IUCN PUBLICATIONS NEW SERIES Supplementary Paper No 34

Final Report

European Working Conference on Environmental Conservation Education

Rüschlikon near Zürich, Switzerland

15—18 December 1971

International Union
for Conservation of Nature and Natural Resources
1110 Morges, Switzerland
1972

F I N A L R E P O R T

EUROPEAN WORKING CONFERENCE

ON

ENVIRONMENTAL CONSERVATION EDUCATION

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of Nature and Natural Resources

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Final Report

Edited by

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ED - 33 - 6
February 1972

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I. INTRODUCTION

1. The European Working Conference on Environmental Conservation Education was held as a non-governmental conference at the Gottlieb Duttweiler Institute in Rüsehlikon near Zürich, Switzerland, from 15-18 December 1971. Following the decision adopted by the IUCN Commission or. Education at its 30th Session and endorsed at the 48th Session of the IUCN Executive Board, this Conference was realised as IUCN project no. 33/6.

The ohjectives of the Conference were to assemble for the first time at a European level specialists working in the field of environmental education, in order to exchange information, to clarify concepts and to formulate specific recommendations for projects and programmes related to primary and secondary education, teacher training, higher education and out-of-school education.

2. The Conference was convened and organized by the International Union for the Conservation of Nature and Natural Resources (IUCN) in co-operation with the World Wildlife Fund (WWF) and with support from the Swiss Federal Authorities and the Canton of Zürich, the MIGROE Genossenschafts Bund, the Swiss League for the Protection of Nature, the Swiss National Appeal of WWF, and the. Swiss National Commission for UNESCO.

3. The organization of the Conference was undertaken by a Conference Preparatory Committee representing the sponsoring organizations.

Dr. Dieter Burckhardt (Ligue Suisse pour la Protection de la Nature), Dr. Jan Čeřovský (International Union for Conservation of Nature and Natural Resources), Dr. Paul Géroudet (World Wildlife Fund International), Mr. Hans-Jacob Mülller (WWF Switzerland), Dr. E. Plattner (Forum He Helveticum) , Mr. Bernard Theurillat (Swiss National Commission for UNESCO).

4. The Conference was formally opened by Mr. Frank G. Nicholls, Deputy Director General of IUCN, who took the chair for the inaugural session. In his opening address, Mr. Nicholls

welcomed the participants on behalf of the Executive Board of IUCN and its Commission on Education. He explained that the IUCN decided to hold the Conference in the belief that education is of vital importance in the world environmental crisis, both in creating environmentally aware attitudes throughout the general population and in producing the environmental specialists and other professionals needed to deal with the complex problems Lacing mankind. The meeting was designed as a European Conference to take advantage of the community of outlook and backgrounds that exists amongst the peoples of Europe. He stressed that this was a working conference, which should stimulate direct action by developing model programmes and projects that could be proposed to the appropriate authorities and that were capable of being carried into practice. The IUCN expected that its efforts would be catalytic and that the collective thinking of the meeting would stimulate active project work by all of the agencies, both national and international represented at the Conference.

5. During the inaugural session the Conference heard addresses from Dr. H.A. Foecke (UNESCO Paris), Dr. P. Géroudet (WWF International), Mr. R. Wiederkehr (WWF Switzerland), Dr. D. Burckhardt (Swiss League for the Protection of Nature).

6. The Conference adopted its rules of procedure which provided in particular for topic-oriented plenary sessions and the establishment of smaller Working Sections on the major sectors of environmental education. The rules also stipulated Chat those attending the conference be divided in three categories:

a) participants - individual specialists from European countries;

b) representatives appointed by international intergoverumeatal and non-governmental organizations;

c) observers comprising persons from outside Europe.

The complete list of participants, representatives and observers will be found in Annex I.

7. After considering the proposals of the Secretariat, the Conference adopted the following Agenda:

1. Opening of the Conference by the Deputy Director General of the IUCN.

2. Addresses by representatives of co-operating Swiss bodies and international organizations.

3. Adoption of the rules of procedure and the Agenda.

4. Election of the Conference Steering Committee.

5. Concepts of Environmental Conservation Education.

6. Setting up of Working Sections.

7. Comprehensive programmes of Environmental Education.

8. Environmental Conservation Teaching and Training in Higher Education.

9. Primary and Secondary Level, Teacher Training.

10. Reports of the Working Sections.

11. Adoption of the Conlusions of the Conference.

12. Closing speech of the Conference Chairman.

8. The Conference elected its Steering Committee:

Chairman :	Dr. L.K. Shapcshnikov (USSR)
Vice-Chairman :	Dr. K. Ewald (Switzerland)
Rapporteur General :	Mr. D.K.J. Withrington (UK)
Chairmen of Plenary Sessions :	Professor N. Söyrinki (Finland) Mr. H. Wals (Netherlands) Dr. T.M. Szczesny (Poland) Mrs. D. Kvasničková (Czechoslovakia) Professor P. Aguesse (France)

II. REPORTS OF PLENARY SESSIONS

A. Concepts of Environmental Conservation Education

9. This, the first Plenary Session, was chaired by Professor N. Söyrinki (Finland), with as Vice-Chairman, Dr. F. Lauritzen (Denmark) and as Rapporteur Mr. J. Goudswaard (Netherlands).

10. The keynote paper "Concepts of Environmental Education" was prepared and presented by Dr. T. Pritchard (UK). In it he considered the needs of educators to have at their disposal a working definition of environmental education supported with clearly understood terminology, and he proposed the IUCN/UNESCO/ Foresta Institute definition. He considered many of the measures taken in the name of environmental conservation to be merely palliatives and attributed this to a deficiency in the system which did not allow the existing expertise to be applied by the planners and decision-makers. Thus he saw a dual function for environmental education, both as vocational training for specialists and as a means of creating public awareness about environmental affairs, with the ultimate aim of realizing the conservation of natural resources and stimulating enjoyment of the environment. Discussing the components of environmental education, he emphasized the extra-curricular elements of public information and youth activities. Within the formal school system, environmental education could be incorporated into existing subject areas or be taught as a subject in its own right. At the primary level, the child's interest was easily stimulated through the concept of contact with and discovery of its environment, and through the use of innovative teaching methods. This unity of approach was difficult to maintain at the secondary level since the subject areas were arbitrarily prescribed, and, at the higher secondary level, environmental education was usually available only as a specialization. In higher education, particularly at the university level, environmental education had a key role to play in educating specialists, teachers and decision-makers. There was a case for more broadly based interdisciplinary studies in this field. In considering future prospects, Dr. Pritchard felt that benefit could be gained by assessing the methods used in the implementation of environmental education in respect of the objectives which he had delineated. Most important of all, in the context of widespread reform of educational systems, was the recognition of environmental education as A priority area by the responsible authorities.

11. Following Dr. Pritchard's presentation, a lively discussion developed on the basis of the points which had been raised. The point was made that the increasing popularity of environmental education and its tolerance by all sectors of the community, including industrialists, might lead one to believe that it was another "opium of the masses" and was in danger of becoming ineffectual in achieving its objectives and in inducing change. Dr. Pritchard felt that the broadly-based support for environmental education stemmed from a general concern for the quality of the human environment. The importance of a philosophical argument as a basis for conservation was stressed. This could be summarized as a respect of all living things and the physical environment which sustains all life on Earth. Another point concerned the need to continue efforts to improve terminology and definitions, since the Conference was already experiencing difficulties in the translation of technical and semi-techaical terms used in the English language. It was felt that there was a requirement for updated information on the environment for the young people who have left the secondary schools. Another sector of the population - administrators, statesmen and technocrats - could be reached through seminars where they might discuss their policies and programmes with environmental scientists, in order to be in a position to combat the environmental hazards that might arise in the course of their work. The needs of teachers were outlined in respect of concrete guidance in a relatively new field, by the production of objectives and a workable methodology. Somewhere in this process it might be beneficial to consider the attitudes expressed by the child towards its environment. A plea was made that the Conference should not dwell entirely in basic principles and general exhortations, but that the recommendations of the Conference should include a high proportion of workable schemes and suggestions considered to be suitable for putting into practice in different countries in the near future.

B. Comprehensive Programmes of Environmental Education

12. This, the second Plenary Session, was chaired by Mr. H. Wals (Netherlands), with as Vice-Chairman Mr. S. McB. Parson (UK), and, as Rapporteur, Mr. L. Morgan (UK) .

