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ABSTRACT

This report is an account of the 1978 National Leadership Conference on Environmental Education held in Washington, D.C. in March. The major purposes of the conference were to review recommendations of past environmental education conferences, assess the present situation in environmental education in the United States, and develop a clear set of recommendations to further environmental education in the United States. Furthermore, every recommendation approved at this meeting includes a coordinated implementation plan with reasonable timelines, assigned responsibilities, and established monitoring procedures. This Conference Report is organized in chronological order and includes plenary meeting presentations, recommendations from the working groups, and samples of the State environmental education legislation. Topics under consideration by the working groups include teacher inservice education, accessibility and dissemination of materials, state level networking and legislation, and the federal role in national environmental education strategy. A list of conference participants is included. (Author/MA)

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From Ought to Action in Environmental Education

A report of the 1978 National Leadership Conference on Environmental Education, held March 28-30, 1978 in Washington, D.C. This conference was designed so that people having decision-making responsibilities for the development and implementation of environmental education could work together on measures for coordinating and expanding environmental education to meet local, state, and national needs.

Conference Proceedings

Edited by

William B. Stapp

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Environmental Education Information Reports

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 reports will provide information for personnel involved in development, ideas for teachers, and indications of trends and recommendations to further environmental education.

Your comments and suggestions for this series are invited.

John F. Disinger
Associate Director
Environmental Education

Publication sponsored by the SMEAC Information Reference Center of The Ohio State University.

This document was developed from materials prepared by participants in the 1978 National Leadership Conference on Environmental Education and the recommendations were reviewed by members of that group, as well as by the Alliance for Environmental Education. Points of view or opinions, however, do not necessarily represent the official views or opinions of the Alliance for Environmental Education or its member organizations, or of the SMEAC Information Reference Center.

FOREWORD

This report is an account of the 1978 National Leadership Conference on Environmental Education held in Washington, D.C. on March 27-30, 1978.

This meeting brought forward key recommendations of past environmental education conferences, such as:

National Conference on Environmental Education at the elementary and secondary level (December 1970, Green Bay, Wisconsin)

National Conference on Environmental Studies Programs in Higher Education (November 30 - December 2, 1972, Green Bay, Wisconsin)

National Working Conference on Emerging Issues in Environmental Education (June 3-6, 1974, Ann Arbor, Michigan)

Environmental Education Perspectives and Prospectives Conference (July 6-12, 1975, Snowmass, Colorado)

Belgrade International Workshop on Environmental Education (October 13-22, 1975, Belgrade, Yugoslavia)

North American Regional Seminar on Environmental Education (October 5-8, 1976, St. Louis, Missouri)

Intergovernmental Conference on Environmental Education (October 14-26, 1977, Tbilisi, Georgia, USSR)

The major purposes of the 1978 National Leadership Conference were to review recommendations of past environmental education conferences, assess the present situation in environmental education in the United States in light of the recommendations approved at the Intergovernmental Conference on Environmental Education, and develop a clear set of recommendations to further environmental education in the United States. Furthermore, every recommendation approved at this meeting was to be targeted (to whom each recommendation should be addressed for implementation), and major constraints to the implementation of each recommendation were to be identified; special strategies were to be designed to overcome constraints, responsibilities assigned for implementation of each recommendation, a timeline identified, and a procedure established for monitoring each recommendation.

This process was followed for each of the simultaneous workshops at the Conference. These workshops were:

the Federal role in a national environmental education strategy;
state legislation;
state-level networking;
teacher inservice education; and
accessibility and dissemination of available materials.

Therefore, the major thrust of the 1978 National Leadership Conference on Environmental Education was to develop a set of recommendations into a coordinated implementation plan, with reasonable timelines, assigned responsibilities, and established monitoring procedures.

This Conference Report is organized in chronological fashion. Plenary meeting presentations, most of which were made on the first day, precede the actual recommendations of the working groups, which were developed by working groups on the second day and reviewed by the conferees on the final day. Recommendations of the Conference begin on page 57 of this Report.

It is within this type of national strategy for environmental education that the foundation for an environmentally literate citizenry can be laid. This foundation, and continued environmental education programs, will make it possible to develop new knowledge and skills, values and attitudes, in a drive toward a better quality of environment and, indeed, toward a higher quality of life for present and future generations living within that environment.

William B. Stapp
Editor

May 1978

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INTRODUCTION

Organizations, associations, areas of interest and the like often follow a chronology similar to that of a human life. There is an infancy, a childhood, adolescence, maturity--and, oftentimes, a decline, and death. The environmental education movement seems to be following this pattern, and is giving evidence of having moved into its early maturity. Hopefully, the chronology will continue on into full maturity, but those responsible for its future must work to keep the movement from declining into terminal stages.

In his excellent conference paper, Charles E. Roth gave us an historical perspective of the movement. We are reminded that environmental education was not invented by the militants of the late 60s, but evolved through a number of stages going back some several years. Certainly the great "Ecology Now" wave of the 60s was important to us, for it carried us further up the beach than we could possibly have gone with conservation and outdoor education.

Evidence of the latest impetus in environmental education was brought to the conference by Mary F. Berry, Assistant Secretary for Education, Department of Health, Education and Welfare. Her presentation was of particular value, for it provided us with first-hand information as well as the flavor of the recent International Conference on Environmental Education in Tbilisi, Georgia, USSR. She helped us further by offering a number of solid ideas regarding the future direction of environmental education to be considered during our deliberations.

But, as is often the pattern, it is the dedicated people of the day-to-day "real world" who must fill in the blanks and translate the initial excitement of a 60s movement or of an international conference into practical terms if real and lasting progress is to be made. And this is what many of us saw as the launching point for the National Leadership Conference on Environmental Education. Even a brief glance at the lists of participants and sponsoring organizations serves as convincing evidence that the movement has strong backing from a number of prestigious associations and an impressive body of professionals. The recommendations which follow, and the implementation steps which have occurred since, provide further evidence of what can be done when such people and organizations get together to work for common goals.

The basic premise of the three-day session was that essential information on the recent Unesco/UNEP Conference in Tbilisi, and other matters of importance, would be supplied to key leaders in the environmental education field, so that these people could work together to develop action strategies for meeting and overcoming some of the problems which impede the progress of the movement. Their ideas and recommendations would then form the basis for a national plan for environmental education.

As President of the Alliance for Environmental Education, I pledged our organization to perform three services, once these recommendation and action strategies were developed:

1. To "broker" the recommendations--that is, to see that everyone followed through as promised, and that all possible steps were taken to implement the recommended action strategies;
2. To keep participants informed as to the progress of their recommendations; and
3. To assume responsibility for seeing that a final Conference report was produced and distributed.

The follow-through began the day after the Conference, when the Board of Directors of the Alliance for Environmental Education met to review the recommendations and begin setting up implementation mechanisms. Subsequent phone conferences and Executive Committee meetings have been held to continue the work thus begun.

During these follow-up sessions it was determined that, for reasons of practicality, some modifications had to be made in the recommendations developed by the conferees. The principal decision in this respect was to drop the specific time lines which accompanied each recommendation, but to proceed with all possible haste in their implementation. As one board member of the Alliance observed, "Everything always takes twice as long as planned--particularly when you're working with government."

The Alliance Exchange was deemed the best available mechanism for disseminating progress reports. Organizations such as the National Association of Conservation Districts, the Massachusetts Audubon Society, the Humane Society of the United States, and the National Wildlife Federation have accepted responsibility for producing and mailing to all conference participants one issue each of the Exchange. The first of these was sent out in May.

Certainly a great amount of time went into the planning and implementation of this Conference. What was so gratifying about it all was the willingness of so many individuals to pitch in--sometimes at no small personal sacrifice--to get an important job done. Although the Conference was really a group effort, a number of personal contributions stand out and should be recognized:

An important contribution to the success of the Conference was made by the National Wildlife Federation and its Executive Director, Thomas L. Kimball. The organization provided refreshments, meeting rooms and facilities, secretaries, and other assistance, without which the Conference could not have been held. Mr. Kimball, a delegate to the Tbilisi conference, presented a report on the role of non-governmental groups in the national environmental education picture which is included in this report.

The Alliance for Environmental Education was most fortunate in that William B. Stapp not only produced an excellent Conference paper, summarizing recommendations from earlier conferences, but accepted the additional task of editing this final Conference report. Dr. Stapp

spent two years in Paris as Director of the Unesco/UNEP Environmental Education Program, which gave him a unique perspective on environmental education at the international level.

The role of John F. Disinger of The Ohio State University was of major importance in producing the Conference report. Dr. Disinger did considerable editing and arranged the details essential to producing the finished document you now hold in your hands.

June McSwain, President-Elect of the Alliance, and Walter E. Jeske, Alliance treasurer, handled the many details of local arrangements necessary to implement the Conference design prepared by the Executive Committee.

