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ABSTRACT

This report is an account of the North American Regional Seminar on Environmental Education that was held in St. Louis, Missouri from October 5-8, 1976. The idea for this seminar was developed at the Unesco/UNEP Workshop held in Belgrade in October, 1975. The seminar report details the extensive data gathering and planning efforts, the Seminar itself, and some of the actions that have occurred as a result of the meeting. Central focus of the seminar for most of the participants was regional, national, and/or personal. The seminar process dealt with the important issues related to environment and education in Canada and the United States. Papers presented at the meetings are given in the report. Appendices include the text of the Belgrade Charter, pre-conference papers, and a listing of seminar sponsors and exhibitors, alliance affiliated organizations, and seminar registrants. (Author/MA)

THE REPORT OF THE NORTH AMERICAN REGIONAL SEMINAR ON ENVIRONMENTAL EDUCATION

A CONFRONTATION WITH THE ISSUES: ENVIRONMENTAL EDUCATION FOR THE REAL WORLD

OCTOBER 5-8, 1976

edited by

JAMES L. ALDRICH
ANNE M. BLACKBURN
GEORGE A. ABEL

organized by

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Environmental Education Information Reports are issued to analyze and summarize information related to the teaching and learning of environmental education. It is hoped that these reviews will provide information for personnel involved in development, ideas for teachers, and indications of trends in environmental education.

Your comments and suggestions for this series are invited.

John F. Disinger
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PREFACE

This report is an account of the North American Regional Seminar on Environmental Education that was held in St. Louis, Missouri from October 5 to 8, 1976. The report details the extensive data gathering and planning efforts, the Seminar itself and some of the actions that have occurred as a result of the meeting.

The Seminar and the process that led to it were exciting and rewarding, with a fair share of frustrations thrown in. The idea of a North American Regional Seminar was developed at the Unesco/UNEP Workshop held in Belgrade in October of 1975 and the first significant funding was secured in February of 1976. The goals and objectives for the meeting were ambitious, very ambitious given the eight months lead time. The schedule, however, was dictated by the Unesco/UNEP program plans and the Intergovernmental Conference on Environmental Education planned for 1977 which required that a Seminar report be submitted to Unesco before the end of 1976 -- and it was.

While the broader context of the meeting was an international or global one, the central focus for most of the participants was regional, national and/or personal. It was understood, at least implicitly, that if we are to have an effect on the international scene, we must first begin with ourselves and move outward in ever widening circles until, in reaching the global perspective, we have indeed come back to our own best interests in a different context.

Thus, the Seminar process dealt with the important issues related to environment and education in Canada and the United States, opening them up to a wider constituency of concerned groups. The participants in the process built on the dedication and hard work of the many efforts that preceded the Seminar and helped to make it the event that it was. The results of this process have been a further refinement of judgements about the priorities in environmental education and a clearer sense of the strategies needed to implement effective programs.

The Seminar required the efforts of a lot of people, far more than could be listed here. Many, but not all, of the people are listed in the Seminar Registrants appendix. Special thanks are due the sponsors of the Seminar and the participants. Underlying the whole activity are the many ideas, meetings and materials that are the foundation of environmental education. The Seminar was just another step, albeit an important one, on the long road toward wiser resource management. We are all indebted to those that paved the way this far and to those who are committed to the continuing development and implementation of environmental education.

James L. Aldrich
Executive Director
The Alliance for Environmental Education

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THE SEMINAR: BEFORE, DURING AND AFTER

BACKGROUND

In October 1975 one hundred and twenty representatives from sixty nations met in Belgrade, Yugoslavia, to define and discuss global environmental education needs, priorities and strategies. By the end of the ten day workshop, the fourteen state-of-the-art papers prepared for the meeting had been reviewed, and delegates had developed a statement of purpose - a challenge for global environmental education - the Belgrade Charter.

It was rightly recognized that attaining the goals and objectives contained in that document would depend upon a strong worldwide commitment, and a detailed action strategy. Therefore, the Belgrade participants also prepared an extremely complex and comprehensive series of recommendations through which implementation could be achieved. The participants knew that these strategies would have to be applied flexibly if the widely varying conditions and needs around the world were to be met. Thus a series of regional workshops were planned at which the Belgrade Charter and Recommendations could be reviewed for their appropriateness to each region, and necessary modifications and/or additions could be structured.

Although North America is a sub-region within the Unesco context, it was decided that the reactions which could be obtained from this highly educated, technologically-oriented and democratically ruled portion of the world would be valuable in defining a global strategy for environmental education. Accordingly, the participants from Canada and the United States met at the Belgrade Workshop and established the guidelines and general plans for a North American Regional Seminar. In February 1976 a contract was let to the Alliance for Environmental Education, a coalition of 29 national and regional organizations, with a membership of over 15,000,000 in the U.S. In addition to the contract from Unesco, substantial assistance was provided by the Alliance both with respect to funding and administrative support. Support was also provided through the Canadian Commission for Unesco and other Canadian agencies that provided travel funds for individual participation on the Advisory and at the Seminar. Others that provided direct funding to the Seminar project included: The Conservation Education Association, Exxon Corporation, National Audubon Society, National Wildlife Federation, U.S. National Commission for Unesco, Tennessee Valley Authority and Weyerhaeuser Company.

The Alliance agreed to plan and conduct the North American Regional Seminar (NARS) in cooperation with the U.S. and Canadian National Commissions for Unesco. An Advisory Committee was selected that was representative of a broad range of Canadian and U.S. interests from key environmental organizations, governmental agencies, and educational institutions. Several of the committee members had attended the Belgrade Workshop.

The North American Region represents a land surface of over 9,390,000 square miles, with a population of 212,000,000 in the U.S. and 22,660,000 in Canada. The area is rich in natural resources, and favored by climatic conditions which sustain a wide variety of vegetation and wildlife. Especially in portions of the U.S., its abundant space and natural resources had led to unplanned, extremely rapid and uncontrolled development. By the late 1960's this growth had produced a number of "natural systems' backlashes," as the wastes of production and consumption overwhelmed the assimilative capacities of air and water. Newly alarmed activists joined with conservationists of old, and the U.S. environmental movement thrust forward. However, despite this raised consciousness concerning environmental protection and even a U.S. legislative commitment to a nationwide environmental education effort, the amount of education which has actually taken place lags well behind what needs to occur.

A strong effort has gone into better teaching about natural systems, into providing outdoor laboratories and environmental study centers. But in a region of the world which consumes resources at an unprecedented level, and where the broad populace formulates, provides funds for, and presses for implementation and enforcement of environmental management programs, our dependence upon natural systems and our interdependencies with all nations of the globe, must be understood by all -- local elected officials, government employees, business leaders, educators, and the average citizen. Here, the highest officials are not a sufficient target for EE, although they may well be in other political regions. The Seminar Advisory Committee set out to design a process that would help to clarify how environmental education could best meet these complex needs.

Preparing for the Seminar

Both in Canada and the U.S., conditions vary greatly from one locality and interest group to another. For this reason, it was agreed that conducting a survey of a broad range of interest groups would produce valuable insights into the priorities given to environmental concerns and environmental education. Using a modified Delphi process, a survey form was developed based on the Belgrade Recommendations. The survey provided an opportunity for respondents to assign priorities to the types of environmental education programs and projects suggested at Belgrade. The thirty items that were to be ranked were restatements of the thirty EE problem areas identified at the Belgrade Workshop. The form also provided space for respondents to add concerns that they felt were ignored, or dealt with inadequately. Over 22,000 copies of the questionaire were distributed to groups such as the United Auto Workers, Soil Conservation Society of America, National Education Association, Conservation Education Association and National Association of Manufacturers. Copies were also sent to Canadian leaders from education, industry and environmental organizations. The distribution was such that many people undoubtedly received multiple copies, but in terms of "mass mailing" the returns were quite good.

The Advisory Committee was in frequent contact by phone and mail, discussing potential locations and participants for the Seminar. Over

ten possible sites were considered before St. Louis was selected. The Advisory Committee also held two planning meetings, the first in Ottawa, Canada in April of 1976. At this meeting the objective of opening the process to involve as broad a spectrum of interest as possible was again emphasized. The Advisory Committee wanted the Seminar itself to be an important dialogue among diverse perspectives on environmental concerns and environmental education. It was realized that to meet the needs of a heterogenous group would require a very carefully orchestrated process at the Seminar.

The Advisory Committee agreed that it was desirable to bring those who would serve as resource experts, later dubbed "Seminar Staff," to the conference site ahead of time, and to have these same people remain for a collective de-briefing after the three-day Seminar had been completed. As to the Seminar itself, the Advisory Committee decided upon a process that would use Plenary Sessions to provide common background and medium sized groups led by panels to initiate interaction. They further agreed to use a series of small work group sessions in which the same team of people would work together to maximize the potential for participation and discussion. They began to revise the list of potential Seminar Staff, from which 50 persons were ultimately selected, representing government agencies, all levels of education, conservation and environmental organizations, labor, industry and the media.

By the second meeting, conducted in August during the Chautauqua Institution's 1976 Education Week at Chautauqua, New York, responses to the Delphi questionnaire had begun to indicate what some of the specific focuses of discussions at the NARS should be. Over 600 replies had been returned, from 48 states and all but two of the Canadian Provinces.

The range of individuals was as remarkable as the geographic spread; for, beyond the educators and environmentally-oriented individuals one would have expected, many replies came in from industrial leaders, elected officials, farmers, etc. The respondents had not only completed the task of setting priorities among projects and programs suggested at Belgrade, they had taken a great deal of time with their additional comments. The survey is reviewed in a later section of this report and an in-depth report is being prepared for separate publication.

Generally, respondents were extremely pleased with the efforts produced at Belgrade; many, however, commented upon the lack of identification of specific issues, stating that unless you declared what issue you were talking about (i.e. land use, energy, population, etc.) it was difficult to choose key targets; and without defining who the key targets were, it was hard to choose which programs, projects or strategies would be most appropriate. In other words, they were questioning the concept that it is possible to offer each and every individual the same type and intensity of education about the environment. They were expressing concern that different decision makers hold different levels and types of influence over the ultimate quality of the environment; and their separate needs must be dealt with.

The very thought process that the questionnaire triggered meant it had achieved its objective -- that of motivating people to think

beyond the broad general goal of developing a global environmental ethic to begin to make that happen. Some saw primary and secondary school students as the proper emphasis for such an effort. Many others, however, regarded environmental education programs for today's elected officials, industrial leaders and voting citizens as being the most critical need.

A second type of information came out of the Delphi survey; that a poor articulation of goals and priorities plagues EE, and that there are inherent inconsistencies which must be dealt with. For example, at the same time that comments strongly espoused the concept of a global environmental ethic, international environmental education programs which might help achieve this goal were ranked close to last on the program priorities.

Based on the response to the Delphi, a second survey was developed which asked two kinds of questions. The first kind aimed for reactions to the priorities assigned to Delphi One programs and projects by all who responded. The second group of questions centered around the ideas for content themes or issues, key target audiences, and strategies for implementation which had been suggested as comments on the original surveys. Results of Delphi One and Two were compiled for use as background information for the discussion groups at St. Louis, with the final sections having to be printed in St. Louis the day before the Seminar opened.

At the Chautauqua Meeting, the Advisory Committee also planned the program format in detail. They decided that the opening panelists for the NARS should each speak from a different perspective on environmental concerns and environmental education. It was also decided that three panelists should come from the U.S. and three from Canada.

It had been agreed earlier that invitations should be extended to William Stapp to speak about the environmental education program of Unesco and the United Nations Environmental Program (UNEP), and to Noel Brown of UNEP/New York, to present an overview of global concerns.

During Education Week at Chautauqua, the Advisory Committee also served as "faculty" for an environmental education track -- a series of morning classes open to teachers, school administrators and national leaders in education. In the afternoons, education specialists from outside EE were invited to discuss the existing or potential relationships between their field of study and environmental education. To prepare for these discussions, the outside specialists were asked to read three position papers which had been prepared for the occasion. A spirited dialogue resulted, with those previously uninvolved in EE coming to better understand its goals and objectives, and those within EE receiving some extremely valuable ideas as to how a stronger cooperation with other education specialites could be fostered. This interaction was summarized in a paper prepared for and distributed in St. Louis, entitled "Education at the Interface" which is included in an appendix to this report.

Because these afternoon sessions had been so productive, the Advisory Committee elected to invite position papers on EE from any

who wished to submit them prior to the Seminar. The content of these papers was in no sense advocated by the Advisory Committee; the papers were being invited merely to help stimulate discussion. These papers are reproduced in an appendix of this report.

After the Chautauqua session, the final weeks of frantic preparation commenced. Display space around the periphery of the major Conference Room was arranged for and twenty-one organizations and agencies took advantage of this opportunity. The exhibits provided a lively and graphic illustration of the variety of interests and topics which are a part of modern day environmental education. The exhibitors are listed in an appendix to this report.

Those finally elected as Seminar Staff represented a variety of backgrounds and interests. Each of the Seminar Staff were asked to play three separate roles at the Seminar: to lead a small work group, to participate on the opening panel or a concurrent panel which would react to the comments made during the opening panel; and to assist in pulling together the North American response to the Belgrade Recommendations. To prime the "staff" for these varied responsibilities, several mailings were made consisting of articles and position papers which covered a range of attitudes about environmental concerns and environmental education needs. Seminar Staff themselves were encouraged to mail items they felt would be of interest to the counterparts. Thus, before the Seminar began, Staff had collectively been exposed to materials as varied as a report of the 1975 Snowmass Conference on Environmental Education, a report on the costs of urban sprawl and an article on the limits to growth studies.

THE SEMINAR

As planned, the Seminar Staff gathered in St. Louis two days prior to the Seminar. Several different types of sessions were held in preparation for the Seminar itself: work sessions which analysed techniques for maximizing open interchange in the work group sessions and sessions which began an analysis of the Belgrade recommendations.

This pre-Seminar meeting was not without controversy. Those familiar and at ease with discussion-leading felt the "training" was not needed; others, especially those outside education who had little experience with this type of activity, felt it was necessary. A number of Seminar Staff came hoping that consensus would be reached on the Belgrade Charter and the recommendations and "findings" of the Seminar. However, some of those attending as representatives of organizations and agencies felt they were in no position to take such strong action on their own initiative. Differing points of view filled the air, many people were stimulated by the inclusion of new faces and new concerns from labor, industry, etc., others looked upon this reaching out as a dilution of the EE movement. Still others reacted hesitantly to the broadening of EE content to include topics such as "the environment of the work place" along with the study of natural systems.

Through the exploration of diverse points of view, however, excitement grew with a feeling that EE was confronting some of the major issues and moving into an even stronger interface with the real world, with all its varied perceptions, goals, objectives and its political, social, and fiscal realities.

The Opening Panelists, whose presentations appear in the next section of this report, threw out a tremendous challenge to the participants as they addressed a range of environmental considerations, and sketched the spectrum of educational needs that exist, in school and out. The concurrent panels analysed these remarks and began discussion of how we deal with this multitude of needs. The initial sessions of the work groups were highly frustrating experiences for many, as the full implications of the difficulty and complexity of the job facing environmental educators became clearer.

Work Groups

The small work groups were composed of 12-17 people whose interests, backgrounds and professional affiliations were as varied as possible. Each participant in the Seminar was placed in a work group according to their designation of themselves as being from industry, government, education (teacher, administrator, college professor, etc.); or an elected official or representative of an environmental organization. This was done in an effort to include in each group as broad a mix of views as possible and to share the input of the limited number of Canadian representatives with as many of the U.S. participants as possible. Each work group was led by members of the Seminar Staff.

Basically, the work groups were asked to discuss and submit their comments on the three major omissions that respondents to the Delphi survey had felt existed in the Belgrade Charter and Recommendations:

- the identification of key target audiences
- the identification of critical content issues for environmental education
- the identification of implementation strategies appropriate to the issues and target audiences.

They were asked to develop all of these within a context of the North American Region. Thus, the work groups were to specify North American environmental education needs as input to the 1977 Intergovernmental Conference and, at the same time, to help in planning a working strategy for continuing the forward movement of environmental education in this region.

Some of the work groups concentrated upon only the three tasks of identifying issues, target audiences and strategies. Others expanded beyond those tasks, working also upon what they saw as closely related elements; and some chose, instead, to work upon only one or two points which they felt had to be addressed in detail. The variety of activities which took place within the work groups indicates why the Seminar process needed to be kept flexible. This flexibility was an

important element in making the best use of the remarkable talents, interests, experiences and motivations assembled in St. Louis.

TARGET AUDIENCES

The Target Audiences most frequently identified by the work groups were:

- industry
- the media
- government officials
- religious leaders
- professional societies
- individual citizens
- labor
- environmental educators
- other educators

Some interesting additions to the list were commercial advertising agencies, social workers and professional researchers.

If we consider where these Target Audiences fall within the two general categories of environmental education, "formal" (Kindergarten through Post Secondary) and "non-formal" (everything outside the formal education system) it is interesting to note that many more non-formal targets appeared than formal. Some of this emphasis was undoubtedly due to the frequently expressed need to reach "today's decision-makers." But much of it was also related to the growing realization among those present at the Seminar that unless the "gate keepers" to the formal education process are reached and converted, environmental education within the formal system will continue to have to struggle to even survive. "Gatekeepers" were identified as school board members, school administrators, heads of relevant college departments and publishers of educational materials. These "gatekeepers" by and large are approachable primarily through the non-formal spectrum of educational processes.

A number of strategies were suggested as viable means of reaching these important individuals, including media programs which would highlight the needs and effectiveness of environmental education, and workshops for special target groups, like publishers or the nation's school principals.

It was pointed out by one work group that an important overlap exists in programs through which environmental education needs can be met. Formal education refers principally to Kindergarten through Post Secondary education, whereas non-formal programs aim at three general audiences:

- the general citizenry (adults and out-of-school youth)
- decision-makers operating from an influential economic or political power base (technocrats, publishers, mass media experts, elected officials, business leaders, labor leaders, school board directors, etc.)
- policy implementors, those who take directions from and carry out policies initiated by decision-makers (mass media directors and programmers, union members, school administrators, teachers, extension service field personnel, etc.)

Existing educational programs which should be of special significance to environmental educators are those in the overlap areas (i.e. management training; teacher in-service programs; professional technical training and retraining programs; media personnel training programs, etc.) These are especially important because they reach individuals who have a strong potential multiplier effect. Those who are taught reach other audiences and can affect change quickly. It was therefore recommended that these types of programs become a primary target into which to infuse environmental principles.

CONTENT THEMES

One of the work groups defined the goal of environmental education as trying to achieve an ecological compatibility between man and the environment, i.e., to foster a human existence based upon an environmental ethic and a consciousness of environmental constraints. To attain this goal it was recognized that learners, whether students, teachers, voters or key officials, must move from the stage of environmental awareness to action based on environmental principles. This work group felt that this desired transition in social behavior would not only require education about environmental principles, but training in environmental action. They therefore recommended that individuals and groups be taught how to stimulate and participate in environmental action through politics, the courts, consumer action, persuasion and actual eco-management.

The content themes which were suggested by the work groups as they wrestled with what needs to be taught to key target audiences showed great similarity to the themes identified in the Delphi surveys. The "key issues" most frequently cited at the Seminar were:

- population
- energy
- resource conservation
- food production & distribution
- land use
- environmental quality
- recycling
- preservation of biological diversity
- human settlements
- environmental economics
- ecology
- ecological constraints

One group came up with a list of characteristics which may contribute to a well planned environmental education program. Using these suggestions, it is possible to lay out a check list for particular content themes, and select the program characteristics which are most appropriate for that topic. For some content themes like Ecological Constraints, almost all of the characteristics have relevance, but for a topic like population, "interdependence," "a global view" and "a future outlook" may be the most important characteristics to emphasize. The following chart illustrates the format that this group used:

CHARACTERISTICS OF A WELL PLANNED EE PROGRAM

KEY ISSUES	Interdependence	On-Site Learning Exp.	Problem Solving Tech.	Problem prevention	Global View	Futuristic Outlook	Relevance To Learner	Positive Attitude	Environmentally "ethical"	Values Clarification	Attitude Formation	Cost/Benefit/Risk Analysis	Energy "Budget"
Population	•				•	•							
Energy	•				•	•	•	•	•			•	•
Ecological Constraints,etc.	•	•	•	•	•	•	•	•	•	•	•	•	•

STRATEGIES

A number of strategies or methods for extending and improving environmental education were reported frequently by the work groups, such as:

- use of the media
- study of the environment of the work place
- use of the Delphi survey to learn what a particular target audience already knows
- use of the Delphi survey to learn the best ways to approach these target audiences (i.e., would they be most responsive to films, TV specials, newspaper ads, speakers, written materials, etc.)
- construction of examples of alternative technologies
- publicity about alternative lifestyles
- publicity about environmentally related careers
- formation of local Alliance for Environmental Education cells
- work with professional societies to improve the quality of practising and rising professionals in environmentally related fields: law, planning, engineering, education, etc.
- work towards teacher accreditation in environmental education; work towards having basic environmental education concepts and skills be a part of all teacher training.

Although there was much overlap in suggested strategies, the least consensus came from the work groups as to the applicability of these strategies to particular target audiences. This is not surprising. It is another reflection of the complexity which arises from trying to deal with the demands of non-formal environmental education.

Obviously, strategies for reaching children who are captive audiences within a formal education system are vastly different from those required to attract the attention of busy industrial leaders, elected officials, media personnel or the disinterested citizen.

