Friday speeches for the Jomaa prayer. (A final report has been published.)

Asia and the Pacific

1. Philippines. A national EE training workshop was organized March 1979. There were 30 participants from the regional offices of the Ministry of Education and Culture, regional science teaching centres, regional staff development centres and the two high schools in the Metro Manila area. (The organizers have prepared a case study based on the workshop.)

2. Korea. This training workshop was organized December 1979 in Seoul. There were 64 participants from various government agencies, graduate environmental schools, provincial boards of education, primary and secondary schools, teacher training and research institutes, and press and broadcasting. (A case study based on the workshop has been prepared.)

3. Bangladesh. This training workshop in nonformal EE was organized February 1981 in Dacca for 50 representatives from Unesco Clubs, Boy Scouts, Girl Guides, youth organizations, women's associations and social welfare organizations in Bangladesh.

4. All-China Training Workshop on EE. This workshop was organized April 1982 with these objectives: to increase awareness and knowledge of the participants about the environment and its problems and the relationship between development and

environment; to raise sensitivity to changes in environmental quality and improve a sense of responsibility for protecting and improving the environment; to acquaint participants with EE goals, objectives, principles and teaching methodologies in order to further environmental education in China. Participants were 51 professionals from middle and primary schools and kindergartens of 23 provinces, municipalities and autonomous regions throughout the country, teachers and administrators from normal colleges and universities and polytechnical institutes as well as delegates from the Ministry of Education. (A final report has been published.)

5. Nepal. This workshop was organized in 1982. The 30 participants were school supervisors, teacher educators and curriculum experts. They explored environmental problems of Nepal and the role, principles, methodologies and strategies of environmental education in coping with them.

6. Sri Lanka. The first phase of a national EE training workshop was organized October 1982, the remaining phase in early 1983. Forty-two participants took part in the first phase. The second phase involved preparation of multimedia EE packages employed in various field centres of Sri Lanka.

7. Sri Lanka. This seminar was organized in Colombo, 9-13 February 1988, in collaboration with the Central Environmental Authority of Sri Lanka as a follow-up to the implementation of an operational project entitled "Environmental Protection and Management in Sri Lanka" funded by UNDP and executed by Unesco from 1983 to 1987. The objective was to identify current needs and priorities and make recommendations on the ways and means of achieving them. The scope was extended to cover the incorporation of EE into university and tertiary education; pre-school, primary and secondary education; specialized education; and nonformal education as well as other measures needed for environmental protection in Sri Lanka. There were 47 participants who constituted an interministerial and interinstitutional group whose deliberations covered the different aspects of the environment. (A report was published.)

Europe

1. Bulgaria. A national EE training course was held June 1979 in Sofia. There were 230 participants from the Ministry of People's Education, the Central Institute for Training of Teaching Personnel, the Environment Protection Committee, the National Committee on Environmental Protection, the National Council of the Fatherland Front Organization, the Nature Research Association, the Research Institute on Education, the Higher Forestry Institute and the Commission on the Protection of the Environment. (A final report has been published.)

2. Poland. This training workshop was organized September 1980 on strategies for environmental education in the general 10-year compulsory school. About 60 inspectors in biology and geography, representatives of interested ministries and teachers of relevant subjects took part. (A final report has been published.)

3. Ukrainian SSR. This workshop was organized April 1981 in Kiev. The 51 participants consisted of teachers from senior secondary schools, methodologists and workers of city and district youth naturalists stations.

4. Hungary. A national EE training workshop was organized December 1981 in Salgotarjan. There were 200 participants consisting of teachers from secondary, grammar and vocational schools; there were also skilled worker training school teachers. (A case study has been prepared based on the workshop.)

5. Byelorussian SSR. This workshop was organized September 1982 in Minsk for 55 participants, who explored national environmental problems and the ways, means and strategies of an environmental education which could contribute to their prevention and solution. (A report has been published on the workshop in Russian.)

6. Yugoslavia. This workshop was organized September 1983. Participants included 150 scientists and educators from social organizations for the protection of the human environment (federal and republican), from republican and provincial secretariats of education, universities, faculties, academies of sciences, professional associations, pedagogical institutions and institutions for the promotion of education, etc.

7. USSR. A national training workshop, called The Second All-Union Conference on Environmental Education, was convened in Ivanovo, USSR, 18-20 September 1984. There were 170 participants and 50 observers representing 93 institutes and universities as well as governmental agencies and nongovernmental organizations. The conference aimed at: developing measures for the improvement of EE in the USSR; evaluating results of the past five years; exchanging ideas, experience and information; and promoting cooperation.

Latin America and the Caribbean

1. Brazil. A national EE training workshop was organized March 1979 in Sao Paulo. Twenty-one participants, mainly educators in physics, chemistry, biology, geography, mathematics and history at the secondary level, took part. Objectives included development of a teaching module and a teacher's guide in environmental education. A publication entitled "Environmental Problems in Highly Urbanized Zones" contains the teaching module and the teacher's guide as well as a short glossary of terms. A set of 12 cards to be used by students for simulation purposes was also produced.

2. Cuba. A national EE training seminar was convened March 1979 in Havana. There were 39 participants from the Ministries of Education and Culture, the Academy of Sciences, institutions of higher education, provincial educational institutions, the Cuban Pioneers' Organization, etc. (A final report has been published.)