13. The keynote paper "Comprehensive Programmes of Environmental Education" was prepared and presented by Dr. J. Čeřovský He felt that, although the role of environmental education had received general recognition, it nevertheless remained to be properly implemented. This meant, in the first place, sound, elaborated, well co-ordinated, ambitious and, at the same time, realistic programmes. "'Attitude" was the key word in defining the ultimate objectives of environmental education; while "Co-ordination" and "Integration" seemed to be the key words involved in its implementation. Here the major problem areas were:

i) Co-ordination between the basic sectors including public information, school education, and out-of-school education and activities;

ii) phasing of the programmes from awakening interest and providing information, through the teaching of skills and giving practice in decision-making towards the final formulation of a code of behaviour and involvement in action;

iii) adaption to levels (vertical integration) with co-ordination between separate subject areas within each level (horizontal integration) bearing in mind particularly the specific areas of professional interest and the involvement of those whom education has to reach.

Educational programmes had to teach what to do actively for the protection and improvement of our environment. They must be based on scientific knowledge, be carried out within and between many disciplines, include both ecological and socio-logical aspects (though the natural-biophysical environment should come first) and finally they must re_ach everyone in the community. At the compulsory school level, the promotion of an interdisciplinary infiltration of environmental teaching and education in all possible subjects was emphasized as the most appropriate approach. Introduction of a special subject of "environmental studies" should principally be accepted and encouraged, but not regarded as the only and final stage of development. As well as a co-ordination of envi environmental education programmes at a national level, international co-operation should be fostered.

14. In the discussion, which followed Dr. Čeřovský's presentation, the methods of implementing environmental education in school programmes were considered. Some participants argued the necessity tor a separate syllabus in "environmental studies", while others defended the advantages of approaching environmental education through existing disciplines. The latter approach is utilized in the resolution (71/14) of the Council of Europe on the "Introduction of the Principles of Nature Conservation into Education".

Another point referred to the conflicts contained in the contemporary child's environment, as shown in the paper, which should be used to advantage by educators in environmental education. In addition to school education, the need for education in the family environment was recognized. The importance of educating people in the practice of decision-making was accepted, but methods of achieving this remained to be clarified. It was felt chat there was also a need to influence those who create and change public opinion. The principal goal of environmental conservation education was considered by one participant to be the development of a partnership between man and nature. The discussion was concluded by a representative of UNESCO who argued that more attention be given to defining the objectives of environmental education, with special consideration of the ways in which the value judgements, attitudes and decision-making processes involved could be covered.

C. Environmental Conservation Teaching and Training in Higher Education

15. This, the third Plenary Session was chaired by Dr. T.M. Szczesny (Poland), with as Vice-Chairman, Mr. E. Kesteloot (Belgium), and as Rapporteur, Professor R. Kempf (France).

16. The keynote paper "Teaching of Environmental Sciences at the University Level" was prepared and presented by Professor E. Binder (Switzerland). In his view the university has four distinct tasks to fulfil in this field:

i) to familiarize scientists of all disciplines and the members of other faculties with the existence of environmental problems;

ii) to provide ecological training for all students of biological and natural sciences, which includes the training and in-service training of secondary school teachers who have in turn to educate the coming generations;

iii) to train specialists and experts whose role will be to participate in the elaboration of decisions concerning the conservation of resources and land-use management;

iv) to undertake fundamental research in the field of general ecology and the human environment.

He pointed out that the ecological training cf students not specializing in natural sciences should ideally have taken place during their secondary education. But as this is not yet generally the cave, higher education should provide some general training in this Held.

In the science faculties, where natural scientists and secondary teachers are trained, there should be a compulsory course in human ecology, which should acquaint the students with the problems of the environment and the interaction between man and his surroundings. Such a course should have a minimum of 25 to 30 hours. The training of environmental specialists should be provided at the postgraduate level within institutes specialising in ecology and land-use management.

17. The excellent paper of Professor Binder did not meet with any fundamental objections during the ensuing discussion. Various speakers underlined the necessity of creating "generalists" in the field of environmental 'management who could form an essential link between the general public and decision-making authorities as well as with the specialists. Such "generalists", far from being men of universal competence, should act as the indispensable complement of the specialist. The necessary reform in the university structure in order to achieve integrated "environmental studies" should go far beyond the introduction of

a new and specialized course in this field. The content of environmental training should recognize as an essential aim the management of the environment in order to ensure the necessary conditions for human survival. Pollution is an important concern, but the serious implications of the level of human population must not be neglected. Apart from the purely scientific and educational aspects of environmental management, we had to consider the administrative and human aspects. Therefore, we should attempt to analyze the mechanics of the decision-making process, to find methods and examples most helpful to reaching balanced decisions on environmental problems, and to suggest some sort of morals and values to the experts in order that their decisions night form part of a true environmental ethic. Some speakers stressed the dangers of concentrating our hopes and efforts on forming an elite of experts and specialists. More emphasis should be laid on public participation and the problems with which we were confronted in everyday life.

D. Environmental Education at the Primary and Secondary School Level and in Teacher Training

18. This, the fourth Plenary Session, was chaired by Mrs. D. Kvasničková (Czechoslovakia), with as Vice-Chairman, Mr. H. Guérin (France), and as Rapporteur Mr. A. Fyson (UK).

19. The first keynote paper for thi3 session, "Environmenta Education in the School Curricula", was prepared and presented by Dr. S. Forselius (Sweden). He concentrated his remarks on how curriculum changes might be carried out, and took Sweden as a case study - a country in which there is exceptional interest in outdoor activities, and in which the National Board of Education has responsibility for curriculum development. In Sweden there are periodic revisions of curricula giving rise to rolling programmes of adjustment. The importance of establishing closer co operation in environmental conservation education between the future biologists and technologists was stressed. This could be achieved by using a more technological approach to the environment

when teaching biologists and a more biological approach for technologists. In 1968, a special Committee - SMIL - began work on curriculum revision, to provide a basis for efficient environmental education at the school level. A week-long pilot project was undertaken in various schools and this was shown in operation in a sound-filmstrip at the end of the session. Dr. Forselius emphasised the value of laboratory work as a basis for a sound quantitative approach to environmental problems. Such work should be closely integrated with fieldwork, for which guidelines and objectives have been drawn up for the teacher to use where appropriate.

In order to facilitate this practical acquaintance with the environment in the field, the relevant authorities should be convinced of the necessity to create different types of nature study areas, some easily accessible in the neighbourhood of the school and others further away suitable for one-day excursions and school camps. He believed that environmental education should be incorporated in existing subjects, particularly biology. However, his aim was to produce not only well-trained biologists, but environmentally aware decision-makers. He ended by stressing the importance of international co-operation, and suggested that to speed up the implementation of environmental education, an "idea-bank" should be established on an international basis. In two appendices to his paper, Dr. Forselius gave us an outline of an environmental education curriculum and examples of laboratory activities to be carried out through an integrated environmental education course.

20. The second keynote paper for this session, "Environmental Education in Teacher Training", was prepared by Professor I.D. Zverev (USSR). AS the author himself was unable to be present, owing to a sudden indisposition, a member of the Conference Secretariat read the following conclusions of Professor Zverev's paper:

i) Precise programmes of environmental conservation teacher training should be elaborated, taking into account the natural and social conditions of each respective country. They should be adopted and approved by the relevant official authorities.

ii) The contents of. the programmes must reflect environmental conservation concepts representing the scientific basis of nature conservation.

iii.) Environmental conservation teacher training should reach students of all disciplines and specializations, so that every teacher, not only in biology or geography, makes environmental education a permanent and continuous component of his educational activities.

iv) It is necessary to integrate a separate special course on conservation with other disciplines taught in the respective teacher training college, institution or university.

v) It is necessary to elaborate and distinguish contents and methods of training, research and practical activities in the process of pre-service teacher training.

vi) It is necessary to understand and elaborate the inter-relations between matter-of-fact scientific knowledge and profes-sional skills and attitudes of the future teacher in the field of conducting environmental conservation activities in schools.

vii) The student-teacher must be trained by examples of the best pedagogical achievements, he must get acquainted with the best experience in order to learn patterns of environmental conservation education of school-children.

21. The first speaker in the discussion session expressed his disappointment at the lack of attention paid to the marine environ-ment in the sample curriculum. Since the world's oceans probably held the key to mankind's future well-being, the inadequate treatment of this subject in the schools as revealed by a survey of the UNESCO Office of Oceanography should be remedied. One problem in this field was the inaceessability of the marine environment to many schools for practical work. The opinion was expressed that the assumption that formal school education could change social behaviour was unfounded, since schools tend to be conservative institutions reinforcing existing social attitudes. It was hoped that through pupil involvement in practical projects a spontaneous attitude might be encouraged. It was felt that further emphasis on sociology and economics and the rigid institu-

tionalisation of knowledge in biological subjects was counter-productive, since the influence of man and civilization on the environment was now the main factor. Further, we should beware of a solely quantitative evaluation of land-use applications. Another speaker stressed the danger of overloading the curriculum and agreed that the main objectives of environmental education could be achieved by concentrating on the interrelationships between man, his culture and the biophysical environment.