Energy questions can afford to be approached theoretically in the high school classroom and learning experiences should make that possible. On the other hand, the government official who must permit or deny the construction of a power plant cannot deal in theory. He needs to be presented with facts which lay out potential positive and negative environmental impacts, both in the short and long term. Energy education for the average citizen, however, may be most effective if it is structured around ways that he or she can save money.

The different views which surrounded the application of strategies to target groups was a positive recognition of the necessity for environmental messages to be tailored to the needs, priorities and motivations of particular target groups. Now concentration is needed on the implications of that important observation and refine our ability to communicate with specific audiences.

Two of the more interesting and controversial products came from work groups that chose to concentrate upon factors of vital interest to their members. Both items, the sketching out of the needs for a national center for global perspectives in EE and the outlining of an environmental ethic, provide a basis for continuing debate and elaboration. The salient points are included as Exhibits I and II respectively.

EXHIBIT I

A National Environmental Education Center

a. Purpose: To facilitate education which fosters mutual exchange of ideas and understanding of global environmental concerns; and which encourages diverse cultural response to these concerns.

b. Operational Components: 1) preparation of personnel; 2) identification and development of resources; 3) development of curricula and educational processes; 4) dissemination and diffusion of activities; 5) coordinate a cultural exchange of programs in Environmental Education for students, teachers and leaders; and 6) research and evaluation.

(Additional sections went on to provide some specific suggestions regarding the facility, staff and activities of the Center.)

Exhibit II

(This preliminary document is written in reaction to the charge for a global environmental ethic mandated at Belgrade, and as modified for the North American Region.)

North American Environmental Ethic With A Global Perspective

Recognizing that North America is a land of plenty, with temperate climate, and virtually unlimited natural resources; and that it has the uniqueness of facing two oceans; these conditions bred a sense of continual progress as the reality of our people. In the U.S. a pioneer ethic was bred of independence, self-containment, smugness and an expectation of a continuously rising standard of living. There are myths which remain in our culture today which must be reality tested and replaced if necessary, through the educational process. Environmental education can play a significant role in this process. The Canadian experience probably has similar aspects as it relates to the wealth of the North American region; but will differ significantly due to its English and French heritage and other cultural factors.

In the development of an environmental ethic for the North American region, the following considerations must be addressed:

- We must plan for qualitative growth rather than quantitative growth;
- "No quantitative growth" or "steady state" may be an option;
- We must consciously plan for orderly change in our world of diminishing energy returns;
- We are in the process of moving from an age of rapid energy consumption to an age of energy efficiency;
- We must examine the premise that the maintenance of the existence of environmentally sound alternatives and options is one guarantee of the freedom of the individual.

Certain myths in the U.S. must be explored, analysed and confronted by society:

- That there is a quick scientific solution to all our problems;
- That there are unlimited, inexhaustible resources in North America;
- That solutions can be found in a hurry for practically anything;
- That short term economic gains are worth the price we pay for long term ecological health;
- That an American citizen has the right to use as much of the world's resources as he or she can afford.

A global ethic, a total system embracing attitudes, values, beliefs and moral assumptions, would result in a behavioral change in our people, leading us from the current unsound ecological practices permeating our society toward more ecologically viable lifestyles. We must redefine what it means to have a quality life and a high standard of living. We must redefine the pursuit of happiness.

The Seminar work groups provided optimum possibilities for developing communication among the participants and generating interest in and input for the Intergovernmental Conference on Environmental Education. The work group members readily committed themselves to an arduous task. There were the inevitable frustrations and confusions--i.e., too little time, belief that the entire Belgrade Charter had not been distributed (it had) and a need for better feedback--but through it all the work groups were in integral part of the success of the Seminar. The products of those sessions contributed significantly to the reports to the sponsoring organizations.

Other Seminar Activities

The second Concurrent Panel sessions reflected operational levels of the participants; i.e., whether they worked in a national, regional, state or community context in their professional and/or volunteer capacities. These sessions were planned in this manner to optimize the chances for a substantial follow-through after the Seminar. In one of the most interesting of these, the National group, heavy emphasis was placed upon strengthening the activities of the U.S. Office of Environmental Education, and finding means for more substantial funding of EE programs.

Many of the participants, and all of the Seminar Staff brought a tremendous wealth of experience and expertise to the Seminar. To provide an opportunity for sharing this array of resources, and meeting the practical, everyday working needs of seminar participants, one evening was devoted to the "Free University." People who had programs or ideas about which they wished to talk, posted brief descriptions and sign-up sheets. Rooms were set aside for those offerings which triggered interest.

On the final morning of the Seminar, some participants took part in a Futures Exercise, while others worked on completion of work group tasks and continuation of special interest sessions. The Futures Exercise participants were asked to design a political platform for a candidate with a strong environmental position. Sub-groups were established and were asked to assume the "mindset" of a particular interest group -- the elderly, minorities, labor, industrial leaders, farmers, conservationists, etc. -- as they hammered out compromises on the points under discussion; an energy policy, land use controls, job opportunities, economic stabilization, etc. For many, this exercise was a culminating point -- it demonstrated how many different factors are interrelated to environmental concerns, and the sensitivity needed to this range of legitimate concerns if meaningful progress is to be made.

It also suggested some salient points that deserve to be better integrated into environmental education. Each sub-group identified its most important topic and these are brought together as a combined statement in Exhibit III. Also included are some items identified by the entire group as important policy guidelines for program implementation.

Exhibit III

Synthesis of Futures Exercise Position

Guidelines

(1) Slowly phased-in changes.
(2) Monitoring of secondary effects on societal levels.
(3) Consistent feedback from public, government and industry as to effects (positive and negative) of implemented policies.
(4) Consistent policy re: all governmental buildings in energy conservation, water reuse, waste disposal, etc.
(5) Expediting use of alternative technologies through imaginative incentives.
(6) Remove impediments to use of recycled materials.

"Futures" Party Platform

I. Transition to a less energy consumptive society. Accomplish through pricing which will reflect scarcity and full costs (production, pollution, etc.) Financial assistance to low level income and farmers.

II. Positive, enlightened use of money and investment to shape the future by applying true conservation principles in investment. (Enlightened self-interest).

III. "Fixed-pie" for known resources accepting that new resources will be developed. We must leave room for expansion in the new resource areas. Growth should be controlled by these two understandings.

IV. Objective should be to meet the country's needs of the human population through a holistic understanding of man-environment relationship. Needs: the quality of life for all segments of society.

V. The preservation of food and fiber-bearing land should be the top priority of all public policy - international, national, regional and local.

VI. Technology must be re-directed to the development and use of new resources, rather than stripping of marginal resources. Capital assistance must be given to make that change.

The Seminar drew to a close with comments from a number of participants who emphasized the need to continue to reach out, to involve an even broader spectrum of interest; and to work as diligently in non-formal as in formal environmental education.

In the final plenary session, a motion was made by the Canadian representatives to call for unanimous support for the Belgrade Charter. As indicated earlier, however, several participants representing agencies and organizations did not feel they could take such a position on their own. The vote which was cast reflected the situation with approximately 10% of those present abstaining and the remainder voting in favor of the motion.

There were a number of word changes and refinements on both the Belgrade Charter and Recommendations developed by the Seminar work groups, individual participants and the Seminar Staff. None of these altered the essential elements of the materials produced at Belgrade and are, therefore, not included in this report. All of the changes, no matter how minor, were included in the report submitted to Unesco and the other sponsors.

POST SEMINAR SESSIONS

Seminar Staff regrouped for a final afternoon and morning of debriefing, during which work group reports were turned in and an evaluation of the Belgrade Recommendations completed. Before the doors were finally closed on the St. Louis Seminar, the Staff met to pull together summary reports of the various activities. At that time the nature of the reports that might be produced as a result of the Seminar was discussed. The following targets were agreed to:

Product I: A report to Unesco Environmental Education Section and other sponsors which would include data gathered as part of the Delphi surveys and a critique of the Belgrade Charter and Recommendations in light of the Seminar deliberations. (This report was completed and mailed to the sponsors in December, 1976.)

Product II: Seminar proceedings to be sent to all the participants and made available to other interested parties. (This is the report you are reading.)

Product III: The preparation of a report summarizing the Seminar results and an in depth review of the data gathered through the Delphi survey. (To be available in the Fall of 1977.)

Product IV: Environmental Education by the mid-70's, a report on the evaluation of the EE concept.

POST-SEMINAR ACTIVITIES

The acid test for a meeting is what happens after the final session. The Regional Seminar rates high marks on that measuring stick. There are a number of things that began at the meeting and have blossomed into valuable contributors to the advancement of environmental education as it is organized, communicated and taught. The following list is a sampler of some of the items that have come to our attention:

- The Missouri participants formed the Missouri Caucus on Environmental Education at the Seminar. During the meeting they met five times and have since gone on to organize themselves into an effective network, developed a set of Bylaws, convened a Spring 1977 Conference and generally contributed to a mode of coordination and cooperation in the field of EE.

- The New England participants have taken steps toward the establishment of a New England Caucus to strengthen communication and cooperation for that area.

- At least one state plan for EE was significantly influenced through the participation of one of its key architects in the Seminar.

- The Iowa Governor's Conference on Environmental Education and Conservation Education and the 24th International Conference of the Conservation Education Association drew upon the Seminar format as a model for their sessions.

- One of the participants, Dick Peters, drew on his experience in the field and the Seminar discussions in preparing a position paper on the relationship between citizenship education and EE.

- A major education professional organization has strengthed the EE efforts directed to providing their membership with more useful material in this area of education.

- The program for the Chautauqua Education Week 1977 has been significantly influenced by the discussions and products of the Seminar.

- The Alliance for Environmental Education was the recipient of a number of proposals that it is currently integrating into its planning for future program activities.

- The Executive Director of the Alliance addressed the Environmental Quality Committee of the National Association of Manufacturers (NAM) on Environmental Education for the Future.

- Chuck Leinberry of NAM chaired the Ad Hoc Committee on Environmental Education that was formed at the Seminar. As a result of a survey that was conducted on the EE Act, he was asked to testify before the House Sub-Committee on Select Education on hearings related to the future of the Act.

- A Sub-Committee of the U.S. Federal Interagency Committee on Education was established on International Environmental Education. This group is working on specific preparations and recommendations for U.S. participation in the Intergovernmental Conference on Environmental Education slated for Tbilisi, Georgia, USSR, in October 1977.

- Canadian participants have been working on recommendations to the Canadian government regarding participation in the Intergovernmental Conference.

This list is just a sampling of the items that have occured under the heading of serendipity. They are, of course, over and above the specific input that was made to Unesco and the various sponsoring organizations. Some of these things would have happened in the normal course of events, some were the direct result of Seminar contacts and experiences, and all of them were positive responses to what took place at the North American Regional Seminar on Environmental Education. Those of us responsible in some small way for the Seminar take no credit for this list of accomplishments. There is gratification in the fact that the Seminar lent strength and support to their happening. But as with the Seminar itself, it was the people who took part and who are commited to the further development and implementation of environmental education that made the difference.

EPILOGUE

The North American Regional Seminar was a complex and challenging exercise. The Advisory Committee could have selected otherwise; they could have provided the necessary response to Belgrade and complied with the Unesco contract by calling together a small group of respected environmental educators for their collective appraisal. But environmental education in North America, especially in the U.S., is at a threshold over which it must step if it is to do the job that must be done. In its infancy in the economic upswing years of the late 60's and early 70's, environmental concern swept many into supporting its needs. At that time it looked as if the job of environmental education might well be to educate the young to a greater sense of our dependence upon natural systems for it appeared that the emotional carryover would be sufficient to assure the implementation of newly enacted, strong environmental protection legislation. But, as the economy sagged and the energy crisis grew, the costs involved with environmental clean-up and for more sound environmental planning have come under much sharper scrutiny -- for there is more competition for each dollar expended.

Another factor is also present to a greater degree than in the heyday of environmental concerns: there is a broader realization that achieving environmental quality protection goals infringes not only upon citizens' purses, but upon previously unchallenged rights: the right to develop land where and as they please, to operate businesses and industry as they see fit, even to recreate where and as they desire.

Thus the environmental educator's job has become more difficult. Not only must they work within the formal school system, they must continuously justify the need for and cost of these programs to elected and appointed officials. And, EE must come to deal successfully with the legitimate and very real fears of the average citizen about the implications of these programs upon their cost of living and their way of life. The only way that such a goal can be accomplished is by having environmental concerns make sense to the average citizen. The rhetoric has to go; the jargon must vanish; the rightousness must be foregone; and what has been an elitist, white middleclass concern must come to expresss itself in terms that are meaningful to the inner-city resident, the struggling farmer, the powerful industrialist, the union member and the small community engulfed by federal program requirements.

It seems appropriate to close this overview with statements from two of the participants. In the final plenary session several participants were asked to respond to the question, "Where do we go from here?" The comments of Lynn Hodges of the TVA, one of the respondents, points out some key concerns.

> "Environmental education is evolving. Like growth itself, this evolution is a continual process resulting in change. Because of this evolution, we're being drawn into several new arenas.
>
> "One is the global environmental education effort. As we engage in discourse with the global community, we must be prepared to deal with perspectives of environmental education much different from our own. In simplistic terms, the three ways to control human behavior are: 1) Regimentation, 2) Education and 3) Annihilation tactics. EE will be viewed as a ploy to keep non-developed nations rich in resources until the developed nations choose to exploit them. It will be viewed as a tactic for keeping population manageable, with the developed nations being the managers. It will require the best of our efforts to defend environmental education as education, and to strive for global cooperation. Within the context of meeting these challenges, I would refer to Dr. Noel Brown's global insight into the current status of environmental education in North America. We have been most successful in developing a "data base" but most remiss in developing a "value base."
>
> "The second arena is internal. The next few years will produce a refinement, a maturing of environmental education in North America. Existing alliances will undoubtedly be strengthened and new ones formed. The greatest strides will be in the development of strategies for implementation of programs. These strategies will be build on issues and targets identified in documents such as Belgrade, Snowmass, and St. Louis. Energy will not be wasted on the re-invention of existing conceptual wheels. Environmental education, in maturing, will lose much of its eliteness, the eliteness that has been the pride of the

purists among us and a major constraint to our producing tangible results. To those myopic purists with whom all of us have dealt at this and other seminars, whose greatest pleasure seems to be dwelling on the minutia of rhetoric, I would say, "Environmental education has outgrown the need for your shallow, ego-centered mutterings. Thanks for nothing!" Environmental education, in shedding a veil of eliteness, will gain a shield of success and productivity forged from a realistic and common bond of those dedicated to environmental education. That's where we go from here!"

Finally, in a letter following the Seminar, Dean Bennett, from Maine, author of a trend paper and participant at the Belgrade Workshop, summarized the challenge that we face.

"The concept of environmental education during the past ten years of its evolution has steadily attracted an increasing critical mass of supporters. The North American Regional Seminar on Environmental Education served to increase even more the breadth of participation in this movement by stimulating the interest of industrial organizations, labor groups, the media, government agencies, educational councils representing diverse disciplines and so on. In so doing, the Seminar demonstrated that the concept of environmental education is now at a point in its evolution where it is ready to be diffused through the work of many social groups, agencies and institutions. The Seminar showed that this process is now beginning and further, that it needs to be encouraged by all those individuals and groups who have been involved with EE. In particular, it means that those who have been closely identified with the movement must display attitudes of patience and helpfulness with other groups and individuals while they themselves grasp the meaning of EE and go through the familar thinking and communicating process. And, perhaps more importantly, those who labored long to hammer out and nurture the concept and who have guided its growth must be careful that feelings of possessiveness do not interfere in the process of diffusion. The idea of EE and its further growth needs to be shared.

"It is through private organizations like the Alliance for Environmental Education and the coordinating agencies of governments that the diffused activities and interests of EE can continue to be brought together to address its central issues and organize its further diffusion. But for EE to fully realize its potential it must be grasped by all elements of society. This means in formal education that EE must become an integral part of each curriculum. It must penetrate to the very assumptions upon which education is based. In the non-formal sector, this means that EE principles must be reflected throughout the objectives of all programs."

PLENARY MEETING PRESENTATIONS

SOME VIEWS ABOUT LIMITS

J.J. Combes
W.R. Grace & Company
New York, New York

Several years ago my wife and I attended a cocktail party at the home of a couple who had recently moved to our neighborhood. Most of the guests were from the old location and were members of the Presbyterian Church which the hosts used to attend. When they moved, the hosts had switched their membership to the Presbyterian Church near their new home, which my wife attends also. During the party the hostess introduced me to an elderly gentleman. The major part of the introduction consisted of a recitation of his activities and position in the Presbyterian Church. In closing she said to him (about me), ". . .and Jack is a Presbyterian too."

Since I am not a member of any church I couldn't take the credit. In disclaiming it I wanted to do so in a way other than flatly stating I was not a church member. I said, "No, you have that wrong - it's my wife, Nina, who is the Presbyterian. I am an environmentalist." After a moment's confusion while he searched his roster of religions, the elderly gentleman replied, "Oh! Yes! They do good works too."

Yes, I am an environmentalist and my feelings in favor of protecting the enyironment are very strong. I am also employed by a very large industrial company which owns and operates many chemical plants as well as coal, phosphate and vermiculite mines, retail stores, restaurants, medical laboratories, pollution abatement companies and several other types of business. I was also trained as a chemical engineer. Up until six years ago my principle industrial activity was the designing of instrumentation and automatic control systems for chemical plants.

Many times I have been asked, "How do you resolve and live with the conflict between your interest and concern for the environment and your industrial employment and activities?" Anyone who has available to him the information that the environmentalists and the industrialists both have would be aware of this. To know it, one has to have information from and communications with both groups. Or better still, be a member of both groups. The trouble is the environmentalists talk only with the environmentalists and the industrialists talk only with their people. This leads to confrontation, and communication, if there is any, usually occurs in the courts.

There are activities taking place which indicate this situation is improving. I am involved in some of these. Shortly after this Seminar there will be meetings at the headquarters of the Council on Environmental Quality between industrialists and environmentalists to explore ways and means of bringing both groups together in mutual communication and cooperation.

Sometimes people ask "How do you feel about the environment in comparison to the human activities which disturb and damage it?" This is a good time to go into that.

Since Earth Day in 1970 you have heard, probably many times, the statement "The Earth is a ship and we are its passengers and crew." This is a pretty accurate description of the situation, only we can never come to port for repairs and supplies. In view of this, I feel "The ship is more important than the crew and passengers." The reason this is true is: if we should all suddenly vanish from the earth, it and its other inhabitants, would continue to get along quite well. Conversely, if we should seriously damage one of the vital environmental components - the air, water, or land - beyond repair, figuratively the ship would sink and there would be no way we could survive.

This does not mean we have to become environmental hypochondriacs. It means we take normal, sensible precautions to protect it on a cost/benefit/risk basis. It means we act as a normal, sensible, healthy person does to protect his health - he works hard, has fun and takes some risks but he takes care of himself. No one can live very long if they do as they please - over eat, over work, over indulge - with no regard to the consequences. That is what we have been doing in regard to the environment. At the same time, no one's life can be very satisfying or worthwhile if they become a health nut and don't do anything that could possible have the minutist effect, real or imagined, upon their health. Industry has, in the past, been an environmental lush and now many of the environmentalists are environmental hypochondriacs.

Every human being, to greater or lesser degree, carries on his personal activities on a cost/benefit/risk basis. This is the way we must carry on our activities affecting the environment. There are two things that must make this difficult, however. Everyone does not assign the same values to the costs, benefits and risks of an action affecting the environment. Although it is usually possible to determine the cost of performing an environmental or industrial action, the actual risks and benefits of performing or not performing it are usually very hard to determine and it takes a long time to do so. It would seem that your function as educators would be to educate yourself continuously in regard to the true relationships of the benefits and risks and then educate the rest so the best decisions can be made.

A few years ago the question of whether there are limits to growth in numbers and activities of people on earth came up. The controversy still rages. I believe there are limits in some areas and not in others. Certainly no ship can have a continuously increasing complement and continuously increasing use of its finite supplies. There is no limit to the quality of life if we will voluntarily limit our numbers, shift our emphasis from more to better and recycle the supplies as is done in the natural world.

Finally, if we are to continue to make a success of operating our ship Earth, the environmentalists and the industrialists will have to communicate, cooperate and learn from each other - just as the deck and engine room crews do on an actual ship. The passengers - the public - are only too pleased to take instructions from an assured, cooperating crew who work together, instead of at cross purposes, in an emergency.

ENVIRONMENTAL EDUCATION IN THE SCHOOL SYSTEM

Charles A. Hopkins
Boyne River Natural Science School
Shelburne, Ontario

In 1960 in Toronto, we began a resident program of natural science education to assist students with learning about the natural environment. We soon realized that, while science could be the main vehicle in interpreting the environment, a true knowledge and understanding of the students' total environment could only be accomplished by including numerous other disciplines, such as geography and physical education. The term "Science" would not suffice. Here arose the first temptation at name change.

Over the years various terms dealing with the environment have come into being. Conservation education became part of the curriculum. Outdoor education is another popular term for the overall study of the natural environment. Then, in the late sixties, other concepts emerged. Pollution seemed to be on the lips of every teacher and student. Environmental education seemed to follow quickly, and now one talks of the quality of life studies, experimental education, citizenship, futures education and values education. More and more, the emphasis is shifting from solely teaching of the natural setting to including the urban focus. Some of you may have all of these programs pigeon holed. I don't. But, let's look positively at the array. All of these programs have a lot in common. Most of them teach about the students' environment. Much of the curriculum is centered on learning from the environment and all give lip service to teaching for the environment.