The five facilitators did excellent work with their groups by producing practical and usable action plans and recommendations. The quality of their work is evident in the recommendations of this Report. They were:

William Hammond (Federal Role in National Strategy)
Lee County Schools
Ft. Myers, Florida

Bernard J. Lukco (Accessibility and Dissemination of Materials)
U. S. Environmental Protection Agency
Cincinnati, Ohio

Tyree Minton (Teacher Inservice Education)
Antioch-New England
Keene, New Hampshire

David Phillips (State Level Networking)
U. S. Office of Education
Washington, D.C.

John Yolton (State Legislation)
United Auto Workers
Detroit, Michigan

When presenting a list such as this, one always runs the risk of omitting the name of some key individual. I do hope that this is not the case here. Certainly all who attended and participated in the Conference, and in the subsequent implementation of the recommendations, deserve our thanks. Names of all Conference participants appear in Appendix B.

The Conference was indeed a success, for those of us who believe that through environmental education we can make a better life for all Americans, and through cooperation with other nations help all people work toward the same end. The real measure of this meeting will be taken in the months ahead, in terms of the work that gets done to extend and advance environmental education.

Rudolph J. H. Schafer, President
Alliance for Environmental Education

May 1978

PLENARY MEETING PRESENTATIONS

After Tbilisi: The Prospects for Environmental Education
by Mary F. Berry

Off the Merry-Go-Round and on to the Escalator
by Charles E. Roth

The Role of Non-Governmental Groups in Environmental Education
by Thomas L. Kimball

Perspectives on a National Strategy for Environmental Education
by Alexander J. Barton

Elements of a National Strategy for Environmental Education
by William B. Stapp

AFTER TBILISI: THE PROSPECTS FOR ENVIRONMENTAL EDUCATION

By Mary K. Berry*

I'm very glad to be with you this afternoon. This is a good time of the year to be talking about the environment, and it is comforting to realize that in spite of all the havoc people have wreaked over the past two centuries there is still enough beauty left in the world for all of us to look forward to spring.

This is the second time in the past month that I have had the opportunity to talk about environmental education. The first time I went to Phoenix, to address a National Wildlife Federation Conference.

I said then, and I want to reiterate now, that I believe in environmental studies. I think that education in this area is as basic and fundamental as education in any other---and that no man or woman has a right to consider himself or herself an educated person unless he or she understands something about the world we live in, about what we are doing to harm that world, and about what we can do to save it. Environmental education isn't a new educational fad, and it isn't a frill. It isn't something school boards can cut when they start feeling the heat on property taxes and decide to go back to an emphasis on reading and counting in the name of basic skills.

What it is---or ought to be---is a new focus for the whole educational process. It ought to infuse curriculum at every level, in every subject. We are not in the business, at HEW, of telling teachers what to teach or how to teach it. But we do have a responsibility to provide some guidance and set some priorities---and we are going to fulfill that responsibility by doing a better job with environmental education than we have been doing, by giving it a better focus and more visibility, and by working with our colleagues in government and in the education profession to produce something worthwhile.

This meeting is, as you know, a follow-up to the Unesco Conference at Tbilisi. That gathering in October represented one of the critical first steps, not only toward development of an international environmental education program, but toward the improvement of our own effort in this country. I won't go into great detail about what went on in Tbilisi; you are going to have three days of that. I do want to discuss three things with you this afternoon and listen to your response: first, what the Conference signified for all of us in the education community; secondly, what we at the Federal level will do to implement the Tbilisi resolutions; and finally, what all of us can do to preserve and nurture the spirit of Tbilisi.

*Dr. Berry is Assistant Secretary for Education, U.S. Department of Health, Education and Welfare. She serves as Chair, Federal Interagency Committee on Education, and headed the United States delegation to the Intergovernmental Conference on Environmental Education, Tbilisi, Georgia, USSR, in October 1977.

What Tbilisi Meant

When I delivered the United States address to the delegates assembled at Tbilisi, I said, "Environmental problems know no national boundary. We believe that, just as our environment is shared by all, so should information about it be disseminated to people everywhere.... We are here to see that the world's new awareness of the importance of our relationship to the environment suffuses all education, all teacher training, all course-work in whatever subject—and, indeed, all the educational activities of life."

Those words, when uttered, drew a favorable response from the participants—a response that was less a testimony to my own eloquence than it was a reflection of the fact that all of us, whatever our political philosophy or the level of development of the society from which we came, understood the importance of the task before us. The Tbilisi Conference signified a basic, worldwide recognition that environmental education should move to the forefront of the international education agenda.

But the Conference had more than symbolic value. Symbolism is important in itself and we should not be overly critical of its significance, but the Conference had much more than symbolic value. It is true that the resolutions that we passed were neither earth-shattering nor brilliantly creative in that no one had ever thought of them before; that kind of meeting is not structured to produce revolutionary change. But it is also true that the Tbilisi Conference sustained and built upon a pattern begun at the 1975 meeting, in Belgrade, of the International Workshop on Environmental Education—a pattern of productive dialogue relatively free of political cant or dogmatic irrelevancies.

Tbilisi proved that educators from all nations can organize and conduct worthwhile discussions, not just on value-neutral topics like instructional technology, but on matters that strike at the heart of social, economic, and political debates. The fact that we were able to limit our resolutions in Tbilisi to education and steer clear of things like the role of the multinational corporations or the environmental impact of Israeli settlements in occupied lands is encouraging to all of us—not because we don't care about the multinationals--we do--or the Middle East--we do care-- but because we do care about education and can only progress in international education efforts when we keep our focus on the business at hand.

We managed to do this in environmental education; some day, if we keep trying, we may be able to do it in all other areas as well. All of us, as educators and students, hope that the day arrives soon when we can talk about knowledge, ideas, and dissemination of knowledge without having to draft our speeches five times to avoid political misinterpretation. When that day arrives, we will be on the threshold of an era when free expression of ideas, and unfettered debate over the quality of scholarship, is the rule in international discussion of education rather than the exception.

The Tbilisi Conference--though not, I am sorry to say some of the events surrounding the Conference--gave us hope that we are moving in the right direction.

Even if the recommendations that we adopted were not revolutionary or all-encompassing, they were substantive. We cannot, as good faith participants in that Conference and as responsible members of the international community, dismiss them as platitudes or sweep them under the rug as we utter self-righteous platitudes of our own.

I'm pleased that we have here at this meeting representatives of all segments of American education--because much of what we approved at Tbilisi calls for a state or local or even private response. Most of our fellow delegates represented countries with a centralized education system, but we--as you well know--in this country have a system that is as diverse as it is fragmented. We will all have to work together if what came out of Tbilisi is to have any impact here.

There are, however, some steps the Federal government can take on its own to comply with the Tbilisi resolutions. For example, we should do what we can, as soon as possible, to implement the Unesco recommendation to establish a national center on environmental education. To a limited extent the Office of Environmental Education that already exists in the Education Division is a logical location for this center--but as many of you know that office is still in its developing stages and has yet to find a clear focus for its activities. Whether we ought to work with the Environmental Protection Agency, the Council on Environmental Quality, or other agencies to establish a new, cooperative center to provide information and coordination, and let the current program function primarily as a grant allocation mechanism--or whether we ought to upgrade our efforts within HEW--is an open question at this point. I would hope that in your discussions here you would give us some guidance on this issue. But one way or the other, we ought to take some additional action soon.

And we ought to act to focus our Federal research effort on environmental learning and teaching methodology to a far greater extent than we have done thus far. The Departments of Agriculture and Interior have done some good work, but the National Institute of Education has done very little in this field; we have to remedy that. We have to mobilize the research resources that exist, not just in NIE but throughout the Federal government, and put together curriculum packages that classroom teachers can use and use effectively. We don't want to see a Federal monopoly here; private groups have a great deal to contribute and, in fact, most of what is available comes from nongovernmental organizations. But, with an education research budget that provides upwards of \$100 million to NIE alone, we have to do a great deal more than we are doing before we can say that the Federal government is acting in the spirit of Tbilisi.

In other areas covered by the recommendations, the Federal role is no less important--but it is less direct. To cite one example, the Unesco resolutions call upon member states to revise teacher college curricula to incorporate environmental subject matter. We in Washington

people working at the institution itself; otherwise, experience tells us, they are doomed to a short-lived existence. It may be true that in France the Minister of Education knows what is happening in every sixth-grade classroom at every hour of the day—but it is not and will not ever be the case here. I don't know what's going on in any classroom at any given hour.

What we can do in HEW is utilize our demonstration grants programs to encourage teachers colleges to take the initiative on environmental education. This kind of effort could represent one of the focal points that the Office of Environmental Education needs. It could also represent a new and exciting challenge to the Fund for the Improvement of Postsecondary Education. Here, too, we hope that in your discussions you will give us some ideas on how to mobilize Federal resources in a supportive way.