There was some criticism of the optimistic picture portrayed in the Swedish examples of implementation of environmental education. Were no difficulties encountered? Dr. Forselius considered that the main obstacles to an effective implementation of environmental education lay in the field of teacher training. Attitudes of children to environmental abuses might seem rather naive, but their forthrightness in, for instance, questioning the right of polluters Co go unpunished should be encouraged by appropriate educational methods. A further point was that environmental education programmes should be based on love of the countryside rather than fear for our survival - a point emphasized in Professor Zverev's paper. The rather different view of environmental problems in the developing countries should also be understood. Finally, the hope was expressed that a suitable classification of materials would be developed for the proposed international "idea-bank".

III. REPORTS OF WORKING SECTIONS

22. At the end of the Second Plenary Session six Working Sections were set up according to participants' interest. These Working Sections were oriented to the following important sectors of environmental education: 1. Primary and Secondary Level; 2. Teacher Training; 3. Training of Other Educators; 4. Higher Education; 5. Out-of-school Education and Activities of Children and Youth; 6. Outdoor Facilities. The Working Sections met each afternoon to elaborate the general concepts presented and discussed in the plenary sessions into proposals for specific recommendations as well as for model programmes and projects. The results of their work were reviewed during the

Fifth Plenary Session under the chairmanship of Professor P. Aguesse (France), with Dr. D. Čolić (Yugoslavia) as Vice-chairman and Mr. N. Toniuc (Romania) as Rapporteur.

A. Primary and Secondary Level

(Chairman: Mr. H. Wals (Netherlands))

23. I. Recommendations regarding nursery and primary schools

Recognising that the possibilities to influence children are especially great during the very first stage of their development (approximately under seven years);

racognizing that the information of children about their environment is the foundation for many of the values they will adopt in life;

recognizing that the contact with nature, animals and plants, especially for those children living in urban areas, has a fundamental meaning for the development of positive attitudes and that this will help building up the environmental awareness as children grow older;

recognizing the need for a continuous line in the environmental education, which starts with their own observation, experience, emotion, and leads to an understanding of the continuous inter-action of man and biosphere; the members of this working section stress:

1. The importance of giving pupils of nursery schools (kindergarten) and of primary schools the opportunities to get in contact with living plants, animals, and other people with whom they have to share the environment.

2. During the training of teachers for nursery and primary schools more attention should be paid to environmental education, including field biology, and ways of using existing facilities such as schoolgrounds, parks, the surrounding community.

3. Special attention should be paid to the study of the urban environment, which should be studied concurrently with the study of nature, animals mod plants.

24. II. Resolutions regarding secondary education

1. Every child's secondary (12-18 years) education should include a wide range of educational. objectives relating to the scientific and social understanding of his environment and his activity within it. These should includes at least those set in the objectives chart be low.

2. The substantive content in all subject Areas should be appropriate for the achievement of these objectives and the interdisciplinary nature of this task should be stressed.

3. A subject focussing these objectives, particularly for higher cognitive levels, should - where appropriate - be made available as an option for more senior classes.. This however must not dedetractfron the achievement of all the basic environmental educational objectives by all students during their secondary education.

25. III. Recommendation regarding secondary school curriculum Design for environmental education (Objectives and Content)

INTRODUCTION

The Working Section recommends that all children during their secondary school education, (i.e. 12 to 18 years) should be provided with a scheme aimed at the achievement of the educational objectives outlined below which are based on the IUCN definition of Environmental. Education.

1. There ray be an adjustment of the content and objectives of traditional discipline courses to include the objectives outlined. In this case close attention will meed to be given to inter-disciplinary liaison.

2. A specialist teacher of Environmental Studies may provide a separate course parallel to the traditional discipline courses. This will not preclude the achievement of some of the listed objectives in these disciplines.

3. An inter-disciplinary core of foundation course may be structured, taught by a team of teachers and either replacing or supplementing traditional subject divisions, for all or part of the period of secondary education. This could form the basis of the curriculum. Schools could make maximum use of different skills possessed by members of staff by using team teaching methods or, by using one teacher to one class methods, but with material prepared and produced by specialist teachers. In either case close co-ordination must be maintained.

Each country will adopt the method best suited to its existing or proposed structure but the Working Section is strongly in favour of the third option.

Whichever design is chosen, the pedagogic methods followed in Environmental Education should require all pupils to be engaged in field work, in first hand investigation and in open discussion of problems. Teachers should act as partners rather than authorities in the learning process.

The Working Section notes that the content implied in many of these objectives may already be included in existing school curricula but the objectives themselves are considered minimal in relation to the educational requirements of this age.

In addition, some pupils will require a more specialized course of Environmental Studies leading to vocational or higher education opportunities in this field.

26. Minimum Environmental Education Objectives for every Secondary School Student

1. PHYSICAL ENVIRONMENT

The Planet Earth

Recognize the limits of the planet earth, its relation to the sun and moon.

Recognize the sun as the source of energy, understand in general terms the transport of energy and radiation, isolation and absorbtion of energy by the earth.

Energy Flow

Understand how the ecosystem is maintained by a flow of energy.

Gain basic knowledge of different forms of energy in the ecosystem including air and water movement.

Atmosphere, Climate and Meteorology

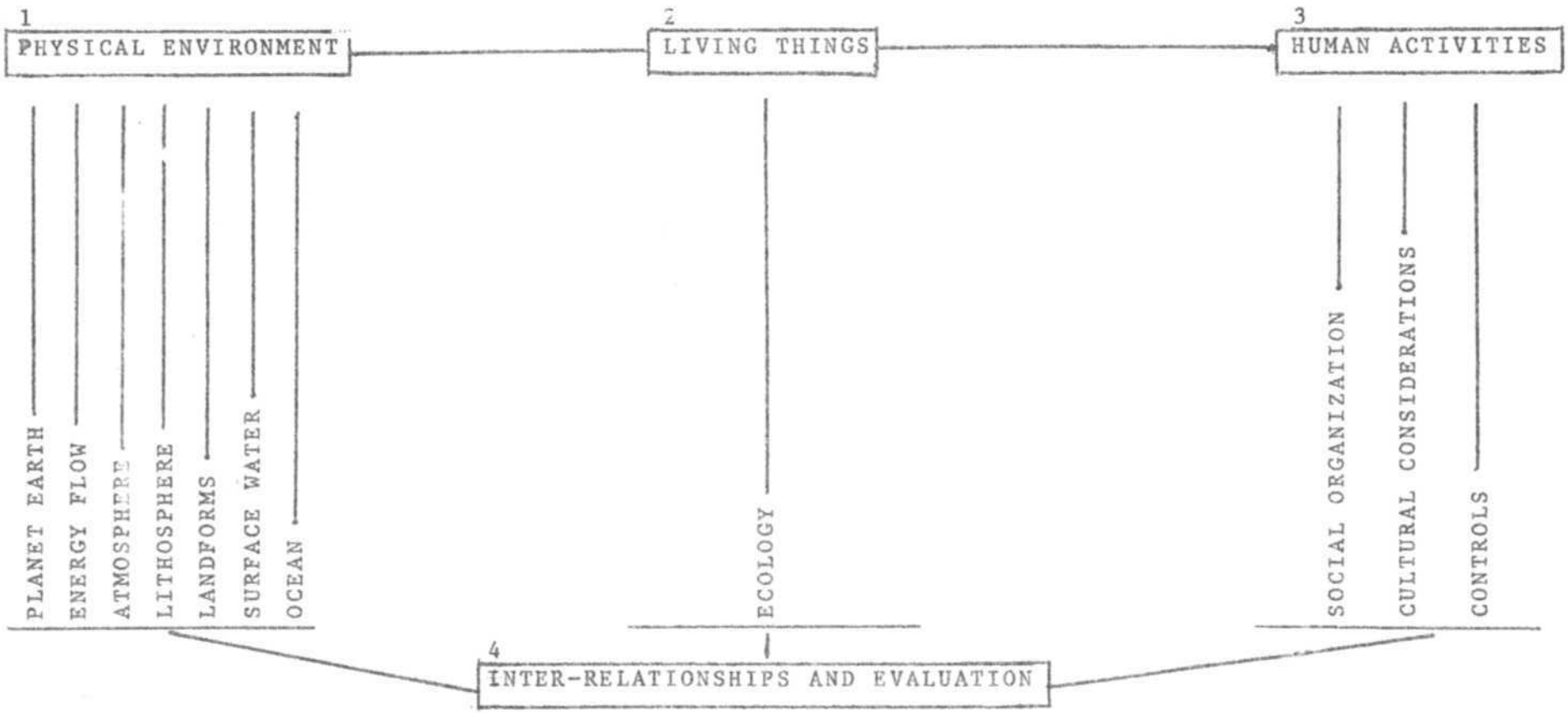
Can describe and measure climatic factors and the role of the atmosphere in relation to plants and animals.