A number of educators decry this splintering and urge their colleagues to unite in a common thrust. As a great deal of energy is wasted in defense mechanisms and open attacks on other people's approaches and programs. As a result, too little is being accomplished. In most cases, a pitifully small proportion of the student's time is spent learning about his surroundings. In most cases, the elementary or secondary student's environmental studies are limited to his neighborhood, or, at best, to a few square miles around him. The information that the student receives is sporadic and often incorrect and insufficient. No one program can do everything. Students need us all.

The problems are many. At the formal level, teachers must rely heavily on their own backgrounds. A very high percentage of the curriculum they teach must be based on what they have been taught. In the case of environmental studies, the vast majority of teachers have received little or no formal training. When I went to school, my environmental studies program began in Grade One with a "fall leaf collection." In Grade Four, we studied the monarch butterfly; in Grade Five we studied the monarch butterfly; and again in Grade Six. It was not until Grade Eight that we learned the four stages in the life cycle of a mosquito, and the program was capped in Grade Ten when we learned the crayfish. I think the parts were taught in Latin because I forgot them. This is hardly a solid base from which to begin an environmental education program, and yet many teachers are in that position.

Another major problem is the difficulty in gaining factually correct and relevant information geared to the students' level. While teaching at a resident outdoor education program on Lake Ontario, I encountered many students who would not go near the water because their teachers had taught them that the water was polluted, full of deadly diseases, and extremely dangerous. I assumed that these teachers were interested in environmental education, and, had they been given correct information, would have been a great help to the environmental movement. Students soon lost faith in the credibility of such doom spreaders.

A third problem is the lack of a skeleton framework whereby students can organize additional information to those facts and trivia that they acquire. In very early years, we must present a core of concepts and themes such as food cycles, energy flows, and other key systems, so that additional information can be stored in its proper perspective.

There is a great deal that can be done by the educational system. To begin, students can be made aware of the environmental component of life support systems. Lumber does not originate in building supply yards, and milk does not originate in stainless steel transport trucks. Even the most urban oriented individual is totally dependent on the continuing patterns and cycles of the natural world. These basic ecological principles and relationships must move from the periphery to the core of the students' curriculum. It has always fascinated me that language skills and mathematics have been revered and hallowed as the most important subjects one can take at the secondary school level. When is the last time that you used a math skill that was taught at the secondary level? Even secondary school language skills are of a questionable necessity as newspapers are generally aimed at the Grade Four level. I am not suggesting that we lessen our efforts in mathematics and language skills, but I am suggesting that we strive for a greater respect for environmental studies. Two frill field trips per year instead of one is not what we are seeking.

In a democracy filled with public hearings and supposedly total participation by the public, it is imperative that the average citizen have a sound understanding of environmental relationships. People used to be offered a deal they couldn't refuse - now it's one they can't understand. At present, environmental issues are like low cost housing. They are great and they are a necessity; we are all for them as long as they are not near us. I was recently told that in numerous cases, environmental planners have succeeded in having anticipated hydro-electric lines routed around marshes, wet lands, and forested areas, because of their environmental impact. The engineers have agreed, but when it comes to the public hearing, no one wants the power line to be near them; hence, the public lobby grows to have the hydro-electric tucked away in these out-of-the-way places. Politicans eager for votes are of little support to the environmentalist, and, as a result, battle after battle is lost.

However, as well as this basic framework, I propose that, at the elementary and secondary school levels, environmental education expand beyond the concept of science education to add reality to this skeleton. We need to develop a total environmental awareness that will become an integral part of the education of our youth so they will become sensitive to the problems, the knowledge to solve problems and a desire to act. I

propose that environmental education cover both urban and natural environments if we can still find a natural setting when we finally instigate the program. I realize that we are talking of a long time in the future. There is an old saying that "if we are thinking of next year, plant a seed; if we are thinking of a hundred years hence, plant a tree; and if we are thinking of a thousand years, plant an idea in the schools."

I would like to see a multitude of inter-disciplinary approaches aimed at three levels of student involvement. The end objective would be to have students knowing about their environment, caring for their environment, and acting on behalf of their environment. A major objective or thrust of these approaches would be to increase the range of their environment until it becomes "the" environment, global in perspective.

We could begin in the primary grades with students experiencing the out-of-doors in art, music, science, language studies, history, geography, mathematics, physical education, etc. As the years go on, the range of environmental encounters should progress from teaching about the environment inside the classroom through experiencing the environment in what are now called experimental or adventure education programs. The mid-way steps include school site development, field trips and excursions, stays at staffed resident centers of both an urban and rural setting, and finally a progression to the advanced environmental exploration programs. It would be at this stage that environmental education would emerge as a separate discipline, but interlocked in the public's life-style and values.

Recently, I heard a proclaimed environmentalist criticizing a tenting and canoeing program as being "just so much play." I added it to the growing list of encounters that I have witnessed between people running different programs. I have heard an equal number of criticisms of resident centers where people have stated, "Give me the equivalent dollars in tents and canoes and I will really show you what an environmental education program is all about." The point that we are missing is that students need all of these programs. Backpackers can lead a much fuller life if they understand the ecosystem through which they travel, and the biologists can likewise enjoy a fuller and safer life if they possess the necessary skills to get them into and back out of a more remote setting.

Also, I feel that we must turn our attention and focus upon the urban environment. At present, we are lobbying for an urban environmental studies center staffed by resident specialists, who would, in turn, introduce the students to their own city to make them aware of their history, past achievements, present problems and future direction.

We are an extremely young discipline if we may take the liberty to call ourselves as such, but, as is the case with any true emergency, we are leaping forward with the energy, materials and know-how that are at hand. There is a large ground swell, or even tide, to reverse. Originally, schools were built to house the scrolls and instruments in times of bad weather. These were expanded to become a meeting-place for masters and scholars. In recent years, we have enshrined the schools and locked the students within them. An integral part of environmental education and environmental awaremess lies in bursting these bonds and getting students back out to study their surroundings and what is happening to them. We must strive for realism in programs.

We need help, all we can get. We need teacher training programs, continual organized up-dating of eco-information, and, we need a mandate from the public to free funds to carry out these programs. We need manpower and expertise. Anyone who calls himself an environmental educator should be heard from and encouraged to participate wherever their skills and enthusiasm can be used. I am calling for a concerted coalition of the formal and non-formal sectors. The environment and the public need the best effort we can put forth.

I welcome the efforts of UNESCO with their work at Stockholm and Belgrade. I welcome the Charter and I look forward to the final Russian conference anticipating a credible mandate that I can use to convince that stubborn ground swell that the goals and objectives and strategies being hammered out around the world are to be taken seriously - very seriously - and acted upon.

THE INESCAPABLE ISSUES

Anne Lawrence
KMOX-TV
St. Louis, Missouri

The environmentalist is viewed as ponderous, self-righteous, academic, humanistic, serious, and ineffective. At the other end of the spectrum is the media image. Newscasters are egotistical, superficial, temporary, faddish, light weights. The environmentalist seeks to change the image....to give the cause a little zing, zip, and appeal to the masses. Media also wants to change its image....newscasters want to present, or give the illusion of presenting, indepth, hard-hitting news. Investigative reporting is the answer. Neither image in its strictest sense represents reality. But, the goals of each are right on target. Sure, it will take education to change each image, each stereotype. But, to coin a term perhaps overused by my sisters, it will take more than education. It will take consciousness raising. That my friends is a long term, on-going proposition. It requires some flexibility and understanding of the other point of view. Those of you in the "ivory tower" will have to stop rejecting worlds outside your own.

Long academic research reports might work in your world. They serve as mere ego-yanks for the scholar. This research approach to change will not make it in the media world. Those lighthearted reporters out there don't have time to ponder over your lovely three hundred page books on the extinction of the Condor; and, you can't label journalists plastic, superficial flakes for their lack of time and concern for your most important issue. You can reach their hearts and minds by swallowing a little pride, dropping some of your convoluted data, and appreciating their time constraints. Perhaps the journalist will then reciprocate with a more indepth attention, not only to this interview, but with an eye for future coverage. Remember the need to be investigative and hardhitting?

The marriage is a natural one. My little introduction may seem a bit trivial and simplistic for this sophisticated intelligencia. I happen to believe it is the crux of the problem, our most important inescapable.

How does this pertain to the urban scene? Frankly, it is only intensified by the urban scene. Those in densely populated areas are often most ignorant of how to preserve wildlife and open space. They are also most aware of encroachments upon it. Only in overpolluted, industrial, congested cities is our real plight evident. It is here too where threats to the environment, in the name of progress, and production are born. Consequently, organized proponents of clean air, free land, free flowing rivers, and preservation of wildlife are also housed here.

The battlefield is set. I say battlefield because that is the reality. Protecting the environment is diametrically opposed to short-range money making ... speculating. Here in the midwest environmentalists

are faced with the $$$ interests at every turn. Missouri and Illinois battles probably are not much different than your own.

1. The Corps of Engineers wants to build a dam for recreation. They are backed by land speculators, developers, the tourist industry. The dam will flood one of Missouri's most beautiful rivers with the twelve acre pool.

2. The Corps of Engineers wants to replace Lock and Dam 26 on the Mississippi River, threatening wildlife habitats.....all for the benefit of barge transportation.

3. Our electric company wants to increase rates to cover interest on construction work in progress for a nuclear plant which is determined not needed by the environmentalists.

4. The Monsanto Company, headquartered in St. Louis, reluctantly agrees to stop producing PCBs.

5. The county seeks a highway bond to extend two roads westward, to encourage more development of the Missouri and St. Charles River Bottoms, to encourage the expanding suburban flight from our city.

6. Parochial Fenton is refusing to accept a modern waste transfer station near its residents. The system is one of the first attempts by private enterprise to recycle waste.

As shown here, environmental concern often goes against the grain of monied interests. This need not be the case. There are compromise solutions which can satisfy all sides. I think we are prepared to come up with those solutions. The days of environmental impact statements serving as our only comment are long gone. We can come up with positive, innovative alternatives to the construction of dams and nuclear plants which will satisfy the monied interests, provide jobs, and recreation. But, in order to get these plans across you will have to compete with slick, highly professional P.R. firms hired by the monied interests. This is part of your new image.

Media is very powerful. Here in St. Louis alone, 83% of the homes turn on their TV set at least once every evening. To deny the power of the Press is to lose the battle. Don't merely send out press releases and then get insulted when your event was not covered. Remember the newscaster's "ego", massage it a bit. Education goes beyond books, the classroom, and recommendations from Belgrade. I hope you will be big enough to accept the challenge.

Finally, I make a living at being controversial. Editorials are most effective when they are positive, pertain to local issues, and stimulate a response. This conference is your "equal time". I hope that my somewhat caustic comments will serve as a catalyst for a productive response.

TARGETING ENVIRONMENTAL COMMUNICATIONS

J. S. Maini
Canadian Forestry Service
Ste. Foy, Quebec

Objectives

The long-term objective of environmental education is to develop environmentally aware and environmentally responsible citizens, which would ultimately result in ecologically sound decision-making.

Audience

The audience of the environmental education programs may be categorized as follows:

- Today's decision makers in various levels of government and industry
- The "ordinary citizens" who are becoming increasingly important in decision-making
- Students in educational institutions, i.e., the future decision-makers.

North America is very different from other industrialized western nations such as Sweden and Germany. Beside the obvious differences in area, we in North America have tremendous regional disparity in economic and industrial activity. The so-called "ordinary citizens", both the native born and immigrants, are extremely heterogenous and mobile and vary from a historic, economic, social, cultural and educational viewpoint. All these features influence the perception of environment and environmental issues and the environmental education of the "ordinary citizen" is a real challenge.

Educational Material

Two types of educational material are needed. First, dealing with basic ecological principles including interfaces between the biosphere resource utilization, economic and industrial activity, basic human needs and desires, and the trade-offs we must make in a realistic industrial society. Secondly, material on special local, regional, national and international environmental problems. While the background information on the first is generally available, there is a lack of suitable expertise to adapt it in a creative manner and present it in terms easily understood by the audience with diverse backgrounds.

THE TRAINING OF ENVIRONMENTAL PROFESSIONALS

Michel Maldague
Laval University
Quebec City, Quebec

I intend to summarize some aspects of the training of professionals involved in environmental fields.

Difficulties

Two basic difficulties are to be considered here: the first is related to the variety of professionals needed to solve environmental problems. To illustrate the broad area in which professionals are concerned, let us consider the four following environmental categories or questions: 1) need perception; 2) resource description and technical developments; 3) public policy; and 4) effects analysis.

In each of these categories a wide range of professionals are involved, so that it becomes quickly obvious that few are excluded from the decision making process, in one role or another. This diversity has implications in the design of curricula and in methodological approach.

Another difficulty lies in the often common professional barriers which are, among others, an important factor in environmental deterioration. It is urgent that the environmental professionals participate in a common grounding in environmental studies.

Goal and Overall Objective

The goal of the professionals involved in environmental concerns is to make the best use of environmental resources, and to undertake the most appropriate management of the total environment.

The overall objective of environmental professional education is that environmental considerations must be taken into account in development projects, regional planning and resource management activities, especially with reference to economy of energy and other conservation of energy technologies, prevention of pollution and promotion of healthy urban and rural environments.

Therefore, the following should be given urgent priority:

1. to adapt the education of all the professionals more or less directly involved in environmental management or in the creation of environmentally satisfactory living conditions;

2. to produce the environmental specialists and other professionals needed to deal with the complex interdisciplinary problems facing mankind.

Training Programs

To succeed in solving environmental problems, we should consider four major kinds of professional training programs.

(1) The acquisition of an environmental education background.

The problems of environmental aspects of the education of professionals related to environmental planning, management and development, can only be approached effectively by a consideration of both socio-humanistic and scientific-technological elements in the education of these professionals.

Consequently, it is absolutely necessary at university or higher education levels to introduce some concentration not only on the imperative need of environmental protection, but on the complex nature and interdependence of all phenomena involved; that objective may be achieved by creating one or more official courses on environmental subjects which must comprise both the aspects relating to technology and natural sciences as well as the aspects relating to the social sciences.

This objective has to be achieved at the under-graduate level in any kind of specific training. It is particularly useful at this level to develop knowledge upon the environmental impact of the professional field considered.

(2) The adaptation of the specialist training to environmental concerns.

Beyond the acquisition of an environmental education background, the requirements for environmental education for specialists must also be encountered and reinforced by a realignment of subject contents to allow for ecosystem or process-centered, as well as human-centered, studies.

The adaptation, or creation, of courses or programs needed to solve environmental problems is an urgent need. Advanced training in environmental management techniques related to each of the professional fields involved are particularly required at the undergraduate as well as the graduate level.

Therefore, special environmental teaching programs and courses for engineers, architects, agriculturists, foresters, and other specialists should be promoted: courses in ecology, as well as courses in the integrated study and rational management of natural resources.

Particular attention should also be given to the introduction of ecology in the training of potential decision-makers such as economists, lawyers and administrators.

(3) The creation of new curricula fitted to official environmental subjects, at undergraduate and/or post-graduate level.

The rapidly growing threat to the environment constantly increases the demand for specialists in environmental protection and management.

In recent years, the number of specializations has increased cosiderably. Universities offer such specialization lines as: water resources, water quality management, environmental chemistry and biology, industrial hygiene, air pollution, environmental protection, environmental management, environmental engineering, radiological impacts, etc.

(4) The training of environmental integrators.

The more innovative programs may offer possibilities for developing a new type of environmental profession at the graduate level, to participate in the elaboration of decisions concerning environmental planning in the broadest sense.

Particular attention is to be paid to the training of environmental integrators or managers who may become the leaders of multi- or interdisciplinary teams involved in integrated environmental studies and broad planning projects, and having to contribute to decision-making process.

The global content must deal with the analysis, planning, development and management of natural and man-made environments; the students must become familar with the objectives, principles and methods of global environmental planning processes.

Continuing Education for Professionals

Besides these training programs leading to a diploma or a degree, there is need to promote courses for in-service professionals. It is indeed recognized that the education of the individual is never fully achieved. Education must therefore be conceived as an on-going and lifelong process that is fully provided for only by diversified and appropriate means throughout life.

A last aspect related to environmental professional training deals with the role of professional bodies and learned societies. Education and training through professional organizations may have a catalytic effect and stimulate collective thinking between the members.

It seems important to explore the ways for such action on a large scale, to improve environmental understanding and awareness among the members of professional bodies, and to take actions, to stimulate the implementation of environmental subjects in the curricula at the university level.

JOBS, ECONOMIC JUSTICE AND THE ENVIRONMENT

John Yolton
United Auto Workers
Detroit, Michigan

The subject listed for my remarks is very important - because job-loss-fear is directly responsible, to some intangible degree, for the lack of progress achieved on improving environmental quality in the last two and a half years. I'm also personally convinced from my presentations at campuses and discussions with environmental educators and their students, as well as with environmental activists, that they lack understanding of the serious ramifications resulting from the job-loss-fear problem. Therefore, they are totally frustrated when confronted by it--don't know how to handle it--let alone overcome the problem. I sincerely believe environmental education at every level should provide exposure and create understanding by students of this real problem before they get out into the real world.

Most union leaders feel both compassion and responsibility toward their own members. Union leadership realizes that many millions of their members have dependents, are without degrees or professions and are in debt. There aren't enough new jobs coming into being so workers of any age need to keep their present jobs. It's next to impossible for workers over 40 to land a new job. Consequently, union leaders aren't going to intentionally allow anything to happen that even threatens to eliminate their members' jobs and the accompanying loss of pension rights and health security protection.

Because of the very heavy unemployment, unions generally have adopted legislative priorities in the last two and a half years such as raising unemployment compensation benefits and trying to get laws passed that would create jobs. This unemployment has also tended to make some unions at least inactive, if not in outright opposition to certain energy conservation/environmental issues that they feel could possibly threaten energy-economic growth/employment.

This "job-loss-fear" is the basis for the conflict that puts some labor and community organizations on one side and energy conservationists/environmentalists on the other side.

These environmental issues create job-loss-fear in unions and community organizations. Nuclear plants--now here's a really controversial issue. Construction workers (employed by contractors who build power plants for utility companies whose capital is specifically designed to build nuclear plants) will react against anyone's anti-nuclear master plan that would eliminate their jobs in lieu of a guarantee that their contractor-employer would receive contracts to build something else.

Many workers regard solar energy as just "pie in the sky" until they can actually see the solar technology which is presently available in actual operation. All factory workers know though that energy is needed to run the factories where they are employed and usually react against any attempt to shut down or prevent the opening of a nuclear generating plant that supplies energy for which their immediate job is dependent because that's when workers need to work-in the immediate.

The unfortunate tendency on the part of some environmentalists in the anti-nuclear movement to ignore job-loss-fear of workers has been highlighted and exploited by pro-nuclear advocates' propaganda which has attempted to show environmentalists as modern-day Don Quixotes, who instead of tilting at windmills, now want to build them along with solar energy.

The UAW rejects this point of view in deed as well as in word. In fact, we've built our own windmill. Last fall, we started installing solar heating and wind-powered electrical generating equipment at the Walter and May Reuther Family Education Center at Black Lake, Michigan to demonstrate alternative sources of energy.

Many autoworkers respond similarly to environmentalists advocating further restrictions against "polluting, American-made automobiles" that directly (or indirectly through adding cost to the price of the cars or jeopardize achieving improved fuel-milage efficiency) could reduce sales and cause further job loss. This will always occur unless the environmental advocates simultaneously advance meaningful programs for short run job transfer of the workers to be affected, into production of other products such as mass transportation vehicles and equipment (without loss of wages and benefits to the workers).

Another environmental issue causing deep emotion among our three groups is the drive to ban throwaway bottles and cans through deposits, etc.

Long-range studies showing how more jobs will be created through a returnable bottles system don't mean much to a worker employed in a factory in any given state that only produces throwaway cans for pop and beer companies in their own state. They can see that more jobs might be created in some glass company somewhere that makes returnable bottles (if throwaways are banned), but they are naturally afraid their own jobs will be gone.

It's very helpful to us to be furnished with favorable statistics reflecting that only "X" thousands of jobs have been lost in the past due directly to pollution control requirements while many, many more were created during these same years. However, our effective use of such statistics is somewhat limited because people are also concerned about the number of jobs that have been lost or will be lost indirectly because of reduced sales of products which had their prices raised by their manufacturers who then blame such action, whether justified or not, on the cost of complying with pollution abatement restrictions. (We are also well aware that many industrialists spent many millions of dollars since the late sixties through procrastination efforts to avoid being forced to abate their pollution.)

Many people also regard job statistics from the past as being intangible and not too reassuring because they are constantly worried about job loss in the present and future.

Is it any wonder, given the continuing state of the economy, that these environmental proposals in 1974, 1975 and this year were seen as threatening to workers' jobs/income, and therefore were in jeopardy from their inception? I doubt that many people who are sophisticated about the political-legislative process in this country will seriously disagree with my following comment.

Most of the elected officals from both parties who in the previous years had been supportive of environmental legislation now have been more concerned with the country's employment and the economy in the last two years than with environment. Part of this concern is due at least to the fact that many of them are also sympathetic to the unemployment fears of members of organized labor and monority group organizations.