In a closely related area, the Tbilisi report calls on us to incorporate environmental material in our in-service teacher training programs. In this age of enrollment decline, when the number of openings for beginning teachers is dwindling (in most fields) to the vanishing point, in-service training is going to be the only real mechanism for us to inject new ideas and methods into the education profession. As many of you know, we are starting to put a network of teacher centers into operation--centers run by and for teachers in service, offering them the kind of supplementary training they feel they need. These centers have a great deal of autonomy; that is as it should be, and that is the way the legislation and regulations creating the program were designed.

But there is nothing to prevent us--and, indeed, there is much to be gained--from using Federal resources to encourage the teacher centers to emphasize environmental education. We can offer special support for environmental emphasis in the centers without violating their independence--we could supply curriculum materials; make supplementary services available, or we can simply use public forums to keep environmental issues at the forefront of the teaching profession's list of concerns. I am convinced that, as the importance of education in this area becomes better understood by the public and by educators themselves, we will find an audience of elementary and secondary teachers eager to upgrade their skills in the environmental field.

This is as true of other professionals as it is of classroom teachers. Unesco asked that environmental studies be incorporated into training programs for economists, for architects, for engineers, and for forest managers. In my own view, we ought to extend that mandate to cover lawyers and health professionals at the very least, since so many legal and health-related concerns are related to or stem from environmental factors. People in all of these professions need to develop--and want to develop--the knowledge base that will enable them to understand the environmental impact of what they do. We at the Federal level have an obligation to work with the states and with private institutions to bring environmental studies into all pre-professional programs, and to do it in a way that encourages students to utilize their information in a practical way once

These examples represent just a few of the approaches we can take to implement the Tbilisi resolutions. There are others I could cite, but I would prefer to leave to the panel and to all of you here today the opportunity for some creative thought. We do not see environmental education as an area requiring a massive Federal presence, or massive Federal funds. We do see it as a field in which we, in partnership with others in the education and environmental communities, can stimulate thought and have a positive impact.

The Spirit of Tbilisi

In the final analysis, the extent of our willingness to put the Tbilisi resolutions into effect will be measured, not by the funds we spend, but by the moral commitment we make to use education as a means to protect our environment.

This commitment is not something we in government can create alone. We do have certain resources, apart from our financial capability, and we should make the most of them. We can command public attention, we have access to opinion leaders, and we can set examples by our own behavior for the private sector to follow. This Administration's record of performance isn't perfect, from an environmentalist's perspective, but it's good--and we can all work to make it better.

But the major part of this effort--the effort to dedicate the Nation's heart and mind to the cause of the environment--will have to fall upon people outside of government: on private organizations, on schools and teachers, and on individual Americans. In my address at Tbilisi, I quoted President Carter's statement that "increasing numbers, now into millions, of individuals throughout the world have adopted an environmental conscience to test and guide public and private actions." It is the composite conscience and consciousness of these individuals that we in government here, and our colleagues abroad, can encourage and reflect, but not create.

In her monumental book Silent Spring, Rachel Carson wrote, "The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts." In the words of Jean Rostand, "The obligation to endure gives us the right to know."

I believe that an educated public, one that knows the true cost of environmental exploitation, will make decisions that are right and just, and will turn away from the road to self-destruction. All of us at the Unesco Conference shared that belief; otherwise, we would not have come. That, in essence, was the spirit of Tbilisi.

Whether that spirit will be shared by others, and whether it will be translated into action, is as much for all of you to determine as it is for us. I cannot be certain that we will accomplish all that we hoped for last October. I only know that the cost of not accomplishing what we hope for will be fearful and indeed we must make our best efforts

OFF THE MERRY-GO-ROUND AND ON TO THE ESCALATOR

*by Charles E. Foth**

The title for this presentation was glibly tossed off in the thick of a very late-night planning session for this conference. The metaphor, on examination in the light of day, seemed much less effective. However, it still appears that environmental education, and the movements from which it evolved, have been running around the edges of traditional education for nearly a century but have not been able to grab the brass ring that would allow it to move into the central mainstream of American education.

In less than a decade we have seen the rhetoric that bills itself as environmental education move from some pilot efforts in a handful of communities, to a national Environmental Education Act, to an international ministerial level conference. Unfortunately, we are still a very long way from a comparable escalation of implementation of environmental education practice into the broad education system. That is the task we must address in the days ahead. It is the heart of this conference and those we trust will follow. We must find the systemic strategies and tactics that will convert rhetoric to broadly accepted and implemented practice. Such a challenge is easily laid down; it is met with great difficulty. It will demand commitment, dedication, perseverance, and much hard, often unpleasant, work.

Before we set out upon the task it behooves us to look backward to the intellectual roots of the environmental education movement and the struggles of the various preceding movements from which it emerged. Their successes and failures may offer enlightenment for our deliberations. The historical perspective I am about to set forth is no definitive, scholarly documentation, but rather an impressionistic distillation to help us focus our thoughts on how we arrived at today. Looking at the strategic successes and pitfalls our predecessors encountered may help us in our search for a sure path across the heavily mined fields that lie between where we are and the mainstream of both educational and environmental sanity. Our goal remains reasonably clear: develop an environmentally literate citizenry that can develop a fulfilling life that does not impair the planetary support system for living things. Effective achievement of that goal is far less clear.

In spite of widespread perception to the contrary, environmental education did not begin in 1969 or 70. The false perception appears because that is the time when Environmental Education began to get big press--due to two major events---worldwide viewing of the first pictures of the whole Earth from space and the first Earth Day Teach-Ins. Actually environmental education began emerging in its own identity nearly a decade earlier. Several people claim to be the first to use

the term in print in the mid-60's, but to my knowledge the term was first used by Matt Brennan, then at Fitchburg State College, in an article in the Bulletin of the Massachusetts Audubon Society in 1958. In reality, identity of the first user is academic and basically insignificant; as the Taos Indians have expressed it in the words of Nancy Woods, "We are not important. Our lives are simply threads pulling along the lasting thoughts which travel time that way."

The concept of environmental education was emerging and evolving in the minds of a number of people of the late 50's and early 60's as they interacted with the material and intellectual environment of the day and built upon the base of ideas of those who had preceded them. These leaders generally belonged to one or more organizations concerned with both education and environment. Stimulated by the foundational concepts of these organizations or movements, they also found considerable inadequacies and failures. Wrestling with these latter issues led them toward the conceptualizations and processes currently being synthesized in the concept we now call environmental education.

The diligent chroniclers of ideas can trace the roots of many of the intellectual strands of the fabric of environmental education far back into antiquity. Indeed, some would say that there have been earlier cultures that developed more widespread, albeit less sophisticated, environmental literacy than we can find today. On the other hand, there are strands of that fabric that date only from the last couple of decades. Among the intellectual strands of Environmental Education are: experiential learning; holistic, systemic thinking; ecological interrelationships; man as part of, rather than apart from, the natural order; and general systems theory. To date, in western culture, such concepts are essentially peripheral to mainstream operations. They imply strong alterations of the status quo; indeed, they point to a new order of things. They threaten business as usual, even though they may be the future.

Fibers of these intellectual strands have manifested themselves in a variety of movements over the last century. No movement to date has incorporated them all. Some of the movements were more concerned with educational reform; others with understanding of the environment. The most prominent inputs came from five movements--the nature study movement, the conservation education/resource-use education movement, the outdoor education movement, the progressive education movement, and the science curriculum development movement. Each has had various degrees of success and influence; none has gained the foothold adequate to alter the mainstream flow of the culture. Today environmental education, having borrowed and grown from each of these stems, and others, attempts to provide an educational base for helping people live rich, fulfilling lives without disrupting the functioning ecosystem that sustains us, and other living things.

Each of the movements has profited from the body of thought of key individuals who synthesized random observations into a new order and who enthused others with the promise of their thinking. Often the followers did not comprehend fully the detail and implications of the ideas but

---those pieces that had greatest appeal to their own interests--but they projected to others that those pieces were the whole. Often the apparent followers of the new approaches made no substantive change in old procedures, but continued in the older manner under the new banner. It has all too frequently been these mindless camp followers of new leadership whose performance supplies the ammunition critics need to debunk any challenges to status quo.