Can identify and explain the major climatic patterns of the world and relate these to vegetative patterns of the earth and economic activities of man. Observe the climate variations in a locality noting air pollution and its effects.

Lithosphere (Geology)

Know that the earth's crust is made up of rocks which weather

FRAMEWORK OF SECTIONS



into soils.

Recognize distribution limits of natural mineral resources (and energy resources) and demonstrate their uneven distribution. Recognize basic minerals and rocks. Recognize time factor involves in the formation of non-renewable resources.

Landforms and Soils

Can identify different landforms.

Know the processes of soil formation.

Recognize and explain origin and development of land forms

Understand causes and effects of erosion and simple soil conservation measures.

Recognize main soil groups. Understand main soil nutrients and their replenishment.

Surface Water

Know necessity of water for life and its importance as a natural resource (partially non-renewable).

Know the water cycle and the various stages in the evolution of streams and still water. Be familiar with the distribution of water on the earth.

Recognize the influence of water on the distribution of biological communities and how distribution and balance can be disturbed by pollution. Appreciate man's influence on the water cycle.

Ocean

Recognize the distribution of land and sea water and elementary features of the sea floor.

Know basic characteristics of ocean circulation, waves and tides.

Understand basic air-sea interaction, energy exchange, hydrologic cycle and thermostatic influence.

Know factors affecting the distribution of living organisms

Know major marine resources.

N.B. It is necessary to assume that the attainment of many of these environment education objectives will be in the context of a basic knowledge of chemistry, mathematics,(especially statistics), physics, and physiology (the internal functioning of organisms).

2. LIVING THINGS

General Ecology, Populations, and Behaviour

Know of and see various plants and animals in their natural environment.

Recognize interdependence among soil, air, plants (producers) animals and man (consumers).

Recognize the main types of biological communities and the influence of man upon them, both directly and indirectly.

Identify and explain a biological community in relation to its environment.

Understand the basic environmental significance of the processes of respiration and photosynthesis.

Understand the significance of water relations and nutrients; recognize the effects of plants on animals' oxygen and food.

Understand the various energy cycles including Nitrogen, Carbon and other nutrient cycles.

Recognize the existence of organisms in the soil.

Understand food-webs and the delicacy of the ecological balance.

Understand the main factors affecting the distribution of organisms including competition.

Be aware of endangered species and their importance and of measures for their conservation.

Understand and interpret simple dynamics of populations and know how population growth is controlled in nature.

Understand man's reliance on the stable balance of natural systems

3. HUMAN ACTIVITIES

Social Organization, Production Systems, Economics

Recognize ways in which people organize themselves and the psychological basis of this.

Recognize varieties and similarities in people - know how they use different environments.

Relate food, clothing and shelter needs to available resources.

Learn that specialization of labour increases efficiency.

Recognize self-centred and group-centred activity patterns

Recognize population movements and settlement patterns in relation to natural resources.

Observe trends in urbanization.

Observe patterns in organizing economic and other resources with an emphasis on their rational use (agriculture, mining, wilderness, transport, communications).

Cultural, Historical. Aesthetic Considerations

Build vocabulary.

Understand classification.

Learn to express feeling in art, music, writing, etc,

Develop sense of historic values.

Recognize evolution of human cultures such as language, communication, and religious ideas.

Apply aesthetic values in relation to other values in environmental situations.

Enjoy recreation in natural environments.

Recognize impact of technology on social structure

Know the history of settlement and land use.

Controls and Planning

Know the local legislative controls. Undertake the main political and other decision-making processes.

Appreciate the criteria involved in land use decisions.

Recognize the main types of pollution, the principles of conservation and of the wise use of resources.

Know the main local national and international agencies of conservation.

Contrast the attitudes of stewardship and exploitation of natural resources.

See the roles of individuals, groups, states, as agencies in working on environmental problems.

Recognize co-operation at all social levels as a means of solving environmental problems.

Recognize principles of group dynamics, especially ways of group decision-making through practice in the classroom.

Learn individual and group responsibility concerning the environment.

4. OBJECTIVES for older or more able students

Inter-relationships and Evaluation

Appreciates the interrelationships of all above factors in the total environment in such details as:

The effects of geological and climatic conditions on the patterns of land use.

The evolution of man's role in altering his physical and biological environment.

Evaluate the variety of ways and the dynamic processes by which environments affect personality development and social organization.

Evaluate man's effects on the process of degradation, erosion, depletion of resources, pollution.

Support planning and research on wise land use and resource management.

Intrpret trends in population growth and distribution,

analyze how these are related to the quality of life.

Examine implications of social and economic plans designed to rationalize population and resources.

Formulate means to ameliorate environmental conlitions through personal involvement.

Consider questions of ethnic and social diversity in relation to territory and resources, e.g. colonialism and economic structures.

Evaluate social and environmental impacts of scientific technology.

Encourage constructive action in social and environmental matters.

Examine the environmental implications of various economic policies.

Evaluate resources.

Understand the significance of "growth-consumer" and "static-recycling" economics.

Understand the philosophy of obsolescence and evaluate its environmental implications.

Consider environmental problems in an ethical context.

27. IV. Recommendations regarding resources for nursery and primary schools

1. By observing, touching, exploring and taking care for living things, pupils of nursery and primary schools can get some idea of the way natural organisms function and respond, and can begin to develop an awareness of national features and phenomena in their immediate environment and begin to understand the various ways in which their environments affect them and their classmates.

2. This contact should be established both in the class-room and in the surrounding community and should involve plants, domesticated as well as wild animals.

   Particular attention should be paid to the nature of the children's experiences. Teaching methods, should focus on the response of the children and on the concerns and interests that motivate them.

3. Authorities should take care for or create field study areas in the urban areas, which can be used by schools of all levels (schoolgardens, children farms, instruction parks, day centres, etc.). Authorities at the same time should create economic possibilities for relevant pedagogic equipment in these field areas.

4. It is desired that materials should be made available through close co-operation among green gardens (park) services,zoological gardens and museums for natural history.

5. To obtain an optimal educational success it is desired that in urban areas special biological/environmental centre should be established by the local authorities to realize that:

   - teaching materials are available for all schools
   - information and documentation can be given to teachers
   - advisors can help the teachers in preparing their environmental lessons in the schools

a close cooperation can be realised between all existing educational services.

6. This working section supports the proposals for the production and distribution of environmental news, expert information and teaching suggestions and material, through national and local periodicals designed to help teachers faced with the practical demands of environmental education. This may be loose-leaf publications and need not be sophisticated productions.

B. Teacher Training

(Chairman: Dr. W. Erz (Federal Republic of Germany))

28. General Remark

Teacher training forms the most significant and fundamental elements of environmental education. Training of teachers must provide them with

- the essential basic knowledge of ecological facts and concepts,
- an adequate background of sociology and its interrelation with human ecology,
- a critical awareness to enable them to evaluate special situations and developments in the natural environment, and to evoke a responsible attitude concerning environment in their pupils.

Training in natural and social aspects of the environment should lead towards an integrated understanding and responsibility.

29. Requirements

The introduction of environmental conservation into the curricula and programmes, as well into different courses and subjects, involves an adequate adjustment of these curricula, programmes, courses, etc., as well as of training methodology

and a special syllabus covering the basic knowledge. Environmental conservation needs to be recognized as a compulsory discipline of teaching and of examinations. It cannot be left only to pre-service training, but has to be continued- in adequate forms of in-service training.

1 - Basic knowledge

Basic knowledge must include an integration of

a) ecology as the science of interaction of life-forms and environment
(including man and his total habitat, including both urban and rural sites)

b) economies aiming at the concept of

- rational use of resources and, derived from this, resources planning,
- application of adequate technologies (e.g. recycling processes),
- a sound producer/consumer-policy

according to environmental requirements.

c) sociology aiming at the

- Society's and individual responsibility for a proper human environment,
- Insight ("transparenca") of the decision making process to the legal and administrative system and further requirements for environmental conservation,
- integrated territorial planning according ecological and economic requirements.

(see paragraph 30 as an example of a pre-service curriculum and paragraph 31 as an in-service curriculum).

2. Adjustment of programmes

Institutions of all kinds of teacher training must adjust their programmes according to the requirements mentioned above (see II.1).

a) As teacher-training in environmental conservation involves an interdisciplinary approach, it has to be undertaken in an integrated manner preferring the form of team-teaching (being a most useful form for teachers and pupils, and covering the needs of an adequate presentation of the subject).

b) Teacher training institutions must otherwise establish special courses of environmental conservation

c) or, if not possible yet, integrate the above mentioned requirements as a permanent and basic principle in the existing courses of natural sciences and social sciences.