There are programs that, if fully implemented, could help accomplish goals of full employment, energy conservation, and environmental health (and I believe the goals are inseparable):

1) Mass production of solar energy equipment, and

2) Manufacturing and installation of mass transit-public transportation vehicles.

Millions of jobs could be created through implementation of just these two programs and each would also improve our environment and conserve energy. There are a number of other such programs.

We need to fully understand, too, the socio-political factors that cause the conflicts confronting us. There is an overall need for a national policy in this country of democratic economic planning. Because the current estrangement between labor-urban groups on the one hand and environmentalists on the other is both counter-productive and unnecessary, UAW brought together national leaders and grass-roots activists to develop specific ways for unions, environmental groups and other community organizations to start working together for environmental quality, jobs and justice. (National Conference held week of May 2-6, 1976.) Let's continue that process at this meeting.

ENVIRONMENTAL EDUCATION: A MAJOR ADVANCE*

William B. Stapp
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Some 100 educational specialists from sixty-four countries gathered in Belgrade last October for a ten-day examination of the aims of world-wide environmental education and the best ways of promoting it. The Belgrade Workshop was the culmination of the first phase of a $4 million project, co-sponsored by Unesco and the United Nations Environment Programme (UNEP), aimed at developing an over-all framework and direction for a co-operative international program to further environmental education.

In recent years it has become increasingly evident that there can be no hope of finding viable solutions to environmental problems unless and until general education at all levels is suitably modified to enable people from all walks of life to comprehend, from childhood, the fundamental interactions and interrelationships between man and his environment.

At the 1972 United Nations Conference on the Human Environment, in Stockholm, this concern for generalized environmental education was clearly formulated. Recommendation 96 of this conference called for the establishment of "an international program in environmental education, interdisciplinary in approach, in-school and out-of-school, encompassing all levels of education and directed toward the general public, in particular the ordinary citizen living in rural and urban areas, youth and adult alike, with a view to educating him as to the simple steps he might take within his means, to manage and control his environment." Unesco was entrusted with the task of stimulating action on an international scale.

As the work of preparing means of implementing this task went ahead, the emphasis was placed on the interdisciplinary nature of environmental education - which meant that it should become a part of every subject taught.

The Unesco/UNEP Environmental Education program is designed to:

- Facilitate the coordination, joint planning and pre-programming of activities essential to the development of an international program in environmental education.
- Promote the international exchange of ideas and information pertaining to environmental education.

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*This material covers the major points made by Professor Stapp and is based on an article which appeared in Nature and Resources, Vol. XII, No. 1, January-March, 1976.

- Coordinate research to understand better the various phenomena involved in teaching and learning.

- Formulate and assess new methods, materials and programs (both in-school and out-of-school, youth and adult) in environmental education.

- Train and retrain personnel adequately to staff environmental education programs.

- Provide advisory services to Member States relating to environmental education.

During the first half of 1975, a questionnaire on environmental education needs and priorities was sent to education ministers and other authorities of all Unesco Member States. In addition, twelve environmental education experts undertook exploratory and explanatory missions to eighty-one Member States in the developing world. On the basis of the replies to the questionnaire and the experts' reports, fairly comprehensive initial assesment of needs and priorities was drawn up.

Discussion at the Belgrade Workshop centered on this assessment and on the fourteen state-of-the-art papers on different aspects of environmental education specially prepared for the Workshop by leading international specialists. Participants amended and refined these papers, formulated guidelines and made recommendations for the promotion of world-wide environmental education. Calling for a new global ethic, participants defined the goal of environmental education as being: "to develop a world population that is aware of, and concerned about, the environment and its associated problems and which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively toward solutions to current problems and the prevention of new ones."

They saw the general public as the main target of environmental education, a target which should be reached through two main approaches. First was the formal education sector, including pre-school, primary, secondary and higher-level students, as well as teachers and environmental professionals in training; and, second, the non-formal education sector, including youth and adults, individually or collectively, from all sectors of the population, the family, workers, mamagers and decision-makers.

They went on to spell out eight major guiding principles for environmental education which, they declared, should:

- Consider the environment in its totality - natural and man-made, ecological, political, economic, technological, social, legislative, cultural and aesthetic.
- Be a continuous lifelong process, both in-school and out-of-school.
- Be interdisciplinary in its approach.
- Emphasize active participation in preventing and solving environmental problems.

- Examine major environmental issues from a world point of view, with due regard to regional differences.
- Focus on current and future environmental situations.
- Examine development and growth from an environmental perspective.
- Promote the value and necessity of local, national and international coopération in the solution of environmental problems.

As a follow-up to the Workshop, Unesco and UNEP are giving their support to a series of innovative pilot projects throughout the world to be selected in accordance with the guidelines and recommendations drawn up at Belgrade.

In addition, regional seminars are being held during 1976 and early 1977 which will bring together representatives from all over each region to discuss regional environmental activities and pilot projects and to revise the recommendations of the Belgrade Workshop and adapt them to regional needs.

Following on from this period of regional action and consultation, a highlight of the third phase of the project will be a World Conference on Environmental Education, to be held in the U.S.S.R. in October, 1977. The Conference will attempt to arrive at policy recommendations which will enable individual governments to adopt national policies furthering environmental education.

The post-conference effort will be concentrated on implementation of recommended policies, continuing support of experimental programs and the design of new pilot projects involving innovative methods, materials and activities, and a continuing process of research and evaluation.

To encourage the exchange of information, ideas and experience, Unesco is also planning to establish an international network of communication. One of the main instruments in the creation of this network of exchange is the new quarterly newsletter *Connect*, the first issue of which appeared in January of 1976.

It would be difficult to over-estimate the importance of the kind of environmental education that the Unesco/UNEP program seeks to promote. The problem-oriented approach to environmental and natural resources research has brought the scientific research worker and the decision-maker closer together. The researcher recognizes the need to provide unambiguous scientific findings on which the decision-maker can base his actions. The decision-maker has become aware of the complex processes which his actions inevitably entail.

But, in final analysis, the last word remains with the general public upon whose will both scientists and decision-makers depend. Unless people become more fully aware of the world around them, more sensitive to their total environment, the will to achieve essential environmental goals will still be lacking. To inculcate awareness and understanding of the problems of the environment is not enough; it is not enough to affect the individual in his beliefs, attitudes and values unless there is a carry-over into his behavior, into the everyday decisions that he makes.

THE CHALLENGE OF OUR FUTURE

Noel J. Brown
Director, New York Liaison Office, UNEP

Thank you, Mr. Chairman: Distinguished Colleagues, Ladies and Gentlemen -

The Executive Director has asked me to convey to you the greetings of the United Nations Environmental Programme and its best wishes for a successful conference. As you know, he attaches considerable significance to this joint UNEP/UNESCO activity and is greatly gratified by the response this subject has evoked from the various publics in the different regions and their interest and willingness to assist in shaping the kind of education programme which the world is entitled to expect. In this regard your ideas are most welcome and your initiative and support are warmly commended.

Ladies and Gentlemen, if we appear enthusiastic about your programme this week, it is because we are fully aware of the magnitude of the challenge this project presents. There can be no doubt that environment poses an intellectual challenge, even more profound than the political and technical issues with which humanity is grappling. After all, what we are talking about is man's changing situation on his planet -- a change compared to what Margaret Mead called at Stockholm "a Copernican Dream"...."a revolution in thought, fully comparable to the Copernican Revolution" four centuries ago by which men were compelled to revise their whole sense of the earth's place on the Cosmos.

Today, likewise, WE ARE COMPELLED TO RECOGNIZE a greater change in our concept of man's place in the biosphere. Compounding this intellectual challenge is the fact that this is indeed an acutely transitional era. An era in which we find the world suspended between a declining industrial order and an emerging technetronic one where electronic technology is likely to be the prime determinant of our psychological and social orientations.

It is an era moreover, in which, according to Brezinski "reality seems more fluid than solid, and where man is buffetted on every side by gigantic changes" -- the pace and dimensions of which have not only impaired the human faculty of observation and comprehension, but has created a sense of drift and disorientation and the corresponding derangement of almost all of man's fundamental relationships (to place, to work, to others, to self, and to nature.) The resulting condition is what Toffler has called "Future Shock". A crisis to consciousness wherein we have become painfully aware of the facts that many imported models of reality from the human past are inadequate, irrelevant, or even destructive when applied to the present situation. Moreover, traditional ideologies no longer seem able to provide appropriate belief systems or the social cohesion necessary to guide us through this turbulent transition. Futurology has its limits since even the future can never be fully comprehended in the present and utopia, as nostalgia, can only be a short-lived phenomenon -- a temporary respite for psychic fatigue.

Despite these dilemmas, the challenge of our future must remain a central concern and must elicit the same intellectual regard that our more important interests have traditionally had. At the United Nations, we are encouraged by the fact that the world community has finally begun a serious global enquiry into the possibilities of the human future and the changing requirements for global viability. And we would like to think that your own efforts are supportive of this process.

This enquiry, as you will recall, began at Stockholm and continued at Bucharest, Rome, Mexico, Geneva and Vancouver. And in each instance, the world confronted yet another of the critical imperatives of human survival. Stockholm, as you know, placed environment on the global agenda, and in doing so brought into focus the very grim reality that wheras man remains the highest expression of life on this planet, on his march through history he had significantly modified many elements of the biosphere vital to the maintenance of life. And here, the evidence is overwhelming as a result of combined and continuous growth IN NUMBERS, LAND OCCUPANCY, PRODUCTION, CONSUMPTION, WASTE, WEALTH, SPEED, MOBILITY, LEARNING, etc. He has subverted many delicate balances in the biosphere and undermined his own life support systems. In this same process, he has created a world so new and so intrinsically different from any previously known, that the reasoning principles that guided him in the past seem woefully inadequate to deal with present realities. His own efforts have propelled him towards a critical turning point.

In order to survive now, man must re-invent the modalities of his adaption and come to terms with his own existence. And herein lies another dilemma. The world of his making is so complex with so many interacting factors that the mind can no longer see its way through the maze to discern the ultimate effects of decisions and actions taken today. Hence, the use of computers, simulators, scenarios, and metaphors. In all such efforts the earth is compared to a space ship -- "Space-ship EARTH has become the operational symbol of the age of Environment." If this analogy is correct, however, then the space-ship is deficient in at least two significant respects: ONE, the lack of an accurate guidance system, and TWO, the lack of an efficient early warning system. And here, there can be no doubt that the role of education becomes a crucial variable and a key to efficient remedy.

But Stockholm did not only diagnose a problem. It also dramatized the fact that the environment cannot be thought, even in an age of student sovereignty, environment cannot be nationalized -- and with the solution of critical environmental problems -- cannot be simply a national perogative or left to the vagaries of national politics. More importantly, however, Stockholm was to design a framework for global action and fashioned the basic elements of the mechanism for the management of critical environmental issues. In this regard, it is significant that ample provision was made for education and training. This Workshop stands as a living proof that that programme is indeed being implemented and that environmental education is moving from slogan to programme.

In the four years since Stockholm, no miracles have been wrought but there have emerged a number of developments which bring more clearly into focus the dilemmas, as well as the positive possibilities now opened to us:

(A) For one thing, more than 80 Governments have established Environmental Ministries, or units of Governments to deal with environmental problems at the national level; Environmental legislation is being adopted with more frequency and environmental impact statements are becoming increasingly a significant component of the development landscape. Over all, environmental interests and concerns are being institutionalized at the national level as increasingly large shares and national budgets devoted to quality of life issues will attest.

(B) At the global level, the management mechanism, envisaged at Stockholm, for coordination of various activities within the United Nations system is falling into place. Joint programming is increasingly being accepted as a tool of coordination and a way of more efficiently using the world's resources. In this regard, we are pleased to report that the Environment Coordination Board has now established itself as an efficient programming tool and an adequate instrument for the management of the programme in process.

(C) The programme has also progressed. It has moved from merely identifying and defining critical issues to significant agreement on formulae of priorities to the more practical task of generating impetus for solution.

Operational guidelines have now been established which will ensure that our own efforts will remain humane in outlook, scientifically supportable, and compatible with the principles of the New International Economic Order. These guidelines, no doubt, should be of particular relevance in any programme of environmental education:

(i) That the starting point of our efforts must be to meet basic human needs;

(ii) That the purpose of development should be to satisfy those needs with the least adverse impact on resources and the environment at large, and without reducing the regenerative capacity of natural renewable resources as a result of sustained and regular production;

(iii) That the process of development itself can and should improve the environment from the viewpoint of man's needs. Deleterious effects often result when development activities are haphazard and unmanaged and do not take account of ecological constraints;

(iv) That UNEP should identify the outer limits to the disturbance of the biosphere so that the processes of development do not transgress them;

(v) That, through Earthwatch, UNEP must monitor the impact of the of the development processes in order to determine and predict important short-term and long-term environmental trends and cause and effect relationships, thus helping policy-makers to ensure that we do not go beyond the carrying capacity of our environment;

That UNEP should, in co-operation with other members of the United Nations system, promote alternative patterns of development and alternative life styles, in both rich and poor countries, so as to demonstrate that development objectives can be attained by managing the environment this side of the "outer limits."

We believe moreover, that the viability and soundness of these principles will undoubtedly be tested in any programme of education.

While the full effects are yet to be felt in any generalized way, we are greatly encouraged by the progress so far made in all our priority areas. These priority areas and some related items are:

1. HUMAN SETTLEMENTS:
   - Challenge of the man-made environment and the dilemmas of the urban revolution.

2. HUMAN AND ENVIRONMENTAL HEALTH:
   - Health, now a recognized index of environment quality
   - Challenge of chemical revolution -- 1,000 new man-made chemicals per year
   - Synthesized substances unknown to nature
   - Ozone and aerosols
   - Register of potentially toxic chemicals
   - Development of environmental health
   - Criteria for living organisms and for eco-systems

3. ECO-SYSTEMS:
   - Soil loss rates
   - Arid lands, desertification, distribution of forest resources
   - Water
   - Conservation of wildlife and genetic resources

4. OCEANS:
   - To safeguarding life support systems of the oceans
   - Developing constitution for the ocean
   - 80% of ocean pollution land-based.
   - The Mediterranean model of progress - (semi-enclosed sea bordered by 150 towns and cities with a total population of 100 million, expected to grow dramatically by the year 2000. The 18 countries involved include developed and developing - Europe, Africa, West Asia; belligerents - Arabs and Israelis - Greece, Turkey, and Cyprus. The meeting encouraged the parties to recognize that this is in fact not merely a geo-politically or strategically important region, but an ECO-region. Agreement was reached on the formulation of a framework convention establishing the legal basis for cooperation with protocols prohibiting the dumping of certain wastes in the Mediterranean as well as emergency measures in the case of accidents.)

5. ENVIRONMENT AND DEVELOPMENT:
   - Development and environment are not incompatible
   - Costing environmental factor in planning stages
   - Need for criteria

- Cooperation with industry --coal and steel, pulp and paper, pharmaceutical and chemical, automotive, minerals processing, petroleum, agri-business and recreation and leisure.

6. NATURAL DISASTERS:
   - To prevent or mitigate disastrous consequences resulting from the occurrence of various natural phenomena
   - Low frequency, high amplitude disaster

7. ENERGY:
   - Key to progress
   - Twilight of the fossil fuel era, the firewood crisis and rural energy centers

8. EARTHWATCH AND THE CREATION OF A GLOBAL DATA BASE:
   - GEMS (Global Environmental Monitoring System)
   - IRPTC - Early warning systems
   - Education and the creation of a global value base
   - Standard Setting: Stockholm Declaration - First time man assured responsibility for protection of nature--cultural and moral biases now being redressed
   - Man's morality to the human order--no ethical responsibility for non-human, except so far as it serves some manifest human purpose. Now a moral code for nature.
   - Conventions--illustrative and judicial activity
   - Ocean dumping, trade in endangered species, natural and cultural heritage
   - Nature--a comparable juridicial status to other legal fiction
   - Fashioning relevant skills for the management of the world's first truly technological civilization
   - Developing fundamentally new approaches to societal decision-making
   - The long-term considerations must be premise of all decisions and standard operating procedure
   - Necessity for consideration of longer time-horizon than the customary five years
   - Better methods of evaluating full consequences of decisions which affect both physical and social environments before such decisions are made
   - Development of techniques and capacities for the management of whole systems of cause and effect relationships occurring in multitude of individual spheres which combine to affect human development and well being.

What is required here is whole new patterns of learning and mode of thinking; a new intellectual style that might be called "cognitive interdependence." The educational system will have to modify its industrial, sectoral, and specialized patterns of thinking if it is to equip us to think consequentially and holistically.

Thank you.

TALKING EE BLUES

Some folks say it's the Snowmass wheel,
Others explore, and get a feel,
For task force style of concerned meanderings-
Or peerless point and futures filanderings.

Process/Content web in stymy,
My values just don't seem paradigmy.
Report outs feed back. And forward.
(Gosh, I can't define one more word!)

And yes, we founder in the lurch,
Cause we've still not done the right research,
For folks, aparently, don't clean the air,
Even though they're literate AND aware.

Forceful contact with the media,
Should enliven newsroom tedia,
But how to foster that psyche within,
To drive 55, or bury the tin?

And even with intentions noble,
Perspective still is not quite global.
So instead we scratch our collective dome,
And ponder EE back at home.

Spaceship/Lifeboat/Ethic morality,
Sputters in context of personal reality,
Whether dimly perceived or abundantly clear,
It comes full circle, that job-loss-fear.

Yet still there is the Belgrade Charter,
Which'll last far longer than Ford and Carter;
Perhaps we didn't break new ground,
But the search is fun and (for sure!) profound!

Submitted to the Conference Secretariat
by
Jean Milmine
Savannah Science Museum
Savannah, Georgia

THE DELPHI PROCESS

Many conferences are designed as an information-transfer mechanism to bring participants up to date on the latest developments in areas which fall within the theme of the conference. Active participation by persons in attendance is often at a minimum. To avoid that shortcoming, those involved in the early design of the 1976 North American Regional Seminar on Environmental Education determined that the inclusion of a Delphi process prior to the Seminar would help to guarantee a high level of participation at the St. Louis Seminar itself. When combined with a conference involving several hundred participants, the Delphi process serves as a facilitative aid to help the participants identify themselves with the issues and problems to be addressed at the conference prior to their attendance. By the time they arrive at the conference site, they have contributed their ideas in open-ended survey instruments and have assigned priorities to problems and recommendations already identified.

Developed by Olaf Helmer at the RAND Corporation, the Delphi process seeks to achieve meaningful, refined, and measurable judgments on critical issues among experts in the social sciences, where predictions of current conditions and future developments are far more difficult than in industrial, space, or military technologies. Typically, the Delphi process involves two phases. The first phase is intended to elicit from experts identifiable issues as well as specific problems which are components of a larger problematique. Once the issues and problems have been identified, questions are then asked of the experts in a number of rounds; the questions force a rank-ordering of the issues and problems. The responding experts are also asked to suggest policies, programs, activities, or actions by which we might deal with the issues and problems. They are later asked when in the future they expect to see those issues and problems adequately dealt with. After each Delphi round, the results are fed back to each participant expert so that his or her responses can be considered in relation to the responses of other participants. Over the course of numerous rounds, a refinement of judgements takes place ultimately leading to a better understanding of the relationships among the issues and problems being considered, with a resulting convergence of viewpoints tending towards consensus. The Delphi process is thus seen as an effective policy planning tool; it is also seen as a cohesing mechanism to assist participating experts to broaden and refine their perceptions of a particular problematique, so that their participation in the subsequent programs and activities (which have been recommended through the same Delphi process) is likely to be of maximum effectiveness.

There was a measure of difficulty in applying the Delphi process to environmental education within the Unesco/UNEP framework. A number of phase one data had already been collected. At Belgrade in 1975, 120 experts from 65 countries had already identified 30 problem areas and made 102 recommendations to deal with those problems. It was therefore decided that the pre-St. Louis survey instruments to carry out a Delphi process would begin by rewording the 30 problem areas into 30 possible programs or projects; respondents were then asked to rank-order those 30 problem areas on the basis of a range of funding ($0 to $70,000) each respondent would allocate to each problem area, or program/project. Additional space was provided to elicit issues and problems which may not have been identified at Belgrade. A large body of data emerged from the open-ended questions asked in that first Delphi instrument. Those data fell into the following categories: (1) environmental issues; (2) target groups (which should be co-opted into the environmental education movement); (3) innovative approaches to environmental education; (4) research recommendations; and (5) delivery methodologies. The second Delphi instrument prior to the St. Louis Seminar included these five categories under the heading, "New Recommendations."

Since there are numerous definitions of environmental education, there are also numerous definitions of an "expert" in environmental education. Because of this, the Advisory Committee did not presume to suggest "experts" to whom the first Delphi instrument ought to be sent. Rather, it was generally agreed that the distribution would be as broad as possible, both geographically and institutionally. At this point in time in the life of the environmental education movement, one's level of general knowledge and concern is perhaps as important as one's specific knowledge about the environment or about education. The result of that decision was that none of those usually involved in an environmental education program or conference was excluded from the process, and a number of other people were included, many for the first time.

More than 22,000 copies of the first Delphi instrument were distributed throughout the United States and Canada. The Canadian version of the instrument was translated into French; each Canadian recipient thus received a double copy, one in English, one in French.

Replies came from 48 of the 50 states and the District of Columbia in the United States. Replies came from all of the Canadian Provinces except Prince Edward Island and the Yukon Territory. Of the total number of replies to the first Delphi instrument, 412 were received from respondents in the United States and 232 from respondents in Canada. The number of replies represented 2.8 percent of those distributed.