For example, the nature study movement arose out of response to the strong inadequacies of a 19th century science education that was based largely in mere rote acquisition of knowledge through books and the lectures of professors. Louis Agassiz initiated the change process through his constant exhortation to his students to "study nature, not books". Educators such as Wilbur Jackman, influenced by the Agassiz approach, began designing school activities for children based on the master's dictum. Liberty Hyde Bailey, botanist and college president, perceived the merit of the work that he saw a number of people doing and synthesized and broadened their efforts and focused thinking through his seminal volume, The Nature Study Idea. In that book, Bailey moved away from the sole discipline of science to a more holistic approach using all the senses but expressing them through art, poetry, prose as well as scientific recording. He also stressed helping the child encounter the world first at his or her developmental level, using the emotions as well as reason. Bailey wrote: "The greatest thing in life is a point of view. It determines the current of our lives. The satisfaction we derive from the external world is determined by the attitude in which we consider it. All unconsciously one's habit of mind towards the nature world is formed. We grow into our opinions and beliefs without knowing why. It is therefore well to challenge these opinions now and then, to see that they contain the minimum of error and misdirection. Nature-study, properly handled, interprets nature. It does not stop dead with the information that is acquired. It endeavors to understand as well as to see."

Unfortunately many of those who tried to put nature study into practice saw in Bailey's work only what they wanted to see; they focused on the artsy end of things and mere rambles in the countryside. Respect for the nature study approach dwindled and died in the forties and fifties and the star of rigorous science education began to rise. Bailey is being rediscovered today and people are amazed at the currentness of his thinking; it is almost as if nothing had changed in the 75 years since he wrote it. "Mere facts are dead," he wrote, "but the meaning of facts is life. The getting of information is but the beginning of education. With all the getting, get understanding."

In large measure it would appear that the nature study movement was derailed by followers who did not understand adequately its underlying philosophy, but that does not adequately reflect what happened. Implementation of the precepts of Bailey's ideas and those of other key thinkers in the movement would have meant a restructuring of school organization, particularly outside the essentially rural one-room school-houses where it originated and flourished. Key to the thinking was Bailey's statement that nature study "is putting the child into intimate

compartmentalization of the larger more urban schools and their more difficult access to the wider world around them fostered selection of the more classroom-based aspects of nature study and a bypassing of the structural substance. Many of the approaches to environmental education face the same problems today, in spades! The difficulties of imposing holistic, synthesizing, experiential approaches to learning on an educational system that, for a number of reasons of varying validity remains compartmentalized, discipline-focused, and confined to classrooms (no matter how architecturally original) are monumental.

The science curriculum improvement movement of the post-Sputnik era faced these same problems in different degrees. At both the high school and elementary levels they brought some of the ecological subject matter of environmental education into their programs. Much of their trial work was in urban areas so their ecological effort has to face the constraints of the schools. Films, games, and mini-closed system aquariums and terrariums were used to teach the big concepts, but the youngsters can't seem to relate those concepts to the real world. Despite some noble attempts, most of these new curricular lack holistic approaches. The attempts of a social science approach in this realm have been more successful but Man, A Course of Study, for example, in its success, too radically threatens many people. A number of very high-powered minds have worked on these massive curriculum projects of the 60's and important changes have occurred, but much of the effort has been too high-powered, too far ahead of the populace, and not responsive enough on one hand, or too responsive on the other, to the realities of school bureaucracy.

The conservation education movement originated in large measure from a governmental base. As environmental problem after environmental problem, from forest depletion to chemical pollution, was met through creation of governmental agencies, that is from the Forest Service to the Environmental Protection Agency, certain steps occurred. The first was usually legislation, then enforcement, and then the realization that education was needed so that people would understand and willingly obey the laws. This was not usually "education" in its broadest, more open, sense, but rather "advocacy education." Most of the people assigned to this task were resource, rather than education, oriented. They put out a great deal of printed information and used the public media extensively, but they also wanted to reach out to the great captive audiences in the classrooms. Using their positions of influence and persuasion they made great inroads with the textbook companies. The last chapter of most science textbooks and some social studies once was Conservation of Our Natural Resources. These chapters were all based on resource-oriented issues. With a majority of the users in cities and towns, teachers often found the chapters seemingly irrelevant to their students' needs; besides, they seldom got all the way to the last chapter in the book in the year. The conservation unit did much to give visibility and acceptance to conservation education, but the impact on the learner was far less than desired.

The conservation education people were also able to influence many state legislatures to mandate the teaching of conservation in

Unfortunately, studies reveal no detectable difference in the amount of conservation actually taught between states that have such legislation and those that do not. A great many workshops and institutes have been held to help teachers do the job but attendance at these has dwindled drastically.

Whereas straight conservation education had a primarily science-oriented focus, its twin movement, resource-use education, focused more on economics and geography. Unfortunately, both these subject areas have been receiving short shrift in the curriculums of the past 25 years. However, the resource-use education people tended to utilize the classroom teacher to a much greater extent in developing instructional materials. Their materials were often more pedagogically useful but the content was often much weaker than the conservation education materials.

The outdoor education movement has traditionally been less interested in the content than the process of its activity. Epitomized by the dictum of its chief philosopher, L. B. Sharpe, the movement focuses on "teaching outdoors what is best taught outdoors, and indoors what is most appropriate there." Although outdoor educators have done much with schoolgrounds and some with local community studies, they have had their greatest impact through the medium of residential camp programs. The movement had had only limited success until the mid-60's when monies available through ESEA, Title III, provided opportunity for a number of school districts to initiate such projects. Environmental studies have been a major program component of such outdoor education residential programs. Because these programs are somewhat expensive in terms of facilities, travel, food, etc., they are generally perceived as very desirable but something of a luxury, and are easily dropped from the budget when times are tight or the teachers' association demands overtime pay for camp duty. Such appended programs are usually seen as an extra, not an integral part of the ongoing curriculum. This not only makes them vulnerable to cutting, but also leads many systems to feel that they have done their duty to environmental education completely if they send their kids off to camp for a week.

The progressive education movement of the 1930's was the most education-oriented of the forerunners of environmental education. Its roots reach back along a line of thinking that includes Comenius, Rousseau, Pestalozzi, and Froebel but which has its philosophical touchstone in the thought of John Dewey. In many ways it has been the movement most successful in gaining headway in bucking the bureaucratic establishment of schools. The planning of the progressive educators was slow and careful. They gained control of prestigious teacher- and administrator-training institutions. The people they trained made great headway in making education more responsive to the needs of children and the movement also brought about some curriculum reforms toward a more holistic approach to learning. Chief among these was the core curriculum. By 1950, about 3.5 percent of public high schools had adapted some form of core curriculum. The core curriculum helped produce a more broadly perceptive citizen, but was less successful in preparing people for the more specialized world of work.

As the influence of the movement grew, some of the followers of Dewey, chiefly William Kilpatrick and his disciples, chose to direct the movement toward radical social reform, using the school system as a tool. Dewey himself challenged these directions but to no avail and public backlash to the movement essentially crushed it and made progressive education a dirty word, on a par with communism. Most unfortunately Dewey was blamed for progressive education and his ideas were essentially scorned, indeed blacklisted, in educational circles for more than a decade. More recently he has been rediscovered as a thinker apart from the movement and restored to his proper place in educational thought. A resurgence of his ideas can be seen in part today in the guise of humanistic and experiential education and the British primary schools.

In the early 1960's, several people who were primarily teachers with a strong interest in nature study and conservation informally agreed among themselves to begin using the term "environmental education" for what they were doing and advocating. For while it contained much of what was core to nature study, conservation, and outdoor education, they were concerned about areas these movements were largely ignoring---such things as outreach to our increasingly urban population, growing problems of pollution, emphasis on human development as a route to understanding, and a basically ecological overview. Nature study to be sure was ecologically oriented but essentially in an autecological mode rather than the synecological mode that leads to systems awareness and understanding. Conservation education tended to focus on the solutions, or apparent solutions, rather than on an understanding of the problems so that learners could evaluate the validity of those solutions. This small group of early environmental educators also tended to believe that mankind, while undoubtedly unique as a species, was nonetheless natural, and part of the natural system. What humans do has impacts upon other parts of the natural system and these impacts ultimately feed back through the system to humans. In other words, environmental protection, and protection of the rights of other species, is a form of enlightened self-interest.

Such thinking was nurtured by several conferences held in the name of conservation education at the Pinchot Institute for Conservation Studies, a joint project of the U.S. Forest Service and The Conservation Foundation. The mix of people pulled to these conferences by Matt Brennan and Paul Brandwein did much intellectual crossfertilization, and the resulting mutant became environmental education. These seminal conferences not only spurred further philosophical development of individuals, they brought together representatives of the precursor movements to begin a series of negotiations for somehow joining forces in a broader effort, hopefully using paid rather than volunteer staff. It took nearly ten years and several more conferences but the end result was the formation of the Alliance for Environmental Education in 1973. However, the full-time paid leadership still eludes us.

In the mid-60's there was much discussion about what environmental education should encompass. The environment, after all, technically encompasses everything from intracellular space to interstellar space.