3. Methodological questions

Modern development in our world puts increasing demands on the teacher's abilities. Teacher training must meet this situation but adjustment of existing training methods and research for new methods and new training media.

a) Motivation for environmental conservation can only be achieved by application of a wide range of working methods including especially

- out-of-door investigation
- laboratory methods
- self-discovery
- use of adequate modern training material (media).

b) To achieve a proper educational effort in environmental conservation teacher training, there is a need for

- creation of a media bank on national and international levels for better exchange of training aids and teaching material,
- making use of a wide variety of media (including e.g. mass media).

c) Because of the rapid change in the environmental situation as well as in educational objectives, repeated in-service-training courses must have their fixed place in a permanent system of conservation education. In these courses special emphasis shall be laid upon methodological questions.

30. Basis principle for teaching environmental education

Educators should be consistent. Educators in environmental conservation have to be fully aware of the fact that their way of life is not in conflict with the principles they are teaching in the field of environmental conservation.

31. Scope of a Curriculum for Teacher Training in Environmental Education

(Pre-service Training)

I Review of basics	LECTURES	TEXT	LIBRARY	LAB.	FIELD	GROUP LEADER	INDIV. STUDY
BIOLOGY*							
. Cellular structure function	xxx	x					
. cellular systems	xxx	x					
. biochem. cycles	xxx	x					x
. photosynthesis	xxx	x		x			x
. respiration	xxx	x					
. reduction							
. pigment vehicles							
. energy flows	xxx	x					x
GEOLOGY*							
. basis- local	xxx				x		
. evolution - hist.geol.	xxx	x		x			x
. state of matter	xxx	x					
- Global geology	xxx						x
. zones		x					
. continents		x					
. oceans (cycles)		x		(x)			
. rivers (cycles)		x		x			x
- Meterorology	xxx						
. basic-local					x		
. maps		x					
. instruments		x		x			x
. effects					x		
- Climatology	xxx						
. seasons					x		
. latitude		x		x			x
. altitude					x		
ECOLOGY							
define-identify	xxx				x		x
. concepts	xxx						
. energy flow	xxx	x		x			x
. food chains	xxx	x		x			x
. types of organisms	xxx	x		x			x
. populations - "Communities"	xxx				x		x
. function of physiology-adaptation-anatomy-pathology etc.	xxx	x		x			
. change-succession-pioneer-climax	xxx				x		x
ECOSYSTEMS							
. types of Natural	xxx	x		x			
. evolution	xxx						
. complex-simple	xxx	x		x			x
. composition values soil, water etc.	xxx	x		x			x
. types of modified systems (catastrophic, artefact)	xxx				x		

(To be included if not learned elsewhere)

	LECTURES	TEXT	LIBRARY	LAB.	FIELD	GROUP	INDIV. LEADER	STUDY
II Man								
. history								
. economics of man (stone age...)								
. population	xxx		x		x		x	
. health								
. Conservation movement	xxx				x		x	
. the men concepts								
- Decisions on the environment								x
. where Local-national-world								
. how industry-politics								
. authorities law-citizen								
- Resource Concept								
. exploitation	xxx				x		x	
. renewable								
. cropping	xxx				x		x	
- Pose what is your teacher's role								
. envir. in perspective								
. localize emphasis								
. world concept								
. involvement								

32. Scope of a Curriculum for Teacher Training in Environmental Education

(In-service Training)

1. The problems of world over-population and over pollution

2. Biology.

2.1 General biology

2.1.1 Structure and function of the cell

2.1.2 Basic genetics

2.1.3 Basic physiology

2.1.3.1 Enzymes, their ways of operation and blockage

2.1.4 General ecology, including limnology. A few habitats

2.1.4.1 The hydrological cycle including the cycles of important elements.

The turnover of mineral forming elements in soils and waters.

The structure and dynamics of ecosystems.

Limnic and terrestial ecology.

2.1.5 Basic ethology. Agression. Stress. Territorial behaviour.

2.2 Applied biology

2.2.1 Applied genetics

2.2.1.1 Mutagenic effects of various environmental substances and compounds

2.2.2 The physiological effects of environmental factors with special regard to ecological physiology and environmental conservation.

2.2.3 Microbiology (biological environmental factors). Contagious matters in air, water and food.

2.2.4 Chemical environmental factors. Toxicology.

2.2.5 Physical environmental factors. Ventilation. Light. Noise.

2.2.6 Biological problems in connection with human interference with various kinds of ecosystems. Water, air and soil pollution. Restauration of air, soil and

water resources. Ecology of biocides. The effects on plant and animal life through the wreckage of the environment.

2.2.7 Basic professional hygiene

2.2.7.1 Hygiene when handling poisons.

2.2.8 Basic indoor hygiene and ergonomics

3. Chemistry.

3.1 Environmental poisons (herbicides, fungicides, rodenticides, biocides).

3.1.1 The chemistry and dynamics of biocides.

3.1.2 The turnover and accumulation of biocides in food chains.

3.1.3 The effects, also genetic, of biocides on plants, animals and man.

3.2 Biological versus chemical means of control.

4. Pedology. Landscaping

4.1. General and applied soil science

4.2 Landscape conservation

4.2.1 The change in management of farming and forestry. Reclamation and reforestation. The cattle in the landscape.

4.2.2 The ecology of the culture landscape. Roads and bridges. Advertisements. Landscape planning.

5. Littering. Garbage. Waste management

5.1 Handling and destruction of waste products.

5.1.1 Biological, economical and technical problems in connection with destruction.

5.2 The effects of various destruction methods on air, water and soil and their ecological secondary effects.

5.3 The recirculation of waste products.

6. Water conservation and technology.

6.1 Basic hydrology. Chemical and physical properties of water. The water cycle.

6.2 Consumption water (consumer water)

6.2.1 Resources, consumption and distribution

6.2.2 Water purification and analysis

6.3 Waste water.

6.4 Pollution and destruction of oil in water and soil.

6.5 Water conservation with aspects of social economics and community planning legislation.

6.5.1 Analytic water chemistry.

6.6 Effects of plants nutrients.

6.7 Effects of pathogenic, poisonous and radioactive substances.

6.8 Effects of hot water pollution from atomic reactors.

6.9 Effects of water pollution in lakes, rivers and oceans

7. Air conservation. Air and noise technology.

7.1. Physical properties of the atmosphere (General meteorology).

7.2 Chemistry of the atmosphere and air pollution

7.2.1 Gaseous pollutions.

7.2.2 Particle pollutions.

7.2.3 Sampling and analysis techniques.

7.3 Damages caused by air pollution on vegetation, animals and Man.

7.4 Effects of heating and power on plants.

7.5 Effects of combustion engine and air pollution from cars

7.6 Indoor climate (air, ventilation).

7.7 Noise technology.

8. Community planning.

8.1 Local, regional and national planning

8.2 City, traffic, landscape and other planning.

8.3 Road construction and recreation houses and villages.

C. Training of Other Educators

(Chairman Professor S. 3eer (Italy)}

33. Theme - programme of studies on environmental conservation and on the teaching of conservation for the leaders of youth movements "animateurs" and other educators "vulgarisateurs" .

34. European references

a. Council of Europe- Committee of Ministers, resolution (71) 22 of 22.9.71 "The Continuation of Courses in Nature Conservation".

b. Council of Europe- Committee on out-of-school education EES (70) Stage 50, 6. Conclusions of the course organised at Frascati on the theme "Ecological problems within adult education programmes".

35. Explanation of Motives

Recognising the absence or insufficiency of an education related to the above theme, considering that young people, in order to act effectively, must operate in teams and that it is there necessary to promote the creation of youth groups, considering that these groups need specially trained "animateurs" in order to function harmoniously, we recommend

I that training courses for environmental "animateurs" be organised on a regular basis, taking into account the following points

1. The role of" the "animateur" (we propose the term "animator" for the English language)

The "animateur" must be able to foster enthusiasm in the heart of his group, must give it leadership and direction and educate it by information and training,

Furthermore, he must possess technical aptitudes and administrative knowledge which will permit him to organise the team.

2. Who will be the "animateurs"

To be an "animateur" implies a vocation. No title or diploma will be required for admission to the training courses." These courses will determine the aptitude of the candidates for their role of "animateur".