The following sections cover the highlights of the two Delphi rounds. A detailed account of all the data gathered is being published in a separate volume; The 1976 Delphi Report on Environmental Education: A Compendium of Ideas and Priorities derived from the 1976 North American Regional Seminar on Environmental Education at St. Louis, Missouri.

RESULTS OF THE DELPHI SURVEYS

PROPOSED PROGRAM OR PROJECT	RANKINGS Delphi #1	Delphi #2
1. A program to *reinforce support* at all levels of government for Environmental Education (EE) and to provide direction for formal and non-formal EE programs at national and local levels.	18	19
2. A program to *coordinate* national government and non-government agencies involved in the field of EE and to develop and promote national *legislation* for EE programs.	16	18
3. A program to bring together national and regional EF organizations to provide national and regional *leadership* and to develop planning guidelines for developing EE.	21	21
4. A program to initiate *pilot environmental education programs* at the regional (several countries) level.	12	13
5. A program to establish *regional centers for EE* (each serving several countries); each center would collect EE information, initiate EE study groups, programs, and training courses, coordinate the development and diffusion of all aspects of EE at the regional level.	15	14
6. A program for an international *exchange* of EE teachers and students.	26	25
7. A program of international *exchange of information* in different languages on effective teaching methods and materials in EE, involving publication and dissemination of international EE journals and the collection, translation, and dissemination of materials.	20	17
8. A program to *coordinate* EE activities at the international level, involving international meetings, publication of a worldwide EE directory, establishment of an international EE center, and a permanent United Nations EE Bureau.	25	22
9. A research project to determine how environmental awareness develops in the *youngest learner*, and how this development can be enhanced.	11	11
10. A research project to develop inexpensive and locally applicable teaching *methods* and cost-effective educational *technologies* related to EE.	10	9
11. A research project to develop uses of *non-school learning environments* for EE.	17	15
12. A research project to determine the role of information in *decision processes* related to the development of EE.	30	30
13. A program to develop *awareness of EE principles* among the general public, involving organization of meetings, articles, journals, media participation, and active environmental problem-solving programs.	6	3
14. A project to coordinate and promote *interdisciplinary* EE programs, involving the establishment of mixed-discipline teaching and research teams, case studies to demonstrate interdisciplinary approaches to EE, development of interdisciplinary EE courses for general students, promotion of EE goals among classical disciplines of the natural sciences and humanities.	1	1
15. A project to develop and promote EE programs which emphasize *problem-solving* methods.	16	16

Continued, next page

PROPOSED PROGRAM OR PROJECT	RANKINGS Delphi #1	Delphi #2
16. A project to develop and promote EE programs which emphasize the attainment of environmental *attitudes, values, and skills* in the learners.	7	5
17. A project to develop and promote EE programs for *primary* school children.	2	2
18. A project to develop and promote innovative EE programs for *secondary* school students.	4	4
19. A project to develop and promote EE programs for students in *colleges and universities.*	13	12
20. A program to encourage the use of *mass media* for EE purposes, and to train EE mass media specialists.	8	8
21. A project to develop programs and trained personnel for pre-service and in-service *training* of environmental educators.	5	7
22. A project to design a number of diverse teacher training programs which would take *non-formal* educational situations into account, since the majority of the world's EE teachers are not teaching within any formal educational system.	9	10
23. A project to design a *training program for specialists* which would integrate both environmental concepts and techniques into the training.	27	27
24. A program to provide *research* and the *exchange of information* about ongoing teacher training programs in EE.	28	28
25. A program to provide EE *materials* to most countries in the world, and to provide a mechanism for the *exchange of information* about existing EE instructional resources.	24	23
26. A program to develop EE materials which involve the use of the *entire community* as a learning environment in the achievement of EE objectives.	3	6
27. A program to develop *funding mechanisms and information* about the availability of funds for the development of EE in the areas of programs, instructional materials, training courses, fellowships, etc.	22	26
28. A program to design and esteblish *centers of evaluation* of EE programs, either as autonomous operations or within existing educational institutions; the centers would be responsible for coordinating all evaluation activities; research and development of new evaluation methods, and the training of evaluation personnel.	29	29
29. A project to design *evaluation techniques and procedures to be incorporated into all environmental education programs.* Such evaluation techniques and procedures would influence the selection of EE programs, serve as guidelines during their processes directed towards the achievement of their intended objectives, and provide the means for appraising their terminal efficiency and effectiveness.	19	20
30. A program to conduct a *survey* of existing evaluation methodology and techniques; then to *produce* a basic manual of evaluation methodology for EE practitioners; and finally to *disseminate* that information.	23	24

RESULTS OF THE FIRST DELPHI INSTRUMENT

Of the several hundred million dollars "spent" by the respondents on 30 programs and projects derived from the 30 problem areas identified at Belgrade, the following breakdown occurred:

27.06 per cent of the funds was spent on the top 6 programs and projects;

50.53 per cent of the funds was spent on the top 12 programs and projects;

76.47 per cent of the funds was spent on the top 20 programs and projects;

23.52 per cent of the funds was spent on the bottom 10 programs and projects.

The 30 problem areas on which the Delphi instrument was based were grouped by the Unesco/UNEP Workshop on Environmental Education (EE) at Belgrade into nine categories: (1) EE at the international level; (2) EE at the regional or sub-regional levels; (3) EE at national and local levels; (4) EE research; (5) development of EE programs; (6) training of EE personnel; (7) development of EE instructional materials; (8) funding of EE programs; and (9) evaluation of EE programs. Ranking of the 30 problem areas are cited below by category.

EE AT THE INTERNATIONAL LEVEL

Possible programs for EE at the international level were ranked 17th, 22nd, and 25th. In the second Delphi instrument, the three programs dropped to 25th, 27th, and 30th, respectively.

EE AT THE REGIONAL OR SUB-REGIONAL LEVELS

Possible programs for EE at the regional or sub-regional levels were ranked 13th, 14th, and 21st. In the second Delphi instrument, the three programs dropped in rank to 17th, 20th, and 22nd, respectively.

EE AT NATIONAL AND LOCAL LEVELS

Possible programs for EE at national and local levels were ranked 18th and 19th. In the second Delphi instrument, the two programs rose in rank to 11th and 12th, respectively.

EE RESEARCH

Possible programs for EE research were ranked 9th, 11th, 15th, and 30th. The first three dropped in rank in the second Delphi to 13th, 24th, and 18th, respectively. The fourth (30th ranked) rose to 28th.

DEVELOPMENT OF EE PROGRAMS

Possible programs and projects for the development of EE were ranked 1st, 2nd, 3rd, 4th, 5th, 12th, and 16th. In the case of the first-ranked five, those programs and projects retained their rankings, so that further rankings might be established in the second Delphi for the recommendations related to them which came out of Belgrade. In the second Delphi instrument, the 12th ranked program dropped to 19th, while the 16th ranked rose to 9th.

TRAINING OF EE PERSONNEL

Possible programs and projects for the training of EE personnel were ranked 7th, 10th, 27th, and 28th. In the second Delphi instrument, 7th retained that ranking so that additonal recommendations pertaining to the project might be ranked; 10th dropped to 14th, while 27th rose to 16th and 28th rose to 23rd.

DEVELOPMENT OF EE INSTRUCTIONAL MATERIALS

Possible programs for the development of EE instructional materials were ranked 6th, 8th, and 23rd. In the second Delphi instrument, 6th retained that ranking so that additional recommendations pertaining to that program might be ranked; 8th dropped to 10th, and 23rd dropped to 26th.

FUNDING OF EE PROGRAMS

A possible program for the funding of EE programs was ranked 26th. However, it rose dramatically to 8th place in the second Delphi instrument.

EVALUATION OF EE PROGRAMS

Possible programs and projects to evaluate EE programs were ranked 20th, 24th, and 29th. In the second Delphi instrument, 20th rose to 15th, 24th rose to 21, while 29th remained 29th.

As might be expected, none of the nine categories of problem areas identified at Belgrade fell exclusively within the top 50 per cent of the rankings in the first Delphi instrument. Those categories with some problem areas in the top 50 per cent include:

- Development of EE Programs;
- Development of EE Instructional Materials;
- Training of EE Personnel; and
- EE Research.

What may warrant considerable concern to those who view EE from a more global and effective operational perspective is the fact that none of the following categories of EE problem areas was included in the top 50 per cent:

- EE at the International Level;
- EE at Regional or Sub-regional Levels;
- EE at National or Local Levels;
- Funding of EE Programs; and
- Evaluation of EE Programs.

Although the Funding-for-EE-Programs category rose to the top 50 per cent in the second Delphi round, problem areas in the EE Research category all dropped to the bottom 50 per cent. Further, all problem areas in the categories of EE at the International Level and EE at Regional or Sub-regional Levels dropped by an average of 4.83 places in the rankings shown in the second Delphi instrument.

It would appear that the data indicate a wide disparity of viewpoint. A majority of the respondents seem to place the greatest value on developing EE programs, instructional materials, personnel training, and funding mechanisms. Of far less value to them appear to be international and regional efforts to work more cooperatively in EE, as well as the development of meaningful improvements in research and evaluation.

RESULTS OF THE SECOND DELPHI INSTRUMENT

The second Delphi instrument contained the first Delphi rankings of 30 programs and projects which were based on the 30 problem areas identified at the 1975 Belgrade Workshop on Environmental Education. It also contained five categories of new recommendations compiled from the 644 responses to the first Delphi instrument. Additionally, 26 specific Belgrade recommendations for action related to the top-ranked seven programs and projects were included for priority ranking in the second round. Finally, programs and projects based on problem areas identified at Belgrade and ranked 8th through 30th were restated in the original Belgrade language and included for a second round of priority ranking.

Of the 644 second Delphi instruments distributed to first-Delphi respondents, 86 were returned - a response rate of 13.4 per cent. Eighty of the 86 instruments were thoroughly completed; the remaining six were partially completed, from section to section. All second Delphi instruments were analyzed.

New recommendations from the respondents to the first Delphi instrument fell into the following categories: (1) environmental issues; (2) target groups which should be co-opted into the environmental education movement; (3) innovative approaches to environmental education; (4) research recommendations; and (5) delivery methodologies for environmental education.

ENVIRONMENTAL ISSUES

Nine issues with implications for environmental education were suggested in the first Delphi round responses. The nine issues were listed in random order in the second Delphi instrument. Respondents were asked to add comments which might clarify their assessments. Each issue was ranked on the basis of what percentage of the respondents marked a "3" or a "4" next to each. What follows are the nine issues, presented in ranked order with the percentage of 3-4 respondents cited. This is on a scale of 1-4, where 4 is the highest ranking.

1st, with 89.9% responding 3-4: Orderly growth; sound use of land, water, and other renewable resources

2nd, with 83.1% responding 3-4: Energy

3rd, with 80.6% responding 3-4: EE as a total concept, involving both physical and human components

4th, with 76.7% responding 3-4: Values

5th, with 65.3% responding 3-4: Population

6th, with 63.0% responding 3-4: World-wide conservation

7th, with 59.0% responding 3-4: Local concerns

8th, with 46.5% responding 3-4: Futures studies

9th, with 32.9% responding 3-4: Peace studies

TARGET GROUPS WHICH SHOULD BE CO-OPTED INTO THE EE MOVEMENT

Sixteen target groups were suggested in the first Delphi round responses. The 16 target groups were listed in random order in the second Delphi instrument. Respondents were asked to rank each on a 1-10 scale of importance, and then asked to indicate in space provided next to each listing the issues most appropriate for people in each group to know more about and potentially do something about. Each target group was ranked on the basis of what percentage of the respondents marked a 6, 7, 8, 9, or 10 next to each. What follows are the 16 target groups, presented in ranked order with the percentage of 6-10 respondents cited.

1st, with 92.2% responding 6-10: Elected officials (national, state, local)

2nd, with 90.0% responding 6-10: Teachers and trainers of teachers

3rd, with 87.3% responding 6-10: Government officials

4th, with 83.8% responding 6-10: Business leaders

5th, with 82.3% responding 6-10: Public school board members and school administrators

6th, with 77.5% responding 6-10: Leaders in agriculture and food processing

7th, with 73.3% responding 6-10: Multinational corporation leaders

8th, with 67.5% responding 6-10: Television producers

9th, with 67.1% responding 6-10: Publishers of educational materials

10th, with 67.1% responding 6-10: International agencies and organizations

11th, with 62.0% responding 6-10: Children in early childhood and parents of pre-schoolers

12th, with 58.4% responding 6-10: Existing field personnel (extension work, conservation districts, parks, etc.)

13th, with 54.5% responding 6-10: Union leaders

14th, with 50.0% responding 6-10: International banking interests

15th, with 50.0% responding 6-10: Leaders in medicine and health services

16th, with 39.5% responding 6-10: Workers, especially foremen

INNOVATIVE APPROACHES TO EE

Seven ideas for innovative approaches to environmental education were included in the first Delphi responses. The seven approaches are listed below in ranked order. Ranking was established by averaging the percentage of respondents who marked 3-4 for desirability with the percentage of respondents who marked 3-4 for practicality/feasibility.

1st - Involve resource-oriented professional societies and industrial organizations in EE planning and programs.

2nd - Stimulate programs to identify and promote environmentally appropriate technology.

3rd - Assess the question of whether an EE approach can improve the quality of the educational system.

4th - Develop rational and culturally defensible goals.

5th - Make EE a meeting ground for all interest groups and beliefs, ranging from strict preservationists to unlimited growth advocates.

6th - Develop cooperative programs with industry to counteract polarization.

7th - Do a cost-benefit study on education as an alternative to standard-setting and enforcement.

RESEARCH RECOMMENDATIONS

Five ideas for research were included in the first Delphi responses. The five research ideas are listed below in ranked order. Ranking was established by averaging the percentage of respondents who marked 3-4 for desirability with the percentage of respondents who marked 3-4 for practicality/feasibility.

1st - Study the effects of preserving natural resources on the national economy.

2nd - Plot the cost of pollution control measures (cost to industry, agriculture, etc.) vs. the cost of clean-up at the other end; include the ultimate cost of doing nothing.

3rd - Study the relationship between EE and the public interest movement.

4th - Research on values clarification and attitude formation.

5th - Study the relationship between EE and the struggle for social justice.

DELIVERY METHODOLOGIES

Nine ideas for EE delivery were included in the first Delphi responses. The nine ideas are listed below in the ranked order assigned them in the second Delphi instrument. Ranking was established by averaging the percentage of respondents who marked 3-4 for desirability with the percentage of respondents who marked 3-4 for practicality/feasibility.

1st - Make better use of existing EE programs and materials.

2nd - Develop integrated approaches which involve schools, mass media, and community organizations.

3rd - Bring resource managers and teachers together so that EE is based on a solid foundation of resource management principles.

4th - Develop programs to maintain public awareness.

5th - Make better use of other educational vehicles - museums, zoos, etc.

6th - Carry out a massive media campaign.

7th - Print and disseminate copies of rules and regulations of state departments of education which have incorporated EE curricula.

8th - Require a conservation course in high schools.

9th - Print a directory of national-level programs and staffs.

EE SURVEY DATA ON THE EUROPEAN REGION

One aspect of the Unesco/UNEP EE program is the inclusion of surveys undertaken by the Unesco Environmental Education Section to provide baseline data for regional meetings. One such study, "Environmental Education Needs and Priorities: A Preliminary Survey of the European Region", was prepared as a working document for the January 1977 Regional Meeting that was held in Helsinki. The content of that study goes well beyond the scope of this report. However, since North America is part of the European Region within the Unesco framework, it is appropriate to touch briefly on the study and include some pertinent highlights from that document. Readers who wish to examine the full report should contact the Unesco Environmental Education Section in Paris.* The following sections are excerpted from the report:

> The objective of this study is to provide information and suggestions which will help in the planning of EE activities at the following two levels:
>
> The Regional Level
> a) by providing a description of the principal trends of actual EE activities;
> b) by identifying the most urgent needs for the development of EE in the European region.
>
> The National Level
> a) by determining the degree of stated EE needs and priorities within different educational sectors;
> b) by identifying the principal problems linked to the development of EE programmes in priority educational sectors (i.e. primary, secondary, tertiary, etc.) (Page 1)

> North America's needs in EE are clearly below the global average. According to the responses received to the questionnaire, this region has no need at all for legislation in EE. The needs for organizations, educational facilities, and instructional materials are consistently below average (3.0). On the other hand, the needs for personnel and programmes are above average with the exception of out-of-school youth programmes. The need for funds are essentially equal to or above 4.0 on the scale with the exception of funding for programmes for out-of-school youth and for the pre-school sector. The highest felt need in the North American sub-region is for the development of adult education (5.0) which, in the light of the growing awareness about environmental problems in this sub-region, is clearly understandable. (Page 7)

The chart on the following page is abstracted from the Unesco report and indicates, in summary, the principal needs in environmental education for Canada and the United States based on data supplied from the two countries.

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CANADA

Resources (EE) / Educ. Sector 1 / 2	Legis	Funds	Inst.Aids	Phys.Fac	Personnel	Organiz	Prog
Pre-School	...	...	22,0	16,7	42,5	...	40,0
Primary	...	...	23,3	16,7	42,5	...	40,0
Secondary	...	...	23,3	16,7	42,5	...	40,0
Tertiary	...	...	23,3	16,7	40,0	...	...
Youth	...	...	24,3	16,7	40,0	...	...
Adults	...	...	24,3	16,7	43,3	...	...
Global System	...	...	26,7	16,7	38,8	...	40,0

UNITED STATES

Resources (EE) / Educ. Sector 1 / 2	Legis	Funds	Inst.Aids	Phys.Fac	Personnel	Organiz	Prog
Pre-School	...	33,3	20,0	24,0	40,0	20,0	30,0
Primary	...	40,0	23,3	24,0	45,0	20,0	45,0
Secondary	...	42,0	25,0	24,0	45,0	20,0	50,0
Tertiary	...	40,0	23,3	24,0	45,0	20,0	40,0
Youth	...	33,3	21,4	24,0	40,0	18,0	30,0
Adults	...	36,7	21,4	24,0	43,3	20,0	50,0
Global System	...	39,0	27,5	24,0	42,5	18,0	37,0

10	20	30	40	50
Very Low	Low	Moderate	High	Very High

1: Environmental Education (EE) Resources
2: Educational Sectors
(...): Missing Data

Quoting once again from the Unesco report:

> The source of information for this analysis is essentially the questionnaire on EE which was responded to by most of the countries in the region. The information obtained in this manner is reliable, but necessarily partial, and therefore calls for the following remarks:
>
> - Country profiles should be viewed as useful sources of reference to orient discussions on the conceptualization of national strategies in environmental education.
>
> - The profiles do not represent the final options of each country concerned nor can they be considered as being the official statement of each country on needs and priorities in environmental education. (Page 15)

These references to the Unesco study identify one more resource for examining environmental education needs and action. Survey data are, of course, subject to various interpretations and should be reviewed in the context of the methodology used in gathering data, a "profile" of the respondents and an examination of the way that the questions were worded. This sampling is offered merely to supply those interested with suggestions for further study and analysis--simply food for thought and action.

APPENDICES

Connect

Connect

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UNESCO-UNEP ENVIRONMENTAL EDUCATION NEWSLETTER

Vol. I, No. 1. January 1976

There is no force greater than that of an idea whose time has come.
—Victor Hugo.

An historic moment produced an historic document. Adopted unanimously at the close of the 10-day International Environmental Education Workshop at Belgrade, 13-22 October 1975, subject to the evolution of inevitable change and improvement, the Belgrade Charter has laid down the principles and established the guidelines for the world-wide environmental education of a generation which spans the earth.

No statement could be more fitting for the first number of *Connect*, the new medium for the international exchange of information on environmental education.

The Belgrade Charter

A Global Framework for Environmental Education

A. Environmental Situation

Our generation has witnessed unprecedented economic growth and technological progress which, while bringing benefits to many people, have also caused severe social and environmental consequences. Inequality between the poor and the rich among nations and within nations is growing and there is evidence of increasing deterioration of the physical environment in some forms on a world-wide scale. This condition, although primarily caused by a relatively small number of nations, affects all of humanity.

The recent United Nations Declaration for a New International Economic Order calls for a new concept of development—one which takes into account the satisfaction of the needs and wants of every citizen of the earth, of the pluralism of societies and of the balance and harmony between humanity and the environment. What is being called for is the eradication of the basic causes of poverty, hunger, illiteracy, pollution, exploitation and domination. The previous pattern of dealing with these crucial problems on a fragmentary basis is no longer workable.

It is absolutely vital that the world's citizens insist upon measures that will support the kind of economic growth which will not have harmful repercussions on people; that will not in any way diminish their environment and their living conditions. It is necessary to find ways to ensure that no nation should grow or develop at the expense of another nation and that the consumption of no individual should be increased at the expense of other individuals. The resources of the world should be developed in ways which will benefit all of humanity and provide the potential for raising the quality of life for everyone.

We need nothing short of a new global ethic—an ethic which espouses attitudes and behaviour for individuals and societies which are consonant with humanity's place within the biosphere; which recognizes and sensitively responds to the complex and ever-changing relationships between humanity and nature and between people. Significant changes must occur in all of the world's nations to assure the kind of rational development which will be guided by this new global ideal—changes which will be directed towards an equitable distribution of the world's resources and more fairly satisfy the needs of all peoples. This new kind of development will also require the maximum reduction in harmful effects on the environment, the utilization of waste materials for productive purposes, and the design of technologies which will enable such objectives to be achieved. Above all, it will demand the assurance of perpetual peace through coexistence and cooperation among nations with different social systems. Substantial resources for reallocation to meet human needs can be gained through restricting military budgets and

reducing competition in the manufacture of arms. Disarmament should be the ultimate goal.