Was Environmental Education supposed to encompass everything? Was it nothing less than education itself? A number of definitions of scope, sequence and purpose were generated in that period and were seeing the light of day by 1969. Although the search for adequate and universally accepted paradigms continues unabated, January 27, 1969 thrust upon mankind at large a metaphor that has helped focus the parameters of environmental education. On that day people around the world saw the first photographs of Earth from space and it was beautiful. The pictures gave concrete expression to Adlai Stevenson's speech to the United Nations five years earlier in which he pointed out that we are all but fellow travelers on a spaceship essentially limited to the resources we now have.

During the 50's and 60's environmental deterioration has been mounting to levels almost everyone was aware of through personal experience. Rachel Carson had alerted the public to the hidden hazards of pesticides, and radioactive hazards were being brought to public attention as well. Thus the public was learning of the invisible long-term hazards of some human behavior as well as the more short-term obvious ones. There was a great consciousness raising, but people had little true understanding of the issues or of their root causes. In this country in particular, there was still a feeling that we could always walk away from our messes and begin anew elsewhere. The view of Earth from space brought such thinking up short, as the title of one environmental anthology of that period highlighted--There Is No Way.

The climate was now ripe for some leaders not only to hear but to listen to those who spoke of the need for this new synthesis calling itself environmental education. Senator Gaylord Nelson, long a friend of conservationists and conservation educators, and Congressman John Brademas, a leader in education, captured the spirit of the times and guided their Environmental Education Act through Congress. In spite of continued behind-the-scenes roadblocking by the Nixon and Ford administrations, Congress managed to provide minimal funding to keep the effort alive. The activity of the Office of Environmental Education which the Act created has been open to much criticism, and often legitimately so, but nonetheless its very existence has stimulated much more activity and thinking about environmental education than is likely to have occurred without it. Other governmental agencies have played active roles in one aspect or another of environmental education but there has to date been little systematic, coordinated effort and cooperation among the interested government agencies. The formation of the Federal Inter-agency Committee on Education's (FICE) Subcommittee on Environmental Education in 1975 was the beginning of an option that could result in such coordinated effort and help implement the Tbilisi recommendations.

The Act has stimulated more Environmental Education action in some state departments of education in spite of generally poor relations with the Office of Environmental Education; although there has been some substantive effort in some states, most have miles to go before they are supporting a significant environmental education effort.

*The non-governmental organizations have been the key spark for development of environmental education and they will have a

their proper role in financing and institutionalizing basic environmental education. They will also have to take the lead in developing and implementing environmental education in the nonformal sector of our broad educational system. As FICE provides a rallying point for governmental agencies, the Alliance for Environmental Education provides a rallying point for the nongovernmental sector.

The ERIC system, through the SMEAC Center at Ohio State, has played a vital role in collecting the body of materials generated through the past years, filtering out the best and re-packaging it in special publications and literature searches. They are a key bridge between the governmental and nongovernmental environmental education efforts.

Publishers have produced environmental education materials from books to audio-visuals and simulations. Environmental education offerings regularly appear on the programs of a variety of professional education organizations. More young people are graduating with the background to teach at least some key aspects of environmental education. There is even a longstanding Journal of Environmental Education and a professional organization for environmental educators, the National Association for Environmental Education.

Since 1971 a series of conferences have been held that have fostered the professional development of environmental education: 1971 saw the First National Environmental Education Conference held at the University of Wisconsin-Green Bay, the first higher education institution organized around the precepts of environmental education. Another followed a year later. In 1973 the National Association for Environmental Education began its series of annual conferences on environmental education. Along with other special conferences on environmental education, these have helped expand and strengthen the field.

The Stockholm Conference on the Environment urged international action in environmental education. Unesco recruited Bill Stapp to head its effort. With his longstanding practical and theoretical involvement in the movement, he was a logical and wise choice. He initiated a three-year cycle of meetings that ultimately led to your being here today. Beginning with an international meeting in Belgrade in 1975 to develop a basic charter and recommendations, the cycle has moved onward. Prior to Belgrade the Alliance sponsored a meeting at Snowmass, Colorado, to provide some U.S. input into the Belgrade Conference. Following Belgrade there were world regional conferences which resulted, in North America, with an Alliance-cosponsored conference in St. Louis in 1976. The conference in part responded to the Belgrade materials and made input into the formal positions of the ministerial level conference at Tbilisi about which you have just heard.

In one sense this all adds up to an impressive amount of growth and activity in little more than a decade, but if we back off a bit to view the scene we can perceive something akin to a house of cards. There is great need for some real glue to consolidate the efforts to date. We don't want to see progress to date collapse as did the progressive education movement.

Most of the conferences of the past few years have focused on what we ought to do in environmental education. This conference is trying to focus on what we do next to put ought into sound practice. As we work over the next couple of days on strategies and tactics to help bring the rhetoric of Tbilisi, along with that of other recent conferences, into solid foundational action we need to keep some realities in mind:

1. A great many, if not most, of the environmental education projects flowered only during their period of federal funding but have greatly dwindled or disappeared when support had to come from local funding.
2. Appropriations for the Environmental Education Act have never approached even the minimal authorization and these authorized dollars have never been near the funding level needed to accomplish the task of creating widespread environmental literacy.
3. The rhetoric of environmental education is motherhood and apple pie, but the reality of environmental education often conflicts with the traditional bureaucratic approach to education. Thus verbal support of environmental education is much greater than actual support.
4. Environmental education is given verbal support by many educators but when asked to put it in rank order priority with other educational issues they generally place it well down the list. Most educators are not aware of how environmental education can contribute to resolving some of these other educational issues.
5. Most teachers now teaching have had no training in the areas that make education truly environmental. They are not overly eager to gain that training/education. Working with the existing bureaucratic structure is tough enough without getting involved in activity that may rock the bureaucratic boat. The teacher employment picture is so grim that new teachers who may have had some appropriate environmental education training have little chance of gaining entry to the professions.
6. The public does not yet see environmental education as an issue; they are more concerned with performance in the area of the 3 R's. We are asking them to rank the 4 E's---Energy, Ecology, Economics, and Ethics---right up there with the 3 R's and we have not been very successful.
7. The environmental education concept is perceived by reasonably intelligent people in the educational world, and their goodwill and support have helped the recent escalation of interest and development of environmental education. This is largely because these people see the environmental degradation about them. But these people have not taken environmental education on

and communication of their upper echelon to the troops in the field. These leaders are also quick to back away from environmental education when its implications begin to stress the operant bureaucracy. We have much to gain from looking harder at Theobald's Habit and Habitat and his perceptions of how new ideas are handled in bureaucracy. This leaves us a choice--redirect environmental education to fit the current bureaucratic design, or be prepared to develop a parallel system to interface with the bureaucracy and engage it in a struggle for change.

8. A considerable amount of environmental education material has been developed in the last decade but most of it has had very limited use and distribution. There has been precious little evaluation of any of this material. It needs real testing and study before more is generated. We need real experience of the first generation materials before we produce second generation material that is well designed and a known improvement.
9. Environmental education tends to strive for the development of an informed citizenry; current educational stress is on training workers. Vocational education seems to appear to be more important than citizenship education. Generalists are not very employable; specialists are. Holistic approaches stimulate generalists. In other words, environmental education is pushing again at an angle to the mainstream.
10. In spite of lip service to Life-Long Learning, little adult environmental education is taking place.
11. Much of the training offered in the name of environmental studies and environmental education in the arena of higher education is not itself holistic, systemic, experiential. It is very discipline-oriented, with an essentially "science-bias."
12. Workers in environmental education have been largely politically impotent. They haven't even effectively recruited the environmental activists to pull for their cause. Congressmen are underwhelmed at the mail they don't get about environmental education and the Environmental Education Act. We lack articulate, fighting spokesmen that generate news and thus public visibility. We may have a brilliant concept, but we appear dull. We haven't even been able to light effectively the fires within the membership of Alliance member organizations such as the National Education Association, American Federation of Teachers, National Wildlife Federation, and others.

These dozen or so inadequacies demand addressing if we are to sustain forward motion and cement together our earlier foundation.

I have led many fieldtrips over the years and participated in many more. On such trips, one observes a nearly universal phenomenon. The leader always moves faster than the pack. If the leader gets too

members of the group, he looks back to find them strung out way back down the trail. A few stalwarts usually remain with or near the leader but the bulk string out along the way, often clustering about emergent subleaders who may or may not share the leader's interests and abilities.

When moving into unfamiliar terrain it is easy for the leader to get so far ahead of the group that he or she loses the pack. The leader then must retrace steps or wait for the rest to catch up---if they haven't gotten discouraged and turned back. Forward motion has to proceed with constant attention to the pace of the group. The more participants, the slower the pace.

Environmental education is at a similar situation. A few leaders in environmental education have been able to move swiftly ahead into new territory. We now have to help the rest of the group to catch up and as we draw new recruits along the way we will suffer the frustration of an even slower pace. The strategies we develop in the next few days and the actions we take thereafter will have to reflect this or we as leaders may march ahead into oblivion, leaving our followers either lost or turning back into the status quo.