3. Programme

In every case, the iustruction will start from the conditions of the local environment before going on to more general considerations. Instruction for future "animateurs" must include at least the following sections:

i) Fundamental Knowledge

a. basic knowledge of the components of the natural environment.

b. basic knowledge of general ecology.

c. study of man in his environment, the effects of human interference.

d. the importance of the natural environment in hunan society: social problems, political, economic and spiritual problems involved in environmental protection.

e. the solution of environmental problems cannot be accomplished except by a radical change of society.

ii) Practical Methods of "animation"

Btudy of how things are carried out with a group. For example:

- opinion surveys
- camps
- information campaigns
- clean-up campaigns or the restoration of derelict sites
- use of audio-visual means (exhibitions, mass-media)

- participation in the management and running of nature reserves
- management of open spaces
- shock actions to inform the public

iii) Pedagogical knowledge

iv) Technical and administrative, knowledge

4. Instructors

The instructors are the people who must staff the training courses for "animateurs". Their careful selection is one of the conditions for the success of the courses. It is essential that instructors come together once in order to assure the material and pedagogical organization of the course. It would also be desirable for them to live together for a few days before the arrival of the course members.

II We recommend that our educationally related projects in 1973 should include the organization of an international camp bringing together the responsible people at the national level - instructors and "animateurs".

III We recommend that grants to help international exchanges of "animateurs" and instructors in the fieid of environmental protection are made available by international bodies.

36. Without having been able to deal with this problem in detail, we underline also the importance of other "animateurs" or educators such as, for example, journalists, film technicians, publicity agents, editors, publishers, etc.

D. Higher Education

(Chairman: Dr. T. Szczesny (Poland)

37. Proposed recommendations

We recognize the growing importance of ecology and related sciences in planning, use, management and development of the environment, including the control of pollution, and we recommend:

1. That government authorities and institutes of higher education, professional training and research, collaborate to give urgent attention to the vital significance of basic and applied ecological science to the community, both a) in terms of creating a new awareness and appreciation amongst leaders in society of the principles governing the use of natural resources, and b) in terms of providing appropriately trained personnel to conduct ecological research, to apply the findings of science and to advise those who are concerned with public affairs affecting the environment.

We further recognize that the complexity of our environment, resulting from the interaction of elements of the natural, economic and social systems, is such that it is increasingly appropriate to emphasise a global and integrated approach to the problems and to consider them not merely in the short and medium term but also in the long term perspective, therefore, we recommend;

2. That a general ecological training applied to the problems of the environment be given in all the university faculties and institutes of higher education concerned with one aspect or another of land-use planning, and especially with architecture, town-planning, public administration, law, political science, economics, social science and medicine, journalism and tourism.

3. That compulsory courses in applied ecology for environmental conservation ("sosecologie") and for the management of natural resources be included in faculty programmes of universities and institutes of higher education which award diplomas in civil engineering, as well as for all industrial specialists.

4. That the creation of university education and research institutes should be foreseen with the following aims: a) to secure a thorough interdisciplinary training relating, in part to the general problems of the biosphere, and in part to the specific management of different habitats; this training should make use of pedagogical methods which permit the attainment of an integration of the different aspects of the subject taught; b) to pursue in this field integrated research taking account of the ecological, social and economic aspects of management and administration; c) to put at the disposal of all faculties which need them courses in environmental ecology.

We also recognize the necessity of having available qualified personnel in the environmental field and we recommend:

5. That the responsible government departments make provisions enabling specific degrees in environmental science (master, doctor, professor, etc., appropriate to the country in question) to be conferred on those who already possess a recognised title, such as a university degree, and who are engaged in scientific economic and educational activities relating to the environment.

6. That universities or specialised institutions ensure the re-training and continuing education of staff in administration, industry, political and economic spheres, and information media, by the organization of study sessions (courses, seminars, practical work, excursions, etc.) in order to make them aware of the urgency which there is for them to take account of ecological aspects in all the decisions they have to make.

7. That educational institutions be given the task of ensuring appropriate training on the various aspects of the environment for future educators at the pre-school, primary, secondary, technical, out-of-school and post-school levels.

8. That there should be created at the national level, in countries where such structures are not yet in existence: a) a Centre of Information and Research on the Environment with the objectives of stimulating

the activities of centres which are currently working on environmental problems; of subsidising and/or undertaking environmental research; of co-ordinating information and of providing the essential basic data for decision-making; and of promoting integrated studies on the environment b) a Regulatory Structure to function between the proposed Centre and the bodies carrying out the work, conceived in such a way as to influence the process of decision-making.

9. That governments arrange more thorough consultation with interdisciplinary groups of experts working in the environmental field as well as making use of the services of environmentally trained academics, and that the governments should pay more attention to the interventions of groups or associations concerned with the improvement of the quality of the environment.

10. That university student associations be encouraged to hold more interdisciplinary scientific courses in the countryside and that this type of activity be undertaken also at the international level.

11. That international co-operation be encouraged in order to assist the promotion of the preceding recommendations in countries where such programmes of education and research at the university level are not already being organised.

E. Out-of-school Education and Activities of Children and Youth

(Chairman: H. van Bohemen (I.Y.F.))

38. The existing activities in out-of-school environmental education in Europe were reviewed as background to the group's work. These activities consist of programmes of youth organisations such as the Scouts and Guides, the member organisations of the International Youth Federation for Environmental Studies and Conservation, the various environmental bodies and institutes, and the temporary environmental action groups.

Out-of-school conservation activities undertaken by youth on its own initiative particularly within self-governing organisations should be expanded and encouraged since they are instrumental in developing an individual commitment and sense of responsibility for the environment We should remember that the voluntary organisations are a better motivating factor that the compulsory school. A sense of responsibility could be further developed if youth was given the power and the means to implement it. The lack of material, financial and moral support for the activities of self-governing conservation youth organisations on the part of governments, local authorities, schools and voluntary organisations is a deficiency that should receive immediate attention in the form of an outgoing attitude to youth.

Out-of-school activities supplement school education in many ways, not least in bringing the child in contact with real life situations. At an early age, during the primary stage of education, the child lacks the maturity to participate in self-governing organisations, and the facilities of school, clubs, museums and field centres should form the vehicle for field studies to provide direct contact with the environment. Later on, the young person can play an active part in his community as a member of a youth organisation, and with the experience can contribute to activities at a national and international level. The expertise of self-governing youth organisations with a long traditions in this field should not be underestimated.

The formal education system tends to re-inforce the acceptance of the existing values of society. Through the medium of out-of-school environmental activities young people can appreciate the aesthetic values of human existence and the limited needs for material wealth in a harmonious relationship with the natural environment, moreover they can derive a real enjoyment from this relationship.

It is felt that involvement in out-of-school environmental activities would benefit every member of society. Therefore, the opportunities offered by self-governing and other youth organisations should be made available to a wider public and to facilitate this we make the following proposals:

39. Recommendations to Governmental and Local Authorities

Recognizing the importance of out-of-school environmental education the working session recommends:

1. Governments should appoint an official to be responsible for facilitating out-of-school education in providing financial and material support.

2. Governments should establish Coordination and Information Centres for all conservation matters with special emphasis on out-of-school conservation education.

   Such a centre must be an independent institution with a permanent financial backing from the government.

   These national (and hopefully regional and local) centres must be staffed with people with practical experience in out-of-school conservation activities.

3. Governments and local authorities should provide resources Tor making available:

   a) meeting rooms

   b) field centres with staff available for young people during their holidays,

   c) well prepared study camps.

4. We recommend the governments to make funds available for:

   a) travel and administration expenses for youth leaders to attend various conservation events,

   b) paid leave for voluntary youth leaders (who may have only two or three weeks vacation from their jobs, because of the shortage of youth leaders),

   c) covering expenses of youth leaders giving lectures on conservation at schools, youth institutions and organisations,

d) youth leader training: government financial support should cover all sorts (including experts participation) so that this training can be offered free of charge for participants.

5. The present fund distribution system favours schools and youth organisations with adult backing rather than self-governed youth groups.

6. We feel that youth funds should have special sections reserves for environmental activities. This would prevent any bias towards sports and social groups and help young conservation groups to develop. That means that conservation must be included on the same basis of priority as these youth activities.

7. Governments should make it possible for individuals to give service to the community in the form of work in the environmental field as an alternative to compulsory military service.

40. Recommendations to Organisations

1. There is a great potential among young people outside the present existing youth organisations to participate in conservation activities. In order to make use of this potential it must be requested from museums, universities, authorities, educational and other institutions to offer their participation in arranging facilities and carrying out educational programmes for young people.

2. Adult organisations at national and international level concerned with field studies and conservation and educating the public, should create possibilities for out-of-school conservation education programmes of youth groups in their own programmes and in their budgets.

41. Recommendations for Co-ordination with School Programmes

1. The principal objective of school is to prepare children for life in society. There should be an out-going attitude on behalf of school to introduce school-children to youth organisations, which are operating in society. As experience has shown that members of conservation groups

are more interested and involved that the classroom pupils, we support the modern trend that schools should not be concentrating on impacting knowledge and facts, but more on motivating children towards involvement.