These new approaches to the development and improvement of the environment call for a reordering of national and regional priorities. Those policies aimed at maximizing economic output without regard to its consequences on society and on the resources available for improving the quality of life must be questioned. Before this changing of priorities can be achieved, millions of individuals will themselves need to adjust their own priorities and assume a personal and individualized global ethic—and reflect in all of their behaviour a commitment to the improvement of the quality of the environment and of life for the world's people.

The reform of educational processes and systems is central to the building of this new development ethic and world economic order. Governments and policy-makers can order changes, and new development approaches can begin to improve the world's condition—but all of these are no more than short-term solutions, unless the youth of the world receives a new kind of education. This will require new and productive relationships between students and teachers, between schools and communities, and between the education system and society at large.

Recommendation 96 of the Stockholm Conference on the Human Environment called for the development of environmental education as one of the most critical elements of an all-out attack on the world's environmental crisis. This new environmental education must be broad based and strongly related to the basic principles outlined in the United Nations Declaration on the New International Economic Order.

It is within this context that the foundations must be laid for a world-wide environmental education programme that will make it possible to develop new knowledge and skills, values and attitudes, in a drive towards a better quality of environment and, indeed, towards a higher quality of life for present and future generations living within that environment.

B. Environmental Goal

The goal of environmental action is:

To improve all ecological relationships, includmg the relationship of humanity with nature and people with each other.

There are, thus, two preliminary objectives:

1. For each nation, according to its culture, to clarify for itself the meaning of such basic concepts as "quality of life" and "human happiness" in the context of the total environment, with an extension of the clarification and appreciation to other cultures, beyond one's own national boundaries.

2. To identify which actions will ensure the preservation and improvement of humanity's potentials and develop social and individual well-being in harmony with the biophysical and man-made environment.

C. Environmental Education Goal

The goal of environmental education is:

To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

D. Environmental Education Objectives

The objectives of environmental education are:

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

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

3. **Attitudes:** 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.

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

5. **Evaluation ability:** to help individuals and social groups evaluate environmental measures and education programmes in terms of ecological, political, economic, social, esthetic and educational factors.

6. **Participation:** to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems, to ensure appropriate action to solve those problems.

E. Audiences

The principal audience of environmental education is the general public. Within this global frame, the major categories are:

1. **The formal education sector:** including pre-school, primary, secondary and higher education students as well as teachers and environmental professionals in training and retraining;

2. **The non-formal education sector:** including youth and adults, individually or collectively, from all segments of the population, such as the family, workers, managers and decision-makers, in environmental as well as non-environmental fields.

F. Guiding Principles of Environmental Education Programmes

The guiding principles of environmental education are:

1. Environmental education should consider the environment in its totality—natural and man-made, ecological, political, economic, technological, social, legislative, cultural and esthetic.

2. Environmental education should be a continuous life-long process, both in-school and out-of-school.

3. Environmental education should be interdisciplinary in its approach.

4. Environmental education should emphasise active participation in preventing and solving environmental problems.

5. Environmental education should examine major environmental issues from a world point of view, while paying due regard to regional differences.

6. Environmental education should focus on current and future environmental situations.

7. Environmental education should examine all development and growth from an environmental perspective.

8. Environmental education should promote the value and necessity of local, national and international cooperation in the solution of environmental problems.

EDUCATION AT THE INTERFACE: THE CHAUTAUQUA MEETING*

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In August 1976, distinguished educational leaders from the U.S. and Canada gathered at the Chautauqua Institution in New York for the Third Annual Education Week. A major element of the program was a series of afternoon discussion groups in which the following specialists from outside the topic area met with environmental educators to discuss the present and future status of environmental education:

George Arnstein, Advisory Council on Education, Professions Development
Joel Burdin, American Association of Colleges for Teacher Education
Donald Ely, Department of Instructional Technology, Syracuse University
Seymour Fersh, Professor of Education, Fairleigh Dickenson University
Brian Larkin, National Council for the Social Studies
Frederick McDonald, Educational Testing Service
Oscar Remick, President, Chautauqua Institution
Barak Rosenshine, Bureau of Educational Research, University of Illinois
Allen Schmieder, United States Office of Education
Beatrice Willard, President's Council on Environmental Quality
Sam Yarger, Teacher Center Project, Syracuse University

The ideas aired during those dialogues may be valuable to contemplate as we strive towards the dual goal of the St. Louis Seminar: to "fine tune" a program of environmental education action priorities for the North American Region, and to evaluate the recommendations developed in Belgrade, October 1975, in preparation for the 1977 World Conference in the Soviet Union.

As in Belgrade, the discussion at Chautauqua strongly emphasized the need to extend environmental education well beyond the formal education system. Two distinct, if somewhat overlapping, categories of environmental education needs were identified. One was the immediate and vital necessity to assist local decision-makers; community, government, educational and industrial leaders; and the general public in understanding and meeting the responsibilities created by newly adopted environmental protection legislation and other surfacing environmental concerns, such as energy. The second was the longer term goal of bringing about behavioral changes through major changes in the formal education system. For the need was expressed to train future professionals and citizens alike, in ways which will help avoid the kinds of crises of conflicting goals for resource use which surround us today. In both the short and long term programs, environmental education was seen as the vehicle through which we can come to better understand the consequences of man-induced change upon natural systems and the human environment. From this can come a clearer understanding of the implications of the alternative courses of action which we face.

*A pre-conference paper.

As we examine these broad short and long term goals, it becomes apparent that there are different appropriate techniques, and different target groups within them. The short term programs, centered around those areas of environmental concern which require quick action, need to be concise, eclipsed learning experiences prepared for adults--especially those elected officials, lawyers, engineers and economists in key decision-making roles--and for those young people about to enter the voting age. Especially, in the non-formal aspect of such education programs, the media can be a major factor in meeting this need.

The longer term programs must begin by looking critically at the formal education system, evaluating the ways we prepare teachers, the ways we teach younger children, and the ways we develop key professionals. The goal of this part of the process is to plan an "environmentalized education" which, by promoting better understanding of human-natural systems interaction, and of human wants and needs in relation to these interactions, can build towards education for problem prevention, rather than for crisis resolution, at best.

Much of the responsibility for filling this need will fall within the complex purvue of the formal education system. While all of these goals are challenging, establishing environmentalized education within the existing education infrastructure will be particularly so. For environmentalized education will break with much of our traditional education. Based as it is on the sensed need to enable students to function smoothly in the man-made world, traditional education depends largely upon "intellectual tools:" language to communicate; mathematics to deal with time, measurement and finance; and science to cope with the life processes that surround us. For the most part, the objective of this type of education has been to dominate and control both man-made and natural systems.

The goals of environmentalized education would be to stress the relationships and <u>interdependencies</u> between natural and man-made systems and needs; and to encourage the development of values, behaviors, and problem-solving techniques sensitive to these relationships, interdependencies and needs. Traditional education nurtures an intellectual anonymity-a psychological separation between learner and subject. Environmentalized education sees the need to strip that away--to view the learner and the subject matter as integral and active parts of each other, and both as parts of the process under study. It is "education at the interface" between human actions, human reactions and the supportive environment. Here is where the effects--both good and bad--of human activities can be studied; and the policies and decisions which guide those activities, analysed. The learner would come to understand himself as an agent of change and of reaction, affecting and affected by human/natural systems interactions. Thus, environmentalized education is social, political, aesthetic and economic, as well as scientific. And while it does not make value judgements in and of itself, it exposes the range of factors which are interacting in any given situation, so that any decision can be made with fuller anticipation of its consequences upon both natural systems and the human condition.

Chautauqua discussions stressed that whether formal or informal environmental education efforts are being contemplated, the gathering of essential baseline information will improve the chances for success. Educational theoreticians and statisticians emphasized the necessity of clarifying both the learning needs of participants, and the optimal mechanism for reaching key target audiences. This would be accomplished by canvassing key target groups, whether they be teachers, students, or decision-makers, to find out what they DO know; who they listen to; and what sources of information they use in making decisions. Subsequently, carefully planned learning experiences can be structured which will better fill the needs of these important groups.

It was also emphasized that before changes in attitude and behavior are touted, the associated costs and benefits--both of changing and NOT changing behavior--should be more carefully documented. Patterned ways of life which affect the environment can be forced to change through negative reinforcement (tax penalties, fines, etc.); but positive environmental behavior, such as less consumptive, less waste-producing lifestyles--which will be the only truly long-term type of change--can only be brought about if people are convinced of the desirability and/or necessity of doing so. In this connection, environmentalized education was seen as the process which can help direct us toward a qualitatively different future. It encourages assessing past behavior to see whether or not a change is in order. In the words of one Chautauqua participant, "...is the behavior still 'appropriate,' to the time and place and our understanding of environmental relationships."

Finally, five conditions were identified, which generally control whether or not a change in learning takes place:

1. When a need is identified;
2. When the implementors have the skills to fill the needs;
3. When the implementors have the resources to fill the need;
4. When there is enough of a critical mass to make it happen; and
5. When there is a reward for the change.

All too frequently environmentalists have expected immediate and often drastic behavioral changes to take place merely because a problem, such as a polluted body of water or oil shortage has been identified. If we, as those interested in environmental education, can take into account the important related factors discussed at Chautauqua as we develop goals and programs at the North American Regional Seminar on Environmental Education, the chances of successful implementation of the programs, regardless of the target group involved, should improve considerably.

A CONCEPTUALIZATION OF ENVIRONMENTAL EDUCATION*

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The writer recently completed a philosophically oriented doctoral dissertation in the area of environmental education. One of the research questions asked whether a generally accepted substantive structure of environmental education was available in the professional literature. After an extensive review of the literature, involving many hundred items, the writer concluded that there was no single generally accepted substantive structure available for environmental education.

Based on that conclusion, and because of the many references found stating the need for such a delineation, the writer developed a conceptualization of the substantive structure of environmental education. Because of space limitations, the writer will present only a very brief summary of that conceptualization. Further, this will necessarily be done without supporting data. A more complete report, with supporting data, has been submitted for publication elsewhere.

The total conceptualization, which goes beyond the substantive structure of environmental education, has four parts, i.e., the generic substantive structure, the specifics of substantive structure or implementation, a superordinate goal, and a base.

The generic substantive structure of environmental education was the part of the conceptualization which received a major part of the attention during the study. It was determined that three components made up this generic substantive structure, i.e., philosophy, precept, and expected outcomes.

The philosophy base is perceived to be a melding of "Spaceship Earth" and "lifeboat" or the "Spaceship Earth/lifeboat" philosophy. The "Spaceship Earth" component has human beings, the earth, and the relationship between them as major elements. The "lifeboat" frame of reference adds a values context. These two major elements, i.e., the "man-environment relationship" and a values context are the two major themes that run through this entire conceptualization. They lead to the precept or second major component of the substantive structure of environmental education.

The precept of environmental education is conceptualized as the man-environment relationship or MER. Further, the precept (man-environment relationship) is conceptualized as operating in a formally values-laden context. Although the term man-environment relationship, or some version of it, is used extensively in the literature, definitions of it are almost nonexistent. The writer defines the term as follows:

*A pre-conference paper.

Man-environment relationship (MER)--the consideration of, planning for, and implementation of natural resources use by human beings; the resultant products and processes; and implications for impact on the environment reflected in each person's perception of an acceptable quality of life.

There is no intent on the part of the writer to construct a values-laden definition, i.e., this definition subsumes all man-environment relationships from total preservation through outright exploitation.

The precept (man-environment relationship) operationalized in a formal values-laden context results in the development of two criteria for differentiating what is, from what is not, environmental education. For a topic (used in the broadest sense) to be considered part of environmental education, it must meet both of the following criteria:

1. All three components of the precept (man, environment, and relationship) must be present.

2. A human values component representing different positions relative to a man-environment relationship issue must be present.

Expected outcomes, the third major component of the generic substantive structure of environmental education, are generally referred to in the professional literature as "developing an environmentally literate citizenry" or "environmental literacy." From the writer's perspective, the concept of literacy is part of the expected outcome, but it is inadequate to encompass the totality of expected outcomes for environmental education as herein conceptualized. Therefore, the writer offers two additional levels of expected outcome. All three levels are defined below:

Environmentally literate person--one who possesses basic skills, understandings, and feelings for the man-environment relationship.

Environmentally competent person--one who is environmentally literate, and in addition, has the ability to apply, analyze, synthesize, and evaluate knowledge; has the skills necessary for implementation; and has values consistent with the man-environment relationship superordinate goal.

Environmentally dedicated person--one who is environmentally literate and environmentally competent in the affective domain, and in addition, is characterized by a values system in which one acts consistently in a manner compatible with homeostasis between quality of life and quality of environment. The environmentally dedicated person is inferred to be able to operate at the highest levels of the psychomotor and cognitive domain as well as the affective.

These three components then, philosophy, precept, and expected outcomes, constitute the generic substantive structure of environmental education. An outgrowth of this generic substantive structure is the specific substantive structure of implementation of the generic substantive structure. There are two major components making up this

part of the overall conceptualization, i.e., curriculum and instruction, and action implementation strategies. Although some high quality research has been completed in these areas, the terms are used as "placeholders."

Curriculum and instruction is divided into two curricular patterns, i.e., topic and infused. The topic approach deals with environmental education episodically, e.g., lessons, units, and in courses. The infused approach deals with environmental education by infusing or integrating the environmental education into the "regular" curricula, or integrating the "regular" curricula into an environmental curriculum.

The action implementation strategies are the behaviors implementing the generic substantive structure through and beyond the formal or non-formal curriculum. This subsumes those behaviors directed toward the superordinate goal of environmental education. These action strategies range from individual action through international organizations. The strategies are classified under the headings of persuasion, consumerism, legal action, political action, and ecomanagement (Hungerford & Peyton, 1976).

The superordinate goal of environmental education is perceived to be a homeostasis between quality of life and quality of environment. It is the final element of the substantive structure of environmental education which is depicted in the paradigm, shown in Figure 1.

The developments in the conceptualization of the substantive structure of environmental education led the writer to question the viability of the term "environmental education," and concluded that it is a misnomer. The term most often used in the professional literature to describe this area of study is "man-environment relationship;" therefore, it would appear to be a more consistent, more complete descriptor in the form "man-environment relationship" education or "MERE." However, based on current trends in usage, the parallel terminology "people-environment relationship" education, or "PERE" is suggested. The writer will use the "people-environment relationship" education and PERE form in the remainder of the paper and suggests that the definitions provided early are equally accurate and appropriate with "people" substituted for the term "man."

> People-environment relationship education (PERE)--the process of developing an environmentally literate, competent, and dedicated citizenry which actively strives to resolve values conflicts in the people-environment relationship, in a manner which is ecologically and humanistically sound, in order to reach the superordinate goal of a homeostasis between quality of life and quality of environment.

Further, these developments led the writer to perceive that much of the "environmental education" literature is not about the people-environment relationship as defined, but about "environmental foundations" or in more parallel terminology, "people-environment relationship foundations," or "PERF." PERF and three PERF-types are defined as follows:

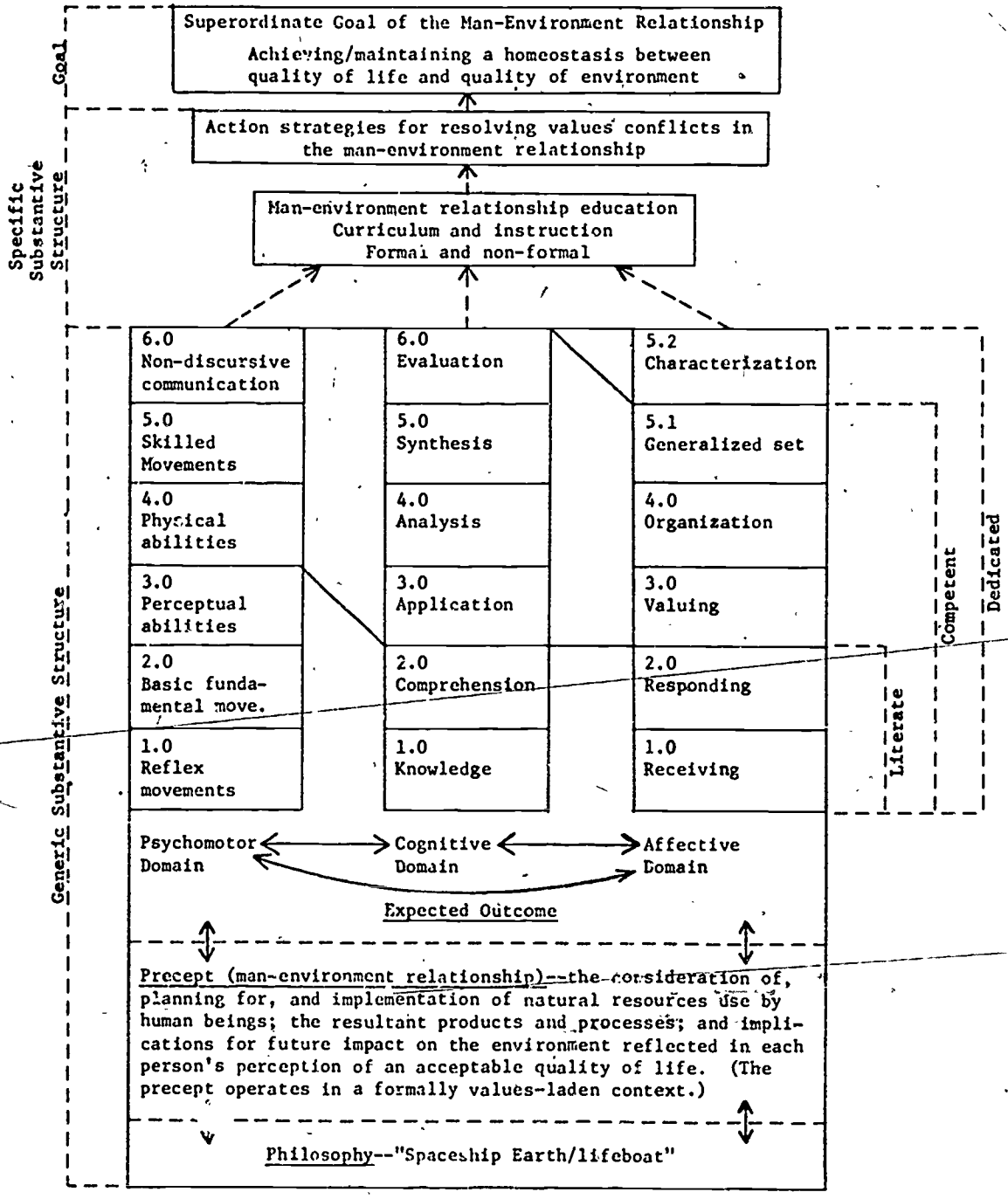

Figure 1. The completed substantive structure of "environmental education."

People-environment relationship foundations (PERF) -- a topic which provides learnings (psychomotor, cognitive, or affective) about the people-environment relationship, in a non-values-laden context, which are prerequisite, or complementary, to PERE.

People-focused foundations are topics which have as a main focus the human being, either individually or collectively.

Environment-focused foundations are topics which have as a main focus the biophysical environment and its systems.

Relationship-focused foundations are topics which have as their main focus the relationship between human beings and the earth, as well as the products/processes resultant from that interaction, but the topic is handled in a non-values-laden context.

Based on this perceived dichotomy between PERE and PERF, the writer operationalized the often used terms "multidisciplinary" and "interdisciplinary" as they relate to this area of study:

Multidisciplinary--components from two or more academic disciplines focused sequentially on a single topic.

Interdisciplinary--components from two or more academic disciplines focused simultaneously on a single topic.

The writer perceives people-environment relationship education (PERE) as interdisciplinary. People-environment relationship foundations (PERF), on the other hand, may be disciplinary, multidisciplinary or interdisciplinary.

The people-environment relationship foundations are the first of two components making up the educational base of the overall conceptualization. The second component is the non-PER curriculum or those topics which do not focus on the people-environment relationship. Together, these two form the educational base for the substantive structure of "environmental education" described earlier.

An even more fundamental base is the physical-psycho-social base, made up of the biophysical environment and its systems and human beings. The environment exists. Human beings exist. The characteristic of the environment and of human beings dictate the rest of the structure, and in effect, the ultimate people-environment relationships.

The paradigm in Figure 2 depicts the relationship between each of the four major parts of the overall conceptualization. Two important points need to be made relative to this conceptualization and its implementation. First, a topic may move from the non-PER curriculum to PERF or PERE depending on how it is handled--that is to say, the manner in which a topic is handled, e.g., with or without a formal values-laden context, is just as important as the content itself. Further, during PERE, appropriate PERF should be infused to make the PERE more meaningful.