THE ROLE OF NON-GOVERNMENTAL GROUPS IN ENVIRONMENTAL EDUCATION

*by Thomas L. Kimball**

Good afternoon, ladies and gentlemen. The National Wildlife Federation is pleased to welcome this National Leadership Conference on Environmental Education to consider the role of non-governmental groups in meeting our common goals. I think all of us have good reason to feel proud of our involvement in environmental education, because helping people to learn about the world they live in and how it works is vitally important to the future well-being of our planet.

As citizens we know that the quality of our life in the future will be determined in large measure by how environmentally aware the world's population can become. As educators we know that two things are necessary to develop that awareness: caring and knowledge. Together, care and knowledge can be translated into the understanding we need to solve our environmental problems.

We need people in the environmental movement who care about the condition of the earth, because as the American poet e. e. cummings would say, "feeling is first." If people care about streams and rivers, about oceans, and air, soil, and water, about people and, of course, about wildlife, they are ready to learn how they can help. Only after they have been awakened to the beauties of the natural world can they be enlisted in the struggle to protect it. And protect it we must. That is a matter of survival, and environmental education is survival education.

We also need people with knowledge. We can't expect everyone to become a pollution expert, but we can expect them to know that to preserve our natural resources we must clean up pollution by controlling the sources of pollution. We can't expect everyone to become an expert on estuarine ecology, but we can expect them to know why wetland areas constitute some of our richest and most productive wildlife habitat. We know that it took professional researchers to discover the insidious effects of DDT on wild life, but we also know that it took informed citizens and lawmakers with a love for wildlife to call a halt to the depredation by banning the use of DDT. So, we know that when people who care are given the facts they will stand up for a better world environment.

Care and knowledge are, therefore, the two keys to a quality environment.

How do we use those keys? What role can the Alliance for Environmental Education play? How do organizations like the National Wildlife

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Federation, the National Audubon Society, and the Wildlife Management Institute, to mention just a few Alliance for Environmental Education members, fit in?

I see two specific areas where I feel non-governmental groups can have a major impact on the enhancement and protection of environmental quality. First, we can interpret scientific data as it is developed. Second, we can communicate this information to the public. If we are not now fulfilling these functions, if we are not serving as the leading edge of the environmental movement, we should be. We should and we must work toward the development of an informed citizenry that is willing to make its voice heard, and we must do this by shouldering a major share of the responsibility for popularizing information about the environment.

I think we have already made important contributions in these areas. There has already been a tremendous increase in the public's awareness of environmental matters and I believe that non-governmental environmental education groups can take a great deal of credit for this widespread awakening to the needs of our world. Before the late 1960's, the media made little mention of environmental problems. Then, in the period leading up to the first Earth Day, April 22, 1970, we began to see more and more features dealing with the environment. Today, we find accounts of environmental issues appearing regularly in most major newspapers and magazines. We also notice that those who write these articles have a more comprehensive understanding of the ramifications of an oil spill, or the construction of a new dam or shopping center. I think this new awareness is due in great measure to the efforts of the environmental education community. I think we have already begun to establish an earth ethic in which all people see themselves as a part of the earth, and not as apart from it.

I am sure that all of you who are representatives of Alliance for Environmental Education member organizations will agree that since its inception at Wingspread, Wisconsin, in 1971, the Alliance has made an important contribution by maintaining a communication network for non-governmental organizations with common goals. The National Wildlife Federation feels that it has benefitted by its membership in this umbrella organization, most importantly through the many excellent opportunities it has afforded us to meet with others who share our concern and to exchange ideas and information. We know that as environmental educators we are also environmental students, and we learn from each other. That is why we feel it is important for the Alliance to keep these lines of communication open.

But the progress we have seen in recent years is not sufficient. There is much that we must still do.

We must crack the formal school system by developing educational materials for the schools---materials that will be used by the schools. We must also develop materials for the general public that will make the best possible use of available data. And we must improve the distribution of the materials we develop; information that stays on warehouse shelves educates no one.

How can we be sure that the materials we prepare for use in the schools will meet the actual needs of teachers and students? Let me tell you of a recent National Wildlife Federation experience.

For the past 41 years, the Federation has sponsored an annual National Wildlife Week. Each year we attempt to improve the materials we provide teachers for the observance of this event. Last year, we sent a questionnaire to 200 teachers who had responded to a notice in Instructor magazine offering free Wildlife Week Education Kits for classroom use. We asked for ideas for improving the packet and replies poured in from teachers of young students telling us they would like more materials that could be used to awaken environmental awareness in the early grades. So we visited teachers in nearby Fairfax County, Virginia, to determine how we could meet this need. The answer amazed us; these teachers all said they wanted pictures of wildlife. We were non-plussed to realize that although we publish pictures of wildlife in our magazines all the time, we had not been using them to best advantage in our Wildlife Week Kits. We had been too close to the trees to see the forest.

So, this year we included a special poster composed of 16 small pictures of animals with information about each of them on the reverse of the poster, and added two and one-half pages of ideas for using the pictures.

My point is that we went to the teachers themselves for ideas about their needs and then developed our materials to fill that need. By doing that we have helped them to help their students discover new aspects of the world around them.

Still, that is not enough. It would be, if every teacher had a background in ecology and the interrelationships in the natural world. Unfortunately, that is not the case. So we must also provide the schools with information that will train teachers in using the data we prepare for the classroom.

I believe that education of our children is the major, long-term answer to a healthy environment for the future, but it is obvious that most of the current population is no longer in school. If we are to win today's battle for the environment, we must also reach the adults who are voting now, making decisions that will have a significant effect on our world for the next few years. If we do not meet that educational challenge, we are all in very serious trouble.

How do we meet the challenge? First, we must increase our efforts to spread the word through printed materials, news releases, films, radio and television announcements, seminars, and continuing education programs. We must develop the public's awareness that there are acceptable solutions to nearly every problem, whether it involves the diversion of a road around an important wildlife habitat area, the consideration of alternate forms of energy, or the control of pests by methods that will not poison the environment.

Having thus engaged the public's attention and proposed solutions to the problems facing them, we have a further responsibility to expand the general understanding of the issues involved. To do that, we must provide

for widespread distribution of materials that define the immediate and long-term costs and benefits of actions that affect the environment. To assure broad dissemination of the facts, we must keep our materials simple and inexpensive. National Wildlife Federation, for instance, limits most of its educational publications to a single topic and offers them free to the public on a single copy basis. The growing demand for these publications has convinced us that more impressive, highly technical materials which the average person could neither understand nor afford would be a waste of our limited time and money.

Finally, we must encourage the public's participation in the environmental debate by helping them to understand the methods that are available to them for making their opinions known. It is, as we have all had occasion to learn, sad to lose a battle because we did not have sufficient information; it is tragic to lose because our voices were not heard.

To avoid that tragedy, our organizations must be effective in guiding the population along the path from a first consciousness of the value of nature because of the beauty it adds to their lives, toward a search for knowledge that will reveal the power humankind has to manipulate nature. It is up to us, as environmental educators, to see that all citizens then come to understand their proper role as stewards of the earth and exercise their power responsibly.

Then we shall see how care and knowledge can be used to unlock a healthy future for the environment.

PERSPECTIVES ON A NATIONAL STRATEGY FOR ENVIRONMENTAL EDUCATION

by Alexander J. Barton*

Environmental education is being assigned a position of increasing importance all over the world today. Nations and peoples, irrespective of their places on the economic development scale, are viewing with rising concern the evidences of global environmental decay. They are demanding that science and technology devise solutions to the problems, that government and politics implement these solutions, and that education effectively communicate to the public the nature and magnitude of the problems, the array of alternatives available for their solution and sufficient insight to enable citizens to make informed choices. Finally, they are looking to education to create and maintain the aroused, directed national will without which great changes never are made.

Stripped down to its irreducible nucleus, environmental education has just three goals--

- to produce a cadre of trained professionals who are needed to design and sustain a system of beneficial interactions between the environment and the world's most abundant, influential and ubiquitous mammal;
- to create and maintain in the general citizenry a lifelong awareness that all individual and corporate decisions and activities have inevitable environmental consequences; and
- to bring humankind and its societies to the rational conclusion that modern man must so husband the environment as to maximize the support it affords to life, both now and in the future.

These are the universals; all other goals are subordinate. When it comes to policies and strategies for effectuating these goals, however, there are few universals. Representatives of the world's governments convened under United Nations' auspices in Tbilisi, USSR, last autumn experienced little difficulty in agreeing upon the goals, but they could find no one formula for advancing them. Thus that conference adjourned with a call to the nations for each to design and prosecute its own effective strategy for environmental education.**

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**Toward An Action Plan: A Report on the Tbilisi Conference on Environmental Education, FICE/DHEW, March, 1978, G.P.O. 017-060-01838-1.