3. Chile. A national seminar on "Ecological Aspects of Education -- An Interdisciplinary Approach" was held in August 1979 in Valdivia. There were 77 participants from universities, teacher training institutions and the Ministry of Education. The five working documents have been published in Spanish (as well as a final report).

4. Argentina. A national training course was organized June 1980 in Buenos Aires for 50 participants involved in teacher education, curriculum development, supervision and environmental planning. (A final report has been published.)

5. Jamaica. A training workshop was organized March 1981 in Kingston. There were 38 curriculum developers, teacher educators and education officers from the primary, secondary and technical schools, School of Drama, Science Centre, School of Education of the University of West Indies, Community College and the College of Arts, Science and Technology. (A final report has been published in English.)

6. Guyana. This workshop was organized May 1981 in Georgetown. There were 42 participants. They prepared materials entitled "Learning about My Environment". (A final report has been published in English.)

7. Ecuador. A training workshop was organized in Quito November 1982. The 50 participants were national supervisors, educational planners, teacher educators, provincial directors of education, university professors and professionals from the national project of literacy and rural education. (A case study based on the workshop has been published.)

8. Ecuador. The main objective of this workshop, which took place in April 1985, was the development of content and methods for the incorporation of an environmental dimension into primary school education. Thirty teachers and 4 ministerial officers attended the workshop. It was organized through the collaboration of Unesco regional Office for Education for Latin America and the Caribbean (OREALC).

9. Ecuador. The main objective of this workshop, held through OREALC in May 1985, was similarly the development of content and methods for the incorporation of an environmental dimension into primary school education and activities in integrated rural development for coastal zones. Twenty-five teachers and educators and 10 officers from Ministries of Education and Rural Development participated in this workshop.

10. Uruguay. The aim of this workshop, held through OREALC in September 1985, was the development of content and methods for the integration of environmental education into secondary level teaching. Thirty teachers from various secondary schools of Montevideo attended the meeting.

11. Panama. The aim of this workshop, which took place in October 1985, was the development of content and methods for the incorporation of the environmental dimension into various subject

matters and disciplines of secondary schools. Thirty secondary level teachers and 7 university specialists attended the workshop.

12. Cuba. A national course on environmental education was conducted in October 1985 which aimed at sensitizing teachers and administrators of general education to the content and methods of environmental education for primary and secondary schools. Forty teachers and officials attended the course.

13. Nicaragua. This workshop convened November 1985 through OREALC aimed at the analysis and adaptation of the IEEP module on teacher training for rural primary school. Fifteen educators responsible for education activities attended the meeting.

14. Dominican Republic. This workshop, organized in March 1986, aimed at the analysis and adaptation of an IEEP module on teacher training for the primary level. Forty educators attended the workshop.

15. Dominica. This workshop held in March 1986 was aimed at the development of content and methods of environmental education for the training of primary-school teachers. Thirty educators attended the meeting.

16. Working Groups on Environmental Education for the Latin American Region. A series of micro-workshops, bringing together 4 to 5 participants, and aimed at planning national activities in the field of environmental education, as well as at elaborating approaches and national strategies for the reinforcement and development of this field, were organized in Argentina, Chile, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Uruguay with the cooperation of OREALC and in the framework of IEEP activities in Latin America through the Unesco Major Project on Education and CARNEID (subregional education network).

17. Bolivia. This workshop was organized in La Paz, 28-31 March 1988, in collaboration with the Ministry of Education and Culture of Bolivia. Fifty teachers, teacher educators, educational supervisors, directors of teacher-training colleges participated in the workshop. The objectives were to orient the participants with the goals, objectives, guiding principles, teaching methods in EE; to analyze the school curricula; to establish strategies for the incorporation of an environmental dimension into school and teacher education curricula.

18. Ecuador. This seminar was organized from 23 to 27 May 1988. Its objective was to have an interinstitutional seminar for enhancing coordination of the development of environmental education and studying the possibility of establishing a national department of environmental education. The seminar was attended by 60 key personnel from various institutions involved in the development of formal and nonformal EE in Ecuador.

Conclusion

The selected activities of the Unesco-UNEP International EE Programme presented in this document clearly indicate the importance of its contribution to the general awareness about, and the clarification of, the concept of the environment encompassing the natural and man-made components and have served as a fundamental measure for fostering the solution and prevention of environmental problems at the international, regional and national levels. Similarly, IEEP has contributed to the identification of needs and priorities, clarification and development of the concept, philosophy, goals, objectives and guiding principles of environmental education which have served as a common denominator in the educational renewal in the Member States. Guidelines and strategies as well as curriculum prototypes have been developed and their local adaptation fostered. Key educational personnel have been trained who have served as multiplier effect on the development of environmental education, particularly its incorporation into the curricula for primary and secondary schools, technical and vocational education, teacher training and higher education. The IEEP has also fostered international cooperation in the field of environmental education through technical and intellectual support, fielding missions and participation in the relevant activities of international governmental and nongovernmental organizations.

The development of environmental education activities will be fostered further in the context of Unesco's Third Medium-Term Plan (1990-1995) and the International Strategy for Action in the field of Environmental Education and Training for the 1990s.