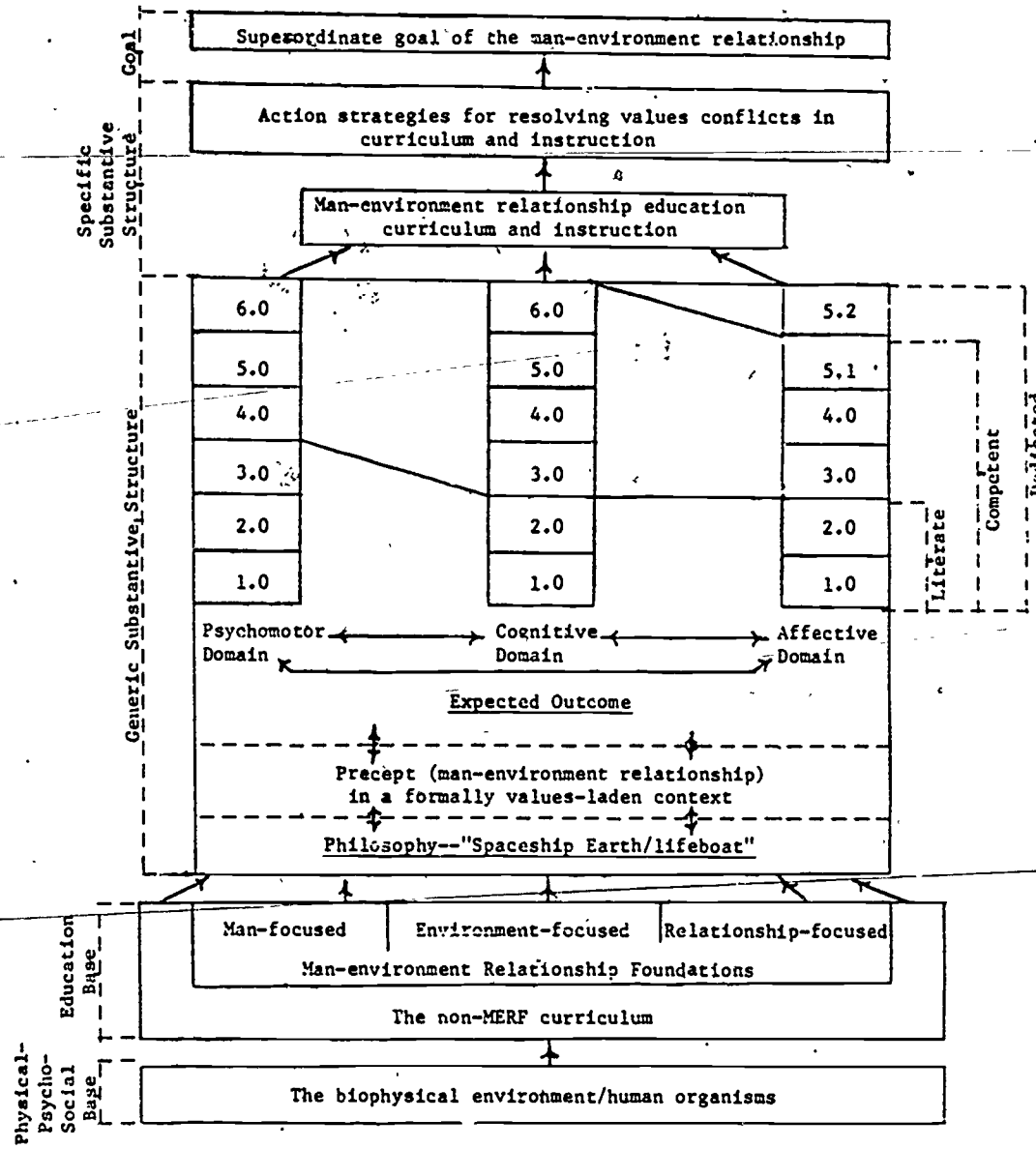

Figure 2. The substantive structure of "environmental education", with its more general bases.

The intent of dichotomizing PERF and PERE is not to create artificial boundaries, but to familarize teachers/leaders with the characteristics of both so each can be used most effectively to reinforce the other. A knowledge of the relationship between PERF and PERE is perceived to be of value to the teacher/leader who is building curricula to reach the expected outcomes deemed to be important. It allows for the selection of the most appropriate topic at the appropriate time.

This leads to the second point, i.e., just as a topic may move, a learner will be found to be operating at different levels of expected outcome on different issues or even different aspects of a given issue. Although this is normal and expected, the objective of the teacher/leader should always be to raise the level of the learner's knowledge and skill in as many areas as possible. It is the hope of the writer that this conceptualization will be of value to teachers/leaders in reaching that objective which will eventually lead to the superordinate goal of a homeostasis between quality of life and quality of environment.

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TWO HATS*

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It would appear that environmental educators have a bad case of the "two hat" problem. We have come by the problem naturally and therefore, we have paid little attention to it.

The problem is simply that industry, utilities, labor, business, media and other segments of the population and the general public have consistently recognized only one hat when talking about environmentalists and environmental educators. It is not uncommon for dedicated environmental educators to be summarily dismissed as troublemakers--environmentalists. This one hat view is easily explained because environmental educators are almost always environmentalists. Perhaps definitions will help clarify the problem.

Any world citizen who advocates with greater or lesser action that wrongs against our environment must be stopped is an environmentalist. Perhaps the negative reputation environmentalists have stems from the dramatic and radical actions of a few.

An environmental educator, on the other hand, is any world citizen who uses information and educational processes to help people analyze the merits of the many and varied points of view usually present on a given environmental issue. The environmental educator is not the "mediator," "trade-off specialist" or "negotiator," but a developer of skills and an information analyst who prepares the people (from any segment of the population) who will participate in environmental decision making.

Environmental educators, therefore, need to be as "value fair" or "value free" as they can when working in this role. They must scrupulously strive to get all the facts, examine and illuminate all the viewpoints, and keep from letting their own particular position (as an environmentalist) from mixing with their educator role.

My suggestion is simply that environmental educators make an effort to clarify the two distinct roles. At every opportunity, we should emphasize the neutral nature of environmental education activity. Strong advocacies are all around us, each using the techniques of persuasion and propaganda to build their constituencies. We must ourselves be familar with all sides, stand firm for each advocate's right to be heard and provide a rational stage for informed debate.

Environmental educators have the right and the duty to be environmentalists, but the dual roles must adhere to the original premise--to keep each hat on its proper head, while utilizing to the fullest the professional skills of the environmental educators.

*A pre-conference paper.

ENVIRONMENTAL ACTION: A PARADIGM*

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This paper deals with a critical need in environmental education-the need for an environmental action paradigm, or model, which can be used by educational planners to maximize the human organism's ability to help remediate environmental problems.

The literature abounds with definitions of environmental education and strategies for building toward awareness and an appropriate "environmental ethic." And yet, few references deal directly with environmental action and/or the processes inherent in action strategies. One notable exception is the following:

> Above all, environmental education is oriented toward the development of values that are translated, ultimately, into action. . . . each student must acquire an environmental ethic, a concern for a moral commitment to his responsibility to the environment. (1)

Another major exception rests with the model of substantive structure for environmental education developed in 1976 by Gary D. Harvey (2) in which environmental action is identified as a major goal of what he refers to as man-environment relationship education (MERE).

Similarly, there are other generic paradigms or models which incorporate environmental action as an integral part of an overall strategy for environemntal education. Some of these reflect a direct reference to implementing environmental action as part of an overall environmental education program without presenting an action paradigm, per se (3). Others tend to imply a need for environmental action training (4, 5). In such cases, action components do not reflect all of the dimensions of environmental action known to society and/or the action training components are dealt with episodically, without syntactical organization.

The writers, in a recent publication which attempts to operationalize "environmental literacy", proposed that literacy is, in part, reflected by human beings who have knowledge of and the ability to communicate the need for environmental action strategies, who have the ability to use those skills inherent in environmental action strategies, and who are willing to use action strategies in an effort to remediate environmental issues (6). Nowhere, to the knowledge of the writers, does there exist a paradigm of environmental action per se with the exception of the reference cited above.

*A pre-conference paper.

The literature, instead, is heavily weighted toward awareness and the inference may be made that most writers perceive that awareness can, in fact, lead to effective citizenship responsibilities. However, there also exists in the literature both intuitive and empirical evidence that this is not the case. Again, Hawkins and Vinton seem emphatic when they state, "Awareness, appreciation, and understanding of the environment are only the first steps and do not necessarily lead to effective action." (1)

It seems educationally defensible and necessary to assume that the development of awareness will not generate citizenship participation in environmental problem solving. Barbara Winston puts this situation into critical focus when she writes:

> There is no indication that awareness will result in students' environmental concern. . . .expressed concern for improved environmental quality does not offer conclusive evidence that students have had an attitude change significantly committing them to behaviors that will lead to improving environmental conditions. (7)

Given the veracity of this position, it would be possible to hypothesize that many human beings who have developed sound environmental ethics are frustrated in their ability to take effective action simply because they are unaware of the action possibilities that exist, i.e., they have had no preparation specifically geared toward action.

The need for providing training specifically directed at environmental action strategies is succinctly reflected by William B. Stapp when he notes, ". . . few programs emphasize the role of the citizen in working, both individually and collectively, toward the solution of problems . . ." (8)

Further, the potential consequence of providing action training in education is discussed by VandeVisse and Stapp who write, "Citizens are more likely to become involved in environmental issues if they are aware of how they can have some effect upon decision making." (9)

Due to the need inferred by both the literature and personal experience in environmental education, a paradigm is proposed which would permit curriculum developers and others to specifically plan for training in environmental action as an integral and substantial component in this field. This type of curriculum development will become a reality only when the profession has a model available which adequately reflects all dimensions of action. Such a paradigm results from an analysis of environmental action strategies themselves, the levels at which these strategies are utilized by individuals and organizations, and the logical constraints placed on action, i.e., those questions which should be answered by citizens before an action is taken.

Therefore, the three-part paradigm which follows identifies and defines specific categories of action. It then identifies and illustrates the levels at which these actions can be taken. And, finally, the constraints that must be placed on action are posed as questions which should be answered before an action is taken.

Action Paradigm

Part I: Categories and Definitions of Environmental Action

There appear to be six categories of environmental action: These are: (1) persuasion; (2) consumerism; (3) political action; (4) legal action; (5) ecomanagement; (6) interactions of these. Operationally, the writers define each of these as follows:

(1) Persuasion: An effort to verbally motivate human beings to take positive environmental action as a function of modified values, e.g., argumentation, debate, speech making, letter writing.

(2) Consumerism: An economic threat by an individual or a group aimed at some form of behavioral modification in business or industry (e.g., boycotting) or some conservative mode of behavior with respect to goods and/or services (e.g., discriminating and conservative use of goods and services).

(3) Political Action: An effort aimed at persuading an electorate, a legislator (or legislature), or executive governmental agency to conform to the values held by the person or persons taking that action, e.g., lobbying, voting, supporting candidates.

(4) Legal Action: Any legal/judiciary action taken by an individual and/or organization which is aimed at some aspect of environmental law enforcement - or, a legal restraint preceding some environmental behavior perceived as undesirable, e.g., law suits, injunctions.

(5) Ecomanagement: Any physical action taken by an individual or a group aimed directly at maintaining or improving the existing ecosystems, e.g., reforestation, landscaping, installing bird boxes.

(6) Interaction: Any combination of two or more of the above action modes, e.g., letter writing for consumerism or political action, combining boycotting and lobbying for solutions to international issues.

Part II: Levels of Decision-Making for Environmental Action

Fundamentally, environmental action results from the activities of either an individual or a group of individuals working cooperatively. Although there are g ing exceptions to the rule, in principle one finds that the individual ing alone is of restricted effectiveness in promoting major activit This limitation is largely a function of the power base from which the individual operates. This is not to be interpreted that the writers consider individual actions to be wasted. Indeed not! However, it would be wise to acknowledge and appreciate the increased effectiveness of cooperative action.

Part III: Action Analysis Criteria

Given that the individual - or the group - understands the options available for action at the levels at which the action can be initiated, it follows that a particular action decision needs to be analyzed and evaluated before it is taken.

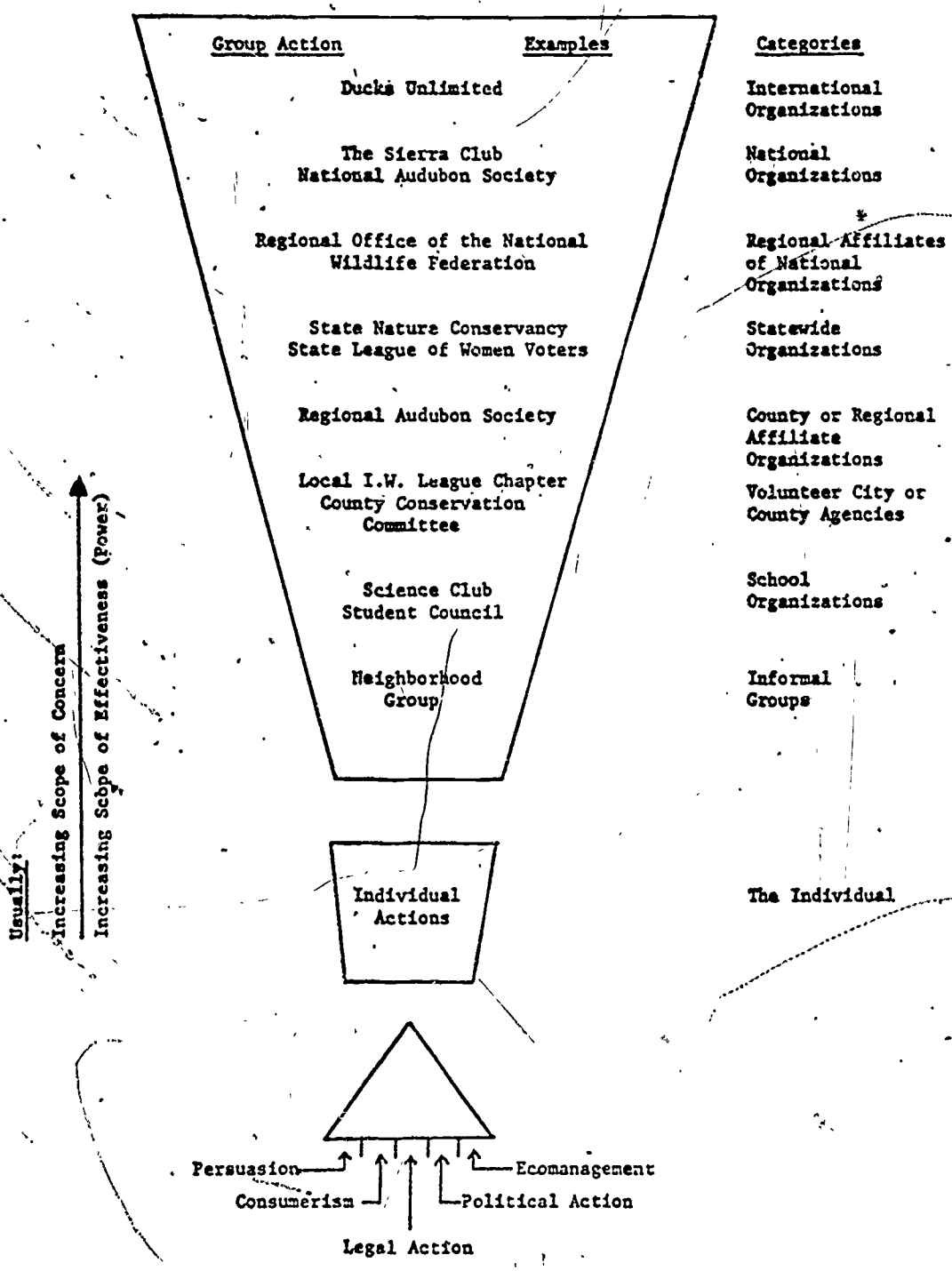
It is probably true that an individual - or a group - selects a particular action in terms of whether it will get a particular job done and whether it is commensurate with the values held. Sooner or later, however, the decision must be inspected on other grounds as well. To ignore one or more of these criteria could be disasterous.

The writers, therefore, propose a set of thirteen questions which should be answered before a particular action is undertaken. Further, it is felt that these thirteen questions need to be made available to environmental education instructors and students in order to increase the sophistication with which actions are taken. The questions follow:

1. Is there sufficient evidence to warrant action on this issue?
2. Are there alternative actions available for use? What are they?
3. Is the action chosen the most effective one available?
4. Are there legal consequences of this action? If so, what are they?
5. Will there be social consequences of this action? If so, what are they?
6. Will there be economic consequences of this action? If so, what are they?
7. Are my (our) personal values consistent with this action?
8. Do I (we) understand the procedures necessary to take this action?
9. Do I (we) have the skills needed to take this action?
10. Do I (we) have the courage to take this action?
11. Do I (we) have the time needed to complete this action?
12. Do I (we) have all of the other resources needed (other than the above) available to make this action effective?
13. What are the ecological implications of this action?

Levels of Environmental Action and Decision-Making

Individual and Organizational



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ENVIRONMENTAL EDUCATION: BEER CANS AND PET DINOSAURS OR THE HUMAN HABITAT*

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Environmental education is, for millions of persons in this country (and, I assume, in other nations as well) about as inspiring as an empty beer can, and, at worse, as ridiculous as the latest organization dedicated to the preservation of pet dinosaurs. In its popular, mass-media image, environmental education is undoubtedly ill-conceived and probably dysfunctional to the very ends for which its more serious and thoughtful proponents strive.

It ~~is~~ ill-conceived in that it conjours up symbols of cleaning up streams and shores and corner lots and not littering national parks. Important--indeed perhaps noble--as these efforts ~~are~~ (and ultimately as necessary, as they are the quality of life) these images are simply too narrow for the task at hand. Even when broadened to include, for example, the trade-offs involved in energy production, pollution, and what some environmentalists have called the "scenic integrity" of these areas such as New Mexico or Utah's Monument Valley, the notion is still too limited, too narrow in its conceptualization to be very helpful. The focus is merely on the humanly adapted portion of the natural environment, and the scope is largely limited to conservation.

Indeed, the popular conceptualization of environmental education may be, in these terms, flatly dysfunctional. In the first instance, more than a few people are frankly bored, or worse, turned-off by this brand of environmental education. They have heard it all before (and, besides, according to reports, the air quality and the quality of the water in our rivers and streams and lakes is improving.) And, to put it bluntly, they are tired--if not repelled--by that silly and degrading TV commercial featuring an American Indian crying. Again, many reject the idea outright. It may remind some of a bunch of spaced-out-hippy-freaks crazily clamoring to save the world from the greedy, profit-~~seek~~-ing establishment. Whatever "establishment" means, an awful lot of people are part of it. Environmental education, in these terms, may remind them of things they do not want to consider too seriously, such as social responsibility, or, even worse, their own individual consciences. And, heaven knows not many of us can stand that very long.

Thus, one of our first tasks may be to find a new label. No such label is suggested here, but whatever it is, it ought to be positive. It should have popular appeal at the societal level. Moreover, it ought to be something ~~with~~ which the individual can identify personally; that the individual can embrace personally. However, putting a new label on an old can of not very popular beer may be a necessary start, but it probably won't improve the sales in the long run unless we also improve the contents.

*A pre-conference paper.

The next task, and the one of critical importance at this moment, is that of reconceptualizing environmental education in such a way that it makes sense in terms of human beings, the nature of the universe, and the relationship between the two.

Well, there it is. The issue is out of the bag. We are dealing with the whole world and our response has been to organize bunches of Boy Scouts, hand them litter baskets, and tell them to sally forth and save the world.

It might help, I would think, if we could begin by talking about the right thing when we use the term "environmental" education. What we are really talking about--or at least I hope we are--is "habitat," and, more specifically, "human habitat." The human habitat is the product of the interaction of human culture with the physical environment, and it is precisely that human habitat and the relationship of human beings to that habitat about which we ought to be speaking. The physical or natural environment is there, but it does not become part of the human habitat until human culture interacts with it. It existed physically, but it had simply no part in their habitat, their human habitat, because their culture did not call it into being as part of their habitat.

Now, herein lies a crucial distinction. Environmental education, in nearly all of its more popular forms, has focused on the physical environment and on the conservation of that environment. I have nothing against conservationists, or bird watchers for that matter, and I personally admire the efforts of the naturalists and the hundreds or thousands of groups devoted to the preservation of parks and various species. But environmental education will have no honor and very little importance until we recognize that we are about something vastly bigger and of infinitely greater importance; that is, the human habitat and the relationship of human beings to it. Unless we recognize this at the start, we might as well admit our failure right now, and go back home to our litter baskets.

However, if we can agree that what we are talking about is the human habitat, and that habitat is the product of the interaction of human culture with the physical environment, we can begin the critical task of re-conceptualization.

We might envision a globe, not unlike the planet earth. Along the north-south axis flows the quantitative dimension. Along the east-west axis flows the qualitative dimension. Together, they describe the human habitat.

The quantitative dimension then must include all the humanly modified and all the humanly constructed elements of the environment which have been drawn into and adapted into the human habitat. This dimension includes, not only national parks and beaches and clean air and water and all the like, but the built environments as well. It includes the homes, factories, offices, libraries, the networks of streets and transportation vehicles above, below and on the surface; the architecture, the music, the paintings, and the plays, the poetry and novels;

the wars and all the Watergates; the planted gardens and paths; the movements of people, the planned and unplanned development; and all the mindless and profound elements which together constitute the human habitat. If we want birds in our patios, clean air in our urban habitats, or unlittered mountains for hiking, let us have them. It is not that they are unimportant. Rather, the question is what relationship do they have to the human habitat, to the kind of human habitats that human beings want.