As the present conference--called by the Alliance for Environmental Education--initiates this process for the United States of America, what useful perspectives are available to help in orienting its efforts?

Historical

The conferees well might begin by considering the long sweep of events that brought them together at this time, in this place, and for this purpose. It is important to realize that society has sent them here out of a sense of growing urgency.

For five millenia, humans have observed a progressive decay of the environment round about. At first this degradation occurred only in the immediate neighborhood of concentrated human habitations. Only immediately downstream of villages were the waters polluted; only within the circle or a few hours' walk had the foragers reduced the abundance of edible plants and animals, or made aggressive inroads upon the populations of competing predators. Even the keen nostrils of wild creatures could detect the smell of campfires, massed bodies and decaying kitchen middens only if they approached from downwind, and the noise of human activity faded out of earshot within a few hundred meters of our settlements. Shakespeare knew that his audience would recognize it as sheer hyperbole when he suggested that one person's bloody hands might "the multitudinous seas incarnadine, making the green one red." Against such a background, it is understandably hard for a growth-oriented society to accept the notion that seemingly inexhaustible resources will one day run out--witness America's chronic difficulty in coming to reality over "unexpected" shortages of timber, water, land, and now, energy.

The pollution created by technological man at first was only noticeable; now it has become inescapable. And the decay rate keeps accelerating. It is just within this present generation that oilslicks and plastic jetsam are to be found on the furthestmost seas. Only within this generation are aerosol pesticides carried by the winds to the very Antipodes, there to be rained down upon land and sea, and assimilated into the tissues of penguins, krill, seals and a myriad of other living things that have never seen a man. There now is scarcely a mountaintop too isolated to have its ugly cache of empty cans and broken glass; a jungle too deep to bear the scars of a bulldozer; a milliliter of air or water too remote to have had its very chemical constituency altered through human improvidence. Even Earth's high stratosphere may be in the midst of irreversible change as a result of unforeseen technological side effects.

The widely held public sense of urgency that has sent you here impels you to do your work quickly and well.

Economic

All these concerns could have made no difference if there had been no room for choice, if there were no viable alternatives to the downward course of environmental decay. But fortunately, economic productivity has reached the point in most developed nations where society can afford

to opt in favor of pollution control and abatement, the wiser husbandry of dwindling resources, and similar responsible courses of action-- before these choices are imposed upon us by stern necessity. The price of changes required now need not exceed the uncommitted reserves of our economy. They will consume profits that management might prefer to use differently; they sometimes will create manpower dislocations that labor would prefer to postpone or avoid, but they can be accommodated.

This is an important perspective for environmental planners to maintain. Environmental strategy must be limited to recommendations that are economically feasible, and never permitted to overstress the carrying capacity of the Nation's economy (any more than that economy should be permitted to overstress the carrying capacity of the natural environment!). The economy has a finite carrying capacity; like other environments, it imposes limits upon the rate and magnitude of the changes it will support, and these limits must be observed. On the other hand, progress toward legitimate human goals of an abundant, free and healthy life is not to be found by retreating to the caves of a simpler era. The Golden Mean of environmentally responsible development lies between these extremes.

If environmental education is to prosper in this decade, it will be by following the spirit of the National Environmental Policy Act and its pronouncement that the route to real economic progress lies in harmonizing human activities with the unalterable natural laws which govern the environment and all the living things that are part of it.

Moral

The history of the human race has been the history of an ethic striving to be heard. The most pervasive ideas of the human species have been those that deal with the question of ought/ought not. The environmental ethic has found effective voice for many years in the Thoreaus, Muirs, Pinchots, TR's and a host of other far seeing-Americans, but it was not until our own generation that the general public developed its moral sensibility to the point where some event like the publication of Carson's Silent Spring could provide a spark that would ignite a conflagration of citizen response. Osborne's Our Plundered Planet made the same points with equal force only a score of years earlier, but was roundly ignored.

What had made the crucial difference? Was it the photograph of an ethereally beautiful blue planet floating isolated in the immense blackness of space that gave reality to the concept of "Spaceship Earth"? Whatever happened, the U.S. public of the 60's responded vigorously when confronted with the moral imperative to behave responsibly toward the environment. When American college youth proclaimed the first "Earth Day," there was a world-wide response. It seemed yet another proof of the adage, "There is no force on Earth greater than an idea whose time has fully come!"

The heartening phenomenon has been that the public has not merely rallied behind a program of enlightened self-interest. Rather it has

adopted the philosophy that modern man's power to despoil and destroy imposes an accountability, a responsibility for restraint, for stewardship, for something akin to chivalry's ancient code that the strong are obliged to protect the weak. This ethical development is one of the highlights of our generation, and it is among the environmental strategists' most powerful allies.

Political

Representative government (however falteringly) is highly responsive to what is perceived to be the will of the people. Vox populi remains the greatest of all political forces in America. Environmental protection thus is politically potent in theory. But its practice--there's the rub! National policy makers have turned time and again to environmental experts for advice, but instead of hearing a clear call to address accomplishable goals, they have heard a cacophony of conflicting voices. This divisiveness is the deadliest threat to effective environmental education in America--this factionalism that sets, for example, "strict preservationists" against equally earnest conservationists who counsel the "responsible utilization of available resources." So long as the alleged experts exhibit a contentious spirit that pits "us" against the rest of society, so long as they invest more energy in adversarial tactics than in cooperation, and so long as they appear to prefer obstructionist or procrastinatory legal maneuvering over honest conciliation for the resolving of difficult issues, our cause will languish in the backwaters of political neglect. The Nation's leaders cannot be expected to launch out resolutely on a course upon which even environmental spokesmen will not agree.

Organizational

The organizational problems inherent in creating an integrated, balanced environmental education strategy for the U.S. would be much less complex if this were an autocracy, or a socialistic state where social actions were directed by the fiat of a few top decision makers. In our democracy, the process will not be easy. So many different actors--agencies of the federal government and of the 50 states, local communities, academia, industry and a vast number of other non-governmental organizations--all have viewpoints to champion and interests to protect.

Their corporate ability to control their egoism, to raise their internal politics to the level of genuine statesmanship, may determine whether the United States achieves a comprehensive environmental education strategy in this century.

The prospects for creating a coherent national environmental education strategy are not entirely discouraging. As Dr. Mary Berry (Assistant Secretary of HEW for Education) has pointed out, the diversity of our Nation's social institutions constitutes an important source of our strength. And this is the attitude that must prevail as designers of the national strategy seek to coordinate such elements as the following:

- The relationships between environmental education and environmental science--Method: Content
- A master plan for coordination; management control; system monitoring, evaluation, feedback, and readjustment; budget and personnel
- Divisions of labor
 - Private sector (professional bodies; academia; business, industry, and labor; parks and camps, zoos and museums; "NGO's," etc., etc.)
 - Public sector
 - Federal roles (model programs, educational materials, personnel, finances and resources, regional/national facilities. Coordination activities?)
 - State roles (criteria and standards, personnel training, oversight management, finances)
 - Local roles (implementation, direct management and supervision, finances)

The concomitance of all these developments--historical; economic, moral and political--created the intellectual and emotional context in which the nations of the world convened the Stockholm Conference in 1972. As we look back upon Stockholm, we can gain another perspective concerning our present task, for it is important to environmental educators that not just one, but two major lines of effort emerged from that great meeting:

Scientific and Technical Efforts:

Man and the Biosphere Program

Desertification	Desalination
Human Settlements	The Air and
Wetlands	the Oceans
Population	Endangered Species

Other UNEP Initiatives--
Past, Present and Future

Independent academic, industrial
and governmental contributions to
improved environmental understanding

Education Efforts:

E.E. Experts' Meeting, Belgrade, 1975

Regional Meetings of E.E. Experts,
1976 (Bangkok, Kuwait, Brazzaville,
Bogata, St. Louis and Helsinki)

U.N. Intergovernmental Meeting on
E.E., 1977 (Tbilisi, Georgia,
U.S.S.R.)

National E.E. Action Programs	Multilateral and International Coop- erative Programs for E.E.
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Improved Harmonization of Human Activities
and Environmental Welfare

Thus environmental educators need to realize that they are not alone in combatting the world's environmental ills. They may properly restrict their attention to the educational tasks they are uniquely qualified to perform--(a) the production of professional and technical-level experts for the environmental sciences, engineering, pollution control and abatement, architecture, transportation, urban design, land use, etc., etc.; and (b) the conveying of fundamental environmental knowledge and attitudes to non-scientists who make up the majority of our citizens. The recruitment of support, the training of teachers, the provision of requisite educational facilities, preparation of learning materials, selection of delivery systems, evaluation of effectiveness, and the host of similar educational concerns will demand the best efforts of professional educators who work within the nation's formal school systems. It will be an even more awesome challenge to coordinate with formal schooling programs the contributions of the mass media and of all the many adjunctive, non-formal education programs available both through governmental and independent non-governmental institutions and organizations. However difficult it may be to achieve, the system must acquire a monitoring, evaluation and coordination capability for maximizing the benefits and minimizing the inefficiencies inherent in its vastness and complexity. Otherwise, in place of a multimodel system we shall have no system at all.