Schoolteachers should inform their pupils of the possibilities of joining youth camps and excursions and becoming members of organisations.

It should be part of teachers' responsibilities to organise these contacts.

2. Field centres should be set up on the British and Swedish system, where there should also be held open summer courses and providedfacilities for older children and youth.

The museums should also make available their facilities and knowledge for young people.

3. We recognize the value of groups led by teachers in the school clubs. School facilities should be made available for extra-curricular activities.

4. Teachers are afraid to take the children out, because they lack experience. Therefore ministries of education should invite apolitical youth organisations to give benefit of their experience in fieldwork.

42. Recommendations for International Co-operation

We regret the greater difficulty of getting money for international programmes than for national ones.

We urge that European governments contribute to an inter-governmental trust fund for youth activities in environmental conservation at an European level to be administered by the Council of Europe and the Council on Mutual Ecomonic Assistance.

We propose that the mailing list of international newsletters (for instance the Newsletter of the IUCN Commission on Education) be expanded to reach those key people (youth leaders, teachers, clearing houses...) who really need the information.

3. We note the obvious need for closer person to person contacts and small international working sessions between involved organisations and groups. In this respect

of information exchange, emphasis should be laid on practical methods of implementation of environmental issues.

4. We propose that the European Committees of the IUCN Commission on Education organise a series of international conservation courses for young people and for youth leaders in cooperation with existing youth organisations.

5. We stress the need for holding an European working conference on methodology in out-of-schoo1 environmental activities with, as participants

   a) the programme leaders of various youth organisations,
   b) the editors for their outstanding role in disseminating information.

   This conference should be organised in direct relationship with the Scouts and member organisations of the IYF.

6. International agencies should support practical action and not superficial campaigns like the recent free distribution of the "Young Volunteer for Conservation" card launched with the sponsorship of the Council of Europe. This card keeps the young people away from community action and organised groups for a better environment. We recommend further investigation as to the desirability of this kind of card.

7. We feel the need for stimulating international cooperation and understanding between youth of various countries. The sponsorship of youth exchange programmes by national ministries should be extended to the field of environmental conservation.

F. Outdoor Facilities

(Chairman: Mr. L. Morgan (UK)

43. Proposed Recommendations

We recognize that outdoor education has a vital contribution to make in environmental education and we feel that it is essential for every child to have direct contact with his environment; therefore, we recommend:

1. that sufficient facilities be provided to enable students at all levels to make direct studies of the environment outside the confines of the building; this involves the provision of a) opportunities to be out of school for periods ranging from a few hours to longer periods involving residence, b) sites, localities, buildings, structures, trails and equipment necessary for outdoor education, c) fully trained staff to cater for the needs of students and to manage, control and organise sites and localities used for field teaching.

2. that no student should be excluded from the use of facilities for outdoor education on the grounds of lack of finance.

We also recognize that field teaching involves special techniques and responsibilities and presents a range of problems not experienced in formal teaching situations; therefore, we recommend:

3. that IUCN establish a research project to examine and validate field teaching techniques" and methodology

4. that authorities should employ full-time officers to advise teachers, and to co-ordinate and assist in the organisation of outdoor education and to provide in-service training in field teaching techniques and methods.

We further recommend:

5. that educationalists make every effort to secure the co-operation for educational purposes of all interests concerned with access to and use of the environment,

both urban and rural, in order to increase the opportunities for educational use of the environment, and to help to solve the difficulties arising from over-use of particular sites and the conflicts between different environmental interests.

6. that every school should have suitable nature study areas attached to it or within easy access, and that, in the development of new schools, specific provision for such facilities be incorporated at the planning stage.

7. that, in the case of residential provision, this should be sufficient to enable every child to have the opportunity of not less than two weeks residential experience in the course of his school life.

8. that authorities concerned with urban and rural planning and development be strongly urged to consider aspects of field and environmental education in the development of schemes.

We recognize that, though there is confusion about the precise definition of "nature trail", such trails and paths can have considerable educational value if their organisation and use is carefully planned, preferably by educational specialists, and we recommend:

9. that IUCN make a study of the use and organisation of nature trails as educational facilities.

We further recommend:

10. that access to certain areas of special ecological interest and of delicate ecological balance should be restricted.

11. the educational possibilities which exist in the involvement of students in such schemes as land reclamation, motor-way projects, urban renewal and the establishment of recreation areas be investigated.

12. that the IUCN establish machinery for the exchange of practical experience in field education and that IUCN fulfil its task to act as a clearing-house for ideas in environmental education

IV. CONCLUSIONS

A. Preamble

44. This was the first European Conference on Environmental Conservation Education and was attended by specialists on environmental education - scientists, administrators, teachers and other educators. Besides clarifying general concepts, surveying the present situation and pointing out the needs, the Conference formulated specific recommendations for projects and programmes in environmental education related to primary and secondary levels, teacher training, higher education and out-of-school education.

It was organised by the International Union for Conservation of Nature and Natural Resources (IUCN) in co-operation with the World Wildlife Fund (WWF) and with the support from the Swiss Federal Authorities and the Canton of Zürich, the MIGROS-Genossenschafts-Bund, the Swiss League for the Protection of Nature, the Swiss National Appeal of WWF, and the Swiss National Commission for UNESCO. The Conference was held from 15 to 18 December 1971 at the Gottlieb Duttweiler Institute, Rüschlikon, near Züfrich, Switzerland.

A total of 109 participants from 21 European countries (Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Poland, Rumania, Spain, Sweden, Switzerland, UK, USSR, Yugoslavia) representatives of nine international organisations (United Nations, UNESCO, FAO, Council of Europe, OECD, IUBS, Boy Scouts World Bureau, IYF, Mediterranean Association for Marine Biology and Oceanography) and observers from three countries (Australia, Canada, USA) in other parts of the world attended.

Under the Chairmanship of Dr. L.K. Shaposhnikov (USSR) the Conference developed its programme of work through topic-oriented plenary sessions, and smaller working groups on important areas of environmental education.

The participants considered that the Conference had provided an invaluable opportunity to exchange information on the methodology and implementation of environmental education in the different European countries. The Conference proposed practical programmes in environmental education adapted to meet the needs of education systems in a wide variety of situations.

B. General Recommendations of the Conference

43. Whereas environmental conservation education, under present circumstances of increased impact of man on the natural environment has become a matter of urgent importance in all countries of Europe and

Whereas we recognize the aim of this education is to create a responsible attitude among the entire population towards the use and care of natural resources, and the protection of the environment as a whole against damage from pollution and other dangers.

We have reached the consensus that the implementation of environmental conservation education should include the following activities:

- appropriate education and instruction in school courses at all levels ;
- education and training in environmental matters in institutes of higher education of all kinds;
- out-of-school involvement of young people and adults in practical environmental conservation activities;
- in-service education and training of teachers and others concerned with general and out-of-school education such as youth leaders ;
- the training of professional people concerned with environmental affairs, such as statesmen and administrators, as well as planners, architects, engineers and technologists;
- the education of the public at large by the use of mass information media and other methods.

46. We further recognize that to achieve the best possible effect, each country should, bearing in mind its socio-cultural, economic and bio-physic conditions, develop a comprehensive programme of environmental conservation education involving all sectors of the community and

We agree that the following issues require attention in the implementation of such a programme:

- environmental conservation education should be an integral part of the complex of measures now being developed for the use and care of natural resources

- such education should aim to create an awareness of the responsibility of individuals, as well as of society as a whole, for the conservation of the environment

- legislation should be considered which obliges educational establishments of the country concerned to establish and/or extend programmes for environmental conservation education.

47. Whereas environmental conservation education, appearing in the first place as an internal national task which should all sectors of the community is, simultaneously, an important international activity because the future of our Earth depends upon the correct attutude of mankind to the natural environment, the social purposes of nations, their co-operation, and peace on Earth are fully possible only when the condition of man's environment is beneficial to mankind in cultural and aesthetic as well as material terms. We recognize in this context the great importance of UNESCO's "Man and Biosphere" programme, and

agree that it is necessary for comprehensive investigations in the field of environmental conservation education to be included in this Programme, and to be carried out by a coordinated effort among various countries

48. We also recognize that, in practice, international work in environmental conservation education should entail the exchange of information and of programmes, the further development of existing activities, the convening of conferences and meetings, the organisation of international courses and camps for students and young professionals , and of workshops and seminars for specialists in various fields, the preparation and publication of international books, booklets, periodicals and teaching aids, and other profitable forms of co-operation.