The second dimension along which our reconceptualization must proceed is the qualitative. Here we are concerned with the qualitative dimension of the human habitats, with the quality of life measured in terms of the human beings who occupy those habitats and whose habitats do and should reflect the values and asethetic tastes of the human beings who occupy them. Surely we must be concerned with the qualitative aspects of economic, political and social development, with all the social and personal value trade-offs which are involved, and with the responsibilities of each individual and each nation to the other individuals and nations of this planet as it makes those decisions. A factory or a city can no more avoid the responsibility for dumping its pollutants on its surrounding neighbors than an individual can avoid the responsibility for dumping one's garbage in the neighbor's yard. But the moral responsibility is not just negative. It is positive as well. If, for example, the United States decided to forego the use of fertilizer in the interest of improving the quality of water, and if, as a result, the amount of grain available for export was thereby diminished, surely that nation could not ignore its moral responsibility to those nations and people who might have needed it. The United Stated might still make that choice, but any environmental education worthy of the name would certainly insist that the question of ethics and morality be raised.

In its broadest sense, environmental education (please note I am using the term, for want of another) is concerned with an entire world view, and these world views are as culturally relative as human habitats are culturally relative. The traditional Russian peasant had considerable affection for the land of "mother Russia," while other people have viewed the world as essentially hostile. The Norse in the ancient Scaldic Eddas saw the world as eternally hostile; when one fights a fight, one is foredoomed to lose, but in fighting the good battle one maintains dignity and attains salvation. Some hunting and fishing people, such as the Oregon Indians, saw the physical environment as something with which they were as much a part as one is part of a family, and the idea of agriculture was consequently as hateful as cutting one's mother. At the same time, their neighbors in Taos along the Rio Grande River lived peacefully with the physical environment, and were pleased when they could make it produce a bountiful crop of beans or corn. Still another world view is that of Western scientism, which sees the physical world as something to be conquered and used by the liberal application of the twin tools of science and technology, which together should be able to overcome the apparent limits of all natural laws. The question here is not which, if any, of these views is correct or false (although that question needs to be raised). Rather, the point

is to suggest that the frame of reference for environmental education ought to be the nature of the human being, the nature of the universe, and the relationship between the two.

The central focus of environmental education is not and should not be merely the physical "environment" as the name implies, but rather the whole range of human habitats, which are the products of human culture interacting with the physical environment. The main dimensions of this task of reconceptualizing are the quantitative, which includes the moral and ethical responsibilities of all the people and nations on this planet. Finally, the proper frame of reference for our work, our educational endeavors, is the relationships between humanity and the universe.

What are the implications here for education? This is the next major task, and one of enormous complexity. Let me say first that while the non-formal and informal educational structures and systems in all nations are significant and powerful, I am only going to be concerned here with the formal school system, with what John Goodlad calls the "school as culture." The reasons are threefold. First is the lack of space. Second is the lack of expertise in those other areas. Third is the belief that the formal school system is the heart of this nation's educational enterprise, and thus the most important part. Yet, even limited to the school, it is impractical to do more than suggest a few points which seem to me to be particularly important, or which offer special promise for a "new environmental education."

1. The School Curriculum. American education, like educational systems in most nations, has been and remains basically mindless, and educators have forgotten (if they ever, in fact, learned) the reasons for the sake of which the classroom exists. The foremost manifestation of this mindlessness is the almost total lack of rationality. We ask questions of "how," but never "why." The primary purpose of the school is that of citizenship education, and the new environmental education could be the organizing and rational principle for the entire school and its curriculum. Focusing on the qualitative and quantitative dimensions of the human habitat within the framework of a world view of the relationship of human beings and the world in which they do and would live, the new environmental education could become the integrating principle giving meaning, sense, and reason, as well as a central thrust to citizenship education.

2. The Student. All persons--and adolescents most energetically of all--seek answers to four basic questions in two time frames. In the present tense, those questions are: Who am I? What is my world/universe/society about? How do I relate to it" and How do I know what is real? These universal human questions, in the future tense, become: Whom do I wish to become? What might my world be like? How would I relate to it? and the continuing question of truth and reality. The new environmental education could provide the students with just the very frame of reference, the organizing concepts, the intergrating power, and the analytic tools with which to seek for themselves the answers to the very basic questions which all ask, and which are the primary motiviation for all learning and human growth.

3. The Disciplines, Areas and Studies. The new environmental education is not a course, a unit, area of study, or a new discipline or interdisciplinary study. It is not even a new curriculum. It is essentially a principle, a way of asking questions and organizing information so as to make sense out of the world and out of the world that is now and will be built. A study of music, art, literature, or architecture, as well as science or urban planning or physical education must surely make more sense when they are related to and seen as being part of the human habitat.

4. Curricular Characteristics. Six of the major characteristics of the new environmental education are:

   a. Global perspective. The mental map of the world which most if us carry in our heads looks very much like a series of expanding concentric circles. This is, of course, the product of the historic development of nations and the idea of nationalism and of the very way by which we learned about the world. We began by learning about our neighborhoods and moved gradually into our communities, states or provinces, to the nation. Then we finally discovered there were other nations, but in learning about them, it was always in relation to ourselves, and in the mental map the nation-state remains the focal point. It should be noted that each successive ring or circle is less precise, less detailed, until we finally reach a ring of fuzziness and mist.

The global perspective would start with a mental image of the world, the planet earth. Moving from the simple to the complex, children would gradually place information and data on that global map, beginning, perhaps, with major land forms and bodies of water and weather and climatic patterns. The interaction of these both globally and regionally would be studied. Gradually, other information could be added, placing peoples and cultures and human habitats on that mental global map. Still later, political subdivisions of the earth could be placed on the map.

   b. Data-Based. A quick survey of school texts and teachers knowledge would reveal that most of what is taught is opinion-based. Ask most teachers or students for the data or evidence for anything they are teaching or learning and you will probably end the conversation right then. The new environmental education would be data-based, in part because such a base and the accompanying data-processing skills will be necessary.

   c. Policy-Oriented. The improvement of human habitats is based on social policies resulting from positive and conscious decisions. Since the human habitat (and, presumably, its improvement) is what the new environmental education is about, public policies based on rational methods and data would provide the focus for educational activity.

   d. Systems and Functional Area Problems. Areas of study as well as courses and units would be organized around a systems approach

to functional area problems, that is, problems such as food, population, resources, pollution, and their relationships, within a framework of the search for the desired human habitat.

e. Interdisciplinary Studies. Such studies would be interdisciplinary, multi-disciplinary, and cross-disciplinary. The role of energy, for example, in the human habitat would give direction, meaning, and rationality to what is now an amazing fragmented array of splinters of knowledge and understanding.

f. Citizenship Education. The new environmental education would aim at and be a central contributor to citizenship education, both with all nations and for all nations. For example, its policy and action orientations would provide experience at all stages and levels for the development of citizenship participation skills and decision-making abilities.

5. Key Concepts. Among the major organizing concepts would be the following:

a. Human Habitat, the product of the interaction of human culture and physical environment, including all its quantitative and qualitative aspects.

b. Systems, including natural and social, both within and acting upon and being acted upon by human habitats.

c. Interaction, between and among natural and social systems.

d. Interdependence, especially emphasizing the holistic nature of human habitats and the global systems and the interdependence of all parts and elements, including the components thereof.

6. Teacher Education. In order to promote the new environmental education, teachers will need to be re-educated. In order to accomplish this on an in-service basis, various organizations offering in-service education in the form of workshops, conferences, and the like could be enlisted to devote at least part of their training time to these ends. Specifically, organizations such as the following might be enlisted:

a. Unions, such as AFT, NEA, and their counterparts in other nations. In some countries, such as Sweden, where part of in-service time is devoted to teacher needs and part to social needs, the new environmental education might be centered on the social need agenda.

b. Professional organizations, such as those represented here, and others, especially in the humanities, might devote much more attention in their journals, annual and state meetings, and the like to the creation of the new environmental education.

c. School district superintendents and principals could devote those workshop days typically known as the "superintendents workshops" or the "principals workshops" to environmental education.

d. Teacher curriculum development at the local level could be encouraged by persuading school boards to grant release time and by getting both public and private groups to fund the cost of materials, etc. The aim would be the rationalization and reorganization of the curricula, rather than the creation or development of new curricula.

7. National Action and Policies. National organizations such as the Council of Chief State School Officers and the National Association of School Boards of Education might be targeted as primary groups for new environmental education. Key Congressional leaders might be persuaded to pressure funds and agencies such as the U.S. Office of Education and the National Science Foundation might be persuaded to develop programs compatible with the objectives of the new environmental education. Other agencies, such as Coastal Zone Planning and the programs such as Sea Grant might be persuaded to coordinate their efforts under the new environmental umbrella.

8. International. Under the auspices of the several national and international organizations, high level conferences should be continued at the regional and world levels to work out (1) conceptualizations of the new environmental education and (2) implementation plans.

Well, there it is. Now, I recognize I may be banned from the environmental education community after this. But, as the saying has it, "one takes one's chances."

To sum things up, we need a "new Environmental Education," which requires as a prerequisite a new conceptualization. This reconceptualization should move beyond merely the natural environment, just as it needs to move beyond mere conservation. As long as we are confined to those two concepts, natural environment and conservation, we are not going very far. The focus needs to shift to the human habitat, wherein the natural environment is relegated to its proper role, as a piece of larger picture, and where conservation begins with the question of "why" in human terms.

It may well be that there are good and proper reasons, in human terms, for conserving vast areas of land in a wilderness condition. It may well be that these areas should be procured and maintained at public expense, thus effectively closed to all but backpackers, which means most of the public and nearly all those over forty. It may well be that Mr. Ford's proposed purchase of additional lands may be a good thing. But it is a sobering thought to remember that in 1974, the federal government already owned 760,999,000 acres of land in this country, or 33.5 percent of all the land in the nation.

It may be that certain resources need to be saved. It is claimed that we are using up our natural bank account. But it may also be that we are stocking up our bank account with Confederate dollars, and, quite frankly I'm glad there weren't any conservationists around when dinosaurs were still running around. I honestly don't know what I would do with one if it should walk in here today.

Obviously, what I have been suggesting is that the first task of the new environmental education is one of immense difficulty, but of clear necessity and one that is of vastly greater importance than all the "clean up..." and "save our..." projects in the world. It is a task of the intellect. The real challenge here is to get to the intellectual drawing boards, or to frankly admit that what we are about is beer cans and dinosaurs, and take ourselves back to our litter boxes.

(The views expressed in this paper are those of the author, and do not necessarily represent the views or position of the National Council for the Social Studies, the Alliance for Environmental Education, or any other organization.)

POSITION PAPER ON ENVIRONMENTAL EDUCATION*

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The Environmental Education Training Project** is designed to respond to concerns of local and national educators that environmental education programs today present a fragmented approach toward such issues as air and water pollution, urban land use, energy, and wild-land conservation. Problems are examined and solutions proposed by specialists in a multitude of agencies, representing the gamut of scientific, social, and aesthetic disciplines. Often these specialists work in isolation from one another with little coordination or concentration of effort toward a problem. Unfortunately, environmental education frequently mirrors this view of the environment as a patchwork of unrelated problems and solutions.

The position of the Project is that the environment must be perceived in a much broader view -- one that stresses the interrelationships among all parts of the environment. It is within this framework of understanding that people must make decisions about the allocations of the earth's resources and the quality of life that they are willing to accept.

Environmental education, to be successful and useful for today's children, must present this more comprehensive and unified picture. Central to the implementation of this objective are new concepts and schemes for institutional cooperation and involvement in school programs. It is important, therefore, that teachers be trained in the multi-disciplinary and multi-process requisites of environmental education and that available community resources be used effectively and creatively in providing meaningful experiences for children.

The need for teacher training has become critical in recent years as the school's role in socializing young people has expanded. The need to cope with change, to be aware of conflicting societal pressures and demands regarding the utilization of resources, and to relate to the natural and man-made environment requires that young people learn analysis and decision-making skills early in life. Childhood is a critical time in the development of citizenship responsibility as shown by Hess and Torney (1965, 1967). The importance of these formative years places a

*A pre-conference paper.

**The U.S. Office of Environmental Education has awarded a grant for $57,876 to train the St. Louis Public Schools and Missouri Botanical (Shaw's) Garden to develop a model for training teachers of grades 4, 5, and 6 in a multi-disciplinary, multi-process approach to environmental education.

particular burden on the schools which have the formal charge of developing the intellectual faculties of children so that they may become responsible adults. In these formative years, the schools must be concerned with teaching children about a citizen's responsibility to the environment. In addition, teachers must learn to view the community as an educational laboratory for the utilization of the school's intellectual, physical and natural resources.

The goal of the Environmental Education Training Project is to develop a teacher training model that will take an important step in meeting these objectives. The project involves the participation of 20 city teachers who have received summer workshop training in environmental education concepts and curriculum development. During the 1976-77 school year, project teachers will create mini-units in environmental education, and in addition will provide workshops and other training assistance for teachers throughout the city system.

An important feature of the training program is the organization of an ad hoc consortium, a diverse array of institutions in the St. Louis area which have resources to offer educators in environmental education. The consortium includes over 25 cultural, civic, educational, and environmental institutions and organizations. The purpose of the consortium is to develop the portion of the training model that relates to the utilization of community resources. Specifically, consortium members will assist project staff in developing a process for classroom teachers to utilize community resources in providing experiences for children which will build their understanding of the environment.

After the training model has been developed, tested, evaluated, and refined, the project staff will compile an Environmental Training Guide which can be used by school systems, state departments of education, and institutions of higher education throughout the country. It will offer a training program in environmental education that is multidisciplinary, multi-process, and designed to help students move toward a comprehensive understanding of the environment.

Hess, R.D., and Torney, Judith, The Development of Basic Attitudes and Values Toward Government and Citizenship During the Elementary School Year. Chicago: The University of Chicago, 1965.

SOME MAJOR DEVELOPMENTAL PROBLEMS OF ENVIRONMENTAL EDUCATION*

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This paper raises some serious questions regarding the philosophy and nature of environmental education. These questions are especially important in that their answers will have a strong influence on the conceptual and goal priorities which environmental education will set for itself and will largely determine how the general public will perceive what it is that environmental educators are about. The latter point is crucial because education--at least in the short run--has little real influence on public and political beliefs and behavior, but public and political beliefs and behavior can have a powerful impact on what happens in education.

These developmental issues are sure to arouse strong feelings. They are about significant matters. The necessary brevity of this paper makes it possible to only introduce the essence of each question or problem. They are no way fully explicated. But they are at the center of the character and substance of environmental education and need to be directly and thoroughly confronted before any real "state of the art" of the field can be estimated.

1.) The Need for a More Balanced Viewpoint

Environmental education is faced with a major dilemma. Although having a rich heritage that in some cases reaches into ancient history, its recent rebirth and explosion into the educational scene is primarily the result of widespread public concern about serious problems of over-population, pollution, utilization and availability of resources--especially energy--and the general degradation of certain natural landscapes. The newly emerging environmental education profession and humanity owe much to the individuals, institutions and organizations who championed the cause and led the public outcry--mostly under the banner of conservation. But the need for radical action has resulted in the development of a viewpoint toward human interaction with nature that is strongly skewed toward the negative. There are endless examples that could be given to show how humans have improved the environment, increased supplies of resources through technology, and in general improved the quality of life of the world's people by lengthening life-spans, freeing increasing numbers from hard labor, increasing leisure time, and generally raising the world's per-capita literacy and educational levels. This is not to suggest that environmentalists should be any less fervent in their demands for decreasing abuses of nature and people. It is only to suggest that they must come to the problem of analyzing the nature of the interaction between humanity and the environment with as objective, scholarly, and balanced a view as possible. To do this without losing the support of certain radical groups, or even giving those who abuse the environment some reason to call for a "return to normalcy" will take courage and determination. But there is no

*A pre-conference paper.

choice if environmental educators are going to provide the kind of rational and quality leadership that will be needed to lay the groundwork for this highly important subject.

2.) Is there a Difference Between Environmental Quality and the Quality of Life?

This is a fundamental philosophical question that must be answered before many of the goals and objectives of environmental education can be deduced and articulated. Some of the current leaders in the field argue that the two are inseparable and that environmental quality must be subsumed under the quality of life. But, unfortunately, most of the work to date in environmental education has been directed at the quality of the "natural environment," sometimes at the potential expense of the quality of life. Scholars have generally examined the environment as if it were a separate entity from humans and the work of humans. The ultimate purpose of environmental education must be the improvement of the lot of humanity.

3.) Environmental Balance - The Place of Humans and the Nature of Stability and Change

Much of the environmental literature claims that the "stability" of natural systems is continually threatened by humans--by "advancing technology." It presents the view that nature is static, and that natural systems are despoiled if they are changed. Admittedly, just as with the "balance" of the earth's crust that we refer to when examining isostatic forces, we do not know very much (relative to what can be known) about the long range implications of human-natural interactions. But what we do know and will learn will be of little benefit to an accurate understanding of the nature of things if our analyses are based upon assumptions that are either false or founded upon sparse evidence. Natural systems are not stable--they constantly change. In order to fully understand the nature of change and the potential for harmony between humans and nature regarding change, certain basis factors must be understood by educators involved in environmental education: 1) change is constant, both in natural and human systems; 2) nature changes constantly with or without human involvement; 3) both humans and nature can accelerate or slow certain "natural" processes of change; 4) interaction between humanity and nature can be both positive and negative; 5) much of the landscape variety we are seeking to "preserve" resulted from human "interference" with natural processes; and 6) the natural elements and systems that exist now have not always existed, and are not necessarily the best/most desirable natural elements and systems. In summary, change and balance are not conflicting elements of our human environment.

4.) Some Mythologies of the Population Explosion

There are many causes of the negativism that pervades the world today but none has been so consistent and significant as the fear of over-population so strongly expressed in the popular media these last two decades. Unfortunately, we had such a massive overdose of "the world is going to hell" propaganda that it is almost impossible to convince anyone that it is not. Calm and rational discussion of the validity of some of the "population explosion" concepts is difficult

to find. The ease with which educational leaders--especially ecologists--have accepted the doom-sayings offered up during recent years is both impressive and alarming.

Because the basic roots of the population arguments are intertwined with problems of environmental education it is absolutely essential that they be opened and objectively analyzed. Four assumptions that are possibly incorrect are: that the world has reached or passed the total number of people it can support at a high living standard; that the resource base of the world is diminishing and will continue to diminish if the population continues to increase; that the present world population growth trend of increasing increases will continue indefinitely; and that the places in the world with the most severe population problems are the places with the most dense populations.

5.) World Resources Trends: Increasing Scarcity or Abundance?

The environmental literature is filled with statements about the finite nature of resources--about how we are living in a time of increasing scarcity. Contrast these statements with data that show that the general per-capita GNP of the world is slowly rising. This is not to say that to have more and more resources per person is a good thing. That value judgement must be made by individual consumers and individual institutions and nations. It is only to emphasize that the per-capita GNP of the world is slowly increasing, and, if considered desirable, it would be possible to greatly increase the material wealth of most of the world's citizens. If environmentalists misrepresent the nature and availability of resources they not only reinforce mythology and mislead others but, maybe even more importantly, keep the focus of the world attention on the wrong problem, i.e. on how to decrease population growth and slow resource utilization because of allegedly 'diminishing resources,' rather than on what is probably a much more crucical question, i.e., if resources are becoming more abundant and the potential of human interaction with the environment can significantly improve the quality of life in some parts of the world, what must be done to bring these advantages--longer life, increasing leisure time, better diet, more material wealth, etc.--to other parts of the world which desire them?

6.) The Place of Humanity in the Hierarchy of Life

Although every effort should be made to preserve life whenever possible, decisions must sometimes be made (and with increases in the complexity of human-natural interactions they will have to be made more often) in which it becomes necessary to consider the consequences of an action for a whole array of living species. There are some cultural exceptions, but generally, environmental education is a discipline that works ultimately for human welfare. This is a highly sensitive subject in that humane people desire to protect all life. But both natural and human systems do affect a great variety of living things and as the sensitivity of individuals and nations increase toward the environment and all of its residents, more and more choices and conflicts will arise regarding this issue. Some ethical standards need to be developed to guide these actions.

7.) A Definition or a Context

One of the dilemmas of the practitioners of any such broad-based concept as environmental education is to decide how much to lay out the exact nature of the environmental condition and its array of problems and possible solutions and how much to allow people to determine their own measure of the situation and their own estimation of possible ways of dealing with it. To paraphrase: to what extent will environmental education describe the world the way "it should be," and to what extent will it provide people with sufficient perspective, information and tools of analysis to allow them to determine for themselves the way it could be?

Other important issues that are central to the nature of environmental education are: environmental education calls for participation in real world activities and for modification and changes--sometimes radical ones--in the attitudes and behavior of people, yet neither approach is very central to education the way it is commonly practiced throughout the world; 2) on the one hand, individuals and societies are generally apathetic and complacent about environmental problems until they reach crisis proportions; while on the other hand, because humanity has developed an array of techniques for projecting trends which show possibilities we are unfamilar with, we often see crises where none may exist; 3) there is a great deal of confusion about the necessity and impact of the interrelatedness of nations in resource development and utilization; and, 4) there is much difference of opinion about the real nature of resources--about whether or not they exist or become, whether they change form rather than disappear, etc.

There are other areas of philosophical disagreement that are not identified here--and some that are surely more important than those listed. The ones included seemed to be the most common in the literature and are not presented as an exclusive coverage but to emphasize the relevance of such issues to any articulation of the nature, philosophy and objectives of environmental education programs.

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