49. Whereas international activities in the field of environmental conservation education have received substantial impetus in many parts of the world by the initiative of the International Union for Conservation of Nature and Natural Resources (IUCN) which in 1949 established, within its structure, the Commission on Education, which has prepared educational aids, issued important publications with the support of UNESCO, organised several conferences, meetings and workshops in various regions of the world and disseminated information on environmental conservation education in various countries,

We recognize the present situation when, in all countries, much attention is given to environmental issues, including the conservation of nature,

We agree that IUCN has a role of growing importance in all parts of the world in dealing with these problems, especially in the field of environmental education, and

We recommend that every measure possible should be implemented to strengthen the activities of the Union.

Whereas the 17th Session of the UN General Assembly in its Resolution entitled Economic Development and Conservation of Nature (1962) expressed the hope that immediate measures would be taken to assist IUCN and international organizations pursuing analogous objectives,

We recognize that the UN Conference on the Human Environment to be held in Stockholm in 1972 is aimed at giving further consideration to world-wide problems of man's impact on the environment and

We recommend that the UN Conference review the implementation of past UN decisions in this connection; confirm the vital role of IUCN in its capacity as a leading, independent scientific advisory body concerned with world-wide problems of use and care of the environment; and put forward concrete proposals to provide support to the Union to expand its activities.

C. Specific Recommendations of the Conference

50. Primary and Secondary Education

We recommend that;

a) all children in nursery schools (kindergartens) and primary schools should have opportunities for contact with the plants, animals and people with whom they share the environment.

b) special attention should be paid to study of the urban environment and wherever possible this should be studied concurrently with that of plants and animals.

c) during the training of teachers for nursery schools and primary schools more attention should be paid to environmental education, including field biology and ways of using teaching facilities such as schoo1grounds, parks and the surrounding community.

d) all children during their secondary schooling (12 to 18 years) should be provided with a scheme of studies designed to achieve the social and scientific objectives implied in the IUCN Foresta definition of environmental education, as set out in the Conference papers. The methods adopted to achieve these objectives should be appropriate to the educational structures of the countries concerned.

51. Teacher Training

We recognize that teacher training forms one of the most

important and significant aspects in the development of environmental education programmes, and we recommend that:

a) the training of teachers provides them with essential basic knowledge of ecological fact and an adequate background of sociology and its relationships to human ecology.

b) efforts should be made to develop in the teacher a critical awareness of environmental problems to enable him to provoke responsible attitudes concerning environmental matters in his pupils.

c) environmental conservation is recognized as an essential part of teacher training, and that developments started in pre-service training should be continued by in-service training.

d) as teacher training in environmental education involves the use of many techniques and methods, all prospective teachers should be given training in the use and evaluation of pedagogic methods including those relating to inter-disciplinary approaches and team teaching.

e) media banks be established at the national and international level for the exchange of information, training aids and teaching materials.

52. Training of Other Educators

We recommend that:

a) young people should be actively involved in environmental problems through organized groups and that such groups should have specially trained leaders in order to operate effectively.

b) special training courses of youth leaders "animateurs" and other informal educators in environmental conservation should be organized as a matter of urgency.

c) IUCN organize as a project an international course in 1973 for those responsible for the training of youth leaders and informal educators.

d) international organizations award grants for the international exchange of youth leaders and informal educators. This exchange should be directly related to involvement with environmental issues.

53. Higher Education

We recognize the growing importance of ecology and related science in planning, use, management and development of the environment* including the control of pollution, and we recommend that:

a) government authorities and institutes of higher education, professional training and research collaborate to give urgent attention to the vital significance of basic and applied ecological science to the community, both in terms of creating a new awareness and appreciation amongst leaders in society of the principles governing the use of natural resources, and in providing appropriately trained personnel to conduct ecological research, to apply the findings of science and to advise those who are concerned with public affairs affecting the environment, and that international co-operation be encouraged in this field.

We further recognize that the complexity of our environment, resulting from the interaction of elements of the natural, economic and social systems, is such that it is increasingly appropriate to emphasize a global and integrated approach to the problems and to consider them not merely in the short and medium term but also in the long-term perspective; therefore, we recommend that:

b) a general ecological training applied to the problems of the environment be given in all the university faculties and institutes of higher education concerned with one' aspect or another of land-use planning, and compulsory courses in applied ecology for environmental conservation ("sosiecology") and

for the management of natural resources be included in faculty programmes for civil engineering, as well as for all industrial specialists.

c) the creation of university education and research institutes should be undertaken with the following aims: to secure a thorough interdisciplinary training; to pursue integrated research in this field; and to put at the disposal of all faculties which need them courses in environmental ecology.

We also recognize the necessity of having available qualified personnel in the environmental field and we recommend that

d) the responsible government departments make provisions enabling specific degrees in environmental science to be awarded.

e) universities or specialized institutions:ensure the re-training and continuing education of staff in administration, industry, political and economic spheres, and in the information media, by the organization of study sessions (courses, seminars, practical work, excursions, etc.) in order to make them aware of the urgency with which they must take account of ecological aspects in all the decisions they have to make.

f) university student associations be encouraged to hold more interdiscliplinary scientific field courses and that this type of activity be undertaken also at the international level.

54. Out-of-School Environmental Education for Children and Youth

We recognize the special role of out-of-school conservation activities in developing motivation towards a sense of responsibility for the environment, and we recommend that:

a) governments should establish Co-ordination and Information Centres for all conservation matters, with

special emphasis on out-of-school conservation education.

b) government and local authority youth funds should have special sections reserved for environmental activities to help young conservation groups to develop.

c) governments should make it possible for individuals to give service to the community in the form of work in the environmental field as an alternative to compulsory military service.

d) a European working conference on methodology in out-of-school environmental activities be convened as a matter of urgency.

e) European Governments contribute to an inter-governmental trust fund for youth activities in environmental conservation at a European level, to be administered by the Council of Europe and CMEA.

We also recognize the unique role of the International Youth Federation for Environmental Studies and Conservation (IYF) and its member organizations in organizing out-of-school activities for young people in the field of conservation and environmental studies, and in order that IYF's activities may continue to develop and reach a broader section of young people, we recommend that:

f) governments and conservation organizations find financial means to support IYF.

55. Outdoor Facilities

We recognize that outdoor education has a vital contribution to make in environmental education and we feel that it is essential for every child to have direct contact with his environment; therefore, we recommend that:

a) sufficient facilities be provided to enable students at all levels to make direct studies of the environment outside the confines of the building;

this involves the provision of i) opportunities to be out of school for periods ranging from a few hours to longer periods involving residence, ii) sites, localities, buildings, structures, trails and equipment necessary for outdoor education, iii) fully trained staff to cater for the needs of the students and to manage, control and organize sites and localities used for field teaching. No student should be excluded from the use of facilities for outdoor education on the grounds of lack of finance.

We also recognize that field teaching involves special techniques and responsibilities and presents a range of problems not experienced in formal teaching situations; therefore we recommend that:

b) authorities should employ full-time officers to advise teachers and to co-ordinate and assist in the organization of outdoor education and to provide in-service training in field-teaching techniques and methods, and at international level IUCN establish a research project to examine and validate field-teaching techniques and methodology.

We further recommend that:

c) every school should have suitable nature study areas attached to it or within easy access, and that, in the development of new schools, specific provision for such facilities be incorporated at the planning stage, educationalists make every effort to secure the co-operation for educational purposes of all interests concerned with access to and use of the environment, both urban and rural, and authorities concerned with urban and rural planning and development be strongly urged to consider aspects of field and environmental education in the development of schemes.

We recognize that, though there is confusion about the precise definition of "nature trail", such trails and paths can have considerable educational value if their organization and use is carefully planned, preferably by educational specialists, and we recommend that:

d) IUCN make a study of the use and organization of nature trails as educational facilities.

We further recommend that:

e) access to certain areas of special ecological interest and of delicate ecological balance should be restricted.

f) the educational possibilities which exist in the involvement of students in such schemes as land reclamation, motor-way projects, urban renewal and the establishment of recreation areas be investigated.

56. Co-ordination at the National Level

We also recommend that:

a) there should be created at the national level, in countries where such structures are not yet in existence: i) a Centre of Information and Research on the Environment with the objectives of stimulating the activities of centres which are currently working on environmental problems; of subsidizing and/or undertaking environmental research; of co-ordinating information and of providing the essential basic data for decision-making; and of promoting integrated studies on the environment. ii) a Regulatory Structure to function between the proposed Centre and the bodies carrying out "The work, conceived in such a way as to influence the processes of decision-making.

b) governments arrange more thorough consultation with interdisciplinary groups of experts working in the environmental field as well as making use of the services of environmentally trained academics, and that the governments should pay more attention to the interventions of groups or associations concerned with the improvement of the quality of the environment.

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