Even as they wrestle with these operational terrors, educators must vigorously pursue their duties as the interpreters of science to the public (children, youth, and non-scientific adults--both decision makers and the general laity). They cannot delegate away their responsibility for what flows through these channels--for the currency and accuracy of the educational content. This will require the establishment of a much more efficient system of lateral channels of communication between themselves and the scientific community, for educators must observe and understand on a real-time basis the constant progress of the natural sciences, the social sciences and technology if they are to discharge their duties as effectual disseminators of environmental knowledge.

Integration

At the risk of some redundancy, we must return once more to the question of integration. Many observers of environmental education in the U.S. are convinced that the movement's number one problem is its lack of cohesion. We are many bodies (some Federal, some state, many private) in need of a head. The arms, the branches all are laboring mightily, but without enough coordination.

We hear the U.S. Office of Environmental Education being roundly castigated for failing to assume the national leadership role, but it is not at all evident that the independent entrepreneur-types who represent the various organizations would have subordinated their own personalities and parochial goals sufficiently to follow USOEE's leadership if it had been proffered! Thus the problem of integration, coherency, coordination continues to loom as our greatest challenge. Perhaps the collaborative, corporate leadership model typified both by the Federal Interagency Committee on Education (FICE) and the Alliance for Environmental Education is the best solution we can achieve initially. If so,

let us so decide and then launch forth along this path. But let us not bury this vexsome problem in the vain hope that it somehow will solve itself, for that myopic perspective will afford us no glimpses of the promised land!

Holism

One final perspective emphasized in the Tbilisi Report is that environmental education is essentially interdisciplinary and holistic in its nature. The formal Declaration of the conference stated in part, "Environmental education should be provided for all ages, at all levels and in both formal and nonformal education.... (it) should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world....By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent....By its very nature, environmental education can make a powerful contribution to the renovation of the educational process."

Such a philosophy calls for a 180° reversal of the social process by which emerging fields of knowledge vie for space in our schools' and universities' curricula. The usual process is to declare insistently that special training is required to confer unique expertise upon a select cadre of teachers who will use special resources to teach unique courses to a select cadre of students--i.e., to carve out a private turf and then populate it with a closed circle of exclusively credentialed initiates.

Environmental education is trying to give away its turf, not defend it. It is seeking ways to break out of a clique, not to form one. It is saying that no one academic niche can contain its subject matter, but rather that it must be allowed to permeate all other fields. Its goal is for students to find appropriate environmental allusions (facts, concepts, attitudes) wherever they look. It seeks to be utterly protean; to be converted into everybody else's idiom so that it may appear unobtrusively in the instructional materials used for the teaching of reading and writing, spelling and arithmetic, geography and geology, sociology and history, education, economics, political science, philosophy, chemistry, biology, engineering, law, medicine, architecture, art, drama, business administration, advertising, agriculture, transportation... everywhere! This strategy leads us over an unblazed trail. There are no precedents to show how to infiltrate material into the corpus of other disciplines so as to be indistinguishable from their material--to erase all alien signs that might risk rejection through the triggering of their "foreign body reactions." But this is the course mandated by the Tbilisi Report--we are called upon to demonstrate the wholeness of environmental concerns and their essential oneness with all other human endeavors--to permeate, and hopefully to rejuvenate, all of education.

Great achievements begin in a great vision, but they never become achievements at all unless they soon advance beyond the merely visionary. This sobering thought adds its weight to society's demand that we get on with the business of devising a workable National Action Plan for Environmental Education.

Conclusion

These perspectives might be taken as the admonitory "notice to mariners" for those plotting the course that lies before this National Leadership Conference. With Scylla hard on the right and Charybdis threatening on the left, ours is no voyage for the faint-hearted.

It will be easy to fail. Only the highest wisdom, the best of good will, and the most selfless, earnest dedication to truth can prevent us from doing so.

ELEMENTS OF A NATIONAL STRATEGY FOR ENVIRONMENTAL EDUCATION

*by WILLIAM H. STAPP**

Introduction

I was asked by the planning committee of this conference to develop a presentation on the Elements of a National Strategy for Environmental Education. I found this an interesting task since I had not previously thought about the elements of a national strategy for environmental education to any significant degree.

As I started to think about this task, it very quickly became apparent that many of the elements have already been accomplished, thanks to the commitment of many people gathered in this room and situated elsewhere in the United States.

I see my role today, to identify some of these existing elements and to link them with other elements that might comprise a national strategy for environmental education.

In collecting my thoughts, I have gone back to October of 1970, when the President signed into law the Environmental Education Act, which was intended to address the environmental education needs of all citizens. I have also reviewed the findings and recommendations of seven national and international conferences held in the United States and abroad over the past four years. I believe these recommendations help to form many of the basic elements of a national strategy for environmental education.

Since I will be drawing upon the deliberations and recommendations of the Environmental Education Act and the seven national and international conferences noted above, I would like to first summarize briefly the setting and the importance of each of these events.

1. *U.S. Office of Environmental Education*¹

Under authority of the Environmental Education Act, the Environmental Education Program (EEP) was established in December 1970 within the Office of Priority Management. Seven staff positions were allotted for EEP, five professionals and two clericals.

In October 1971 EEP became the Office of Environmental Education (OEE) and was located under the Deputy Commissioner for Development. Because of periodic manpower freezes and uncertainties of budget, the plan to enlarge the staff could not be implemented and the actual number of staff members on board has remained at around seven.

¹ From the proceedings of the National Working Conference on Emerging Issues of Environmental Education, sponsored by the School of Natural Resources of The University of Michigan and the U.S. Office of Education.

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The National Advisory Council for Environmental Education was formed in 1971 to serve as a resource for OEE policy making. It held an initial meeting in December 1971 and has subsequently met in various locations around the country in full or subcommittee sessions.

- a. Grants Program--In fiscal 1971, \$1 million was appropriated through a supplementary bill under the authority of the Act and designated for grants and administrative costs. Around 2000 proposals were received and evaluated, and 74 were selected for funding.

In fiscal 1972, \$3.514 million was appropriated to the Office for grants and administrative costs. Close to \$3 million of this was awarded to 162 projects in every state, the District of Columbia, the Marianas Islands, and Puerto Rico.

In fiscal 1973, \$3.180 million was appropriated to cover grants and administrative costs. Between 1973 and 1977, the amount of funds available for projects has not changed significantly.

One of the most important objectives of OEE's funding activities was to attract longer-term and more substantial financial assistance from all sources, private and governmental, to local project sites. To some degree this has been achieved.

- b. Technical Assistance--Technical assistance requests have far exceeded OEE's ability to respond. Nonetheless, considerable attention has been given to this part of the strategy. Non-monetary assistance has been provided to numerous federal, state, and local agencies and to private organizations during the past six years.
- c. The Future--In January of 1974, the Office of Environmental Education joined the Educational Technology Program and the Educational Broadcasting Facilities Program under the Division of Technology and Environmental Education. This merger has provided the resources to have a more comprehensive impact on environmental education.

On May 11, 1974, the President signed into law PL 93-278 (Environmental Education Amendments of 1974), a bill to extend the Environmental Education Act.

2. *National Conference on Environmental Education--December, 1970 held in Green Bay, Wisconsin²*

This two-day conference was attended by invited participants from many parts of the country, brought together to discuss the materials and strategy for environmental education that they have been developing and implementing.

²From the proceedings of the National Conference on Environmental Education sponsored by the University of Wisconsin--Green Bay, National Audubon Society, U.S. Office of Education, Wisconsin Department of Public Instruction and the Wisconsin Cooperative Education Service Agencies.

The conference was designed in an attempt to develop an integrated model plan that would include an orderly sequence of steps by which a school system could implement environmental concepts and materials effectively into its instructional program.

By bringing together authorities with successful experience in environmental education, the formulation of such a model plan could be given the guidance needed from leaders in the field and the surge of interest and the need for information could be met.

3. *National Conference on Environmental Studies Programs in Higher Education--November 30-December 2, 1972 held in Green Bay, Wisconsin.*³

The idea for a conference of this nature grew out of the perception that higher education was in need of new approaches to interdisciplinary programs dealing with environmental issues, particularly in the context of the urgent necessity for environmental responsibility in today's world.

The main objective of the conference was to provide a forum for the exchange of information and ideas on practices and processes by bringing together people with experience in the development and implementation of these programs.

In identifying the problems of most concern to those already involved in environmental education, or those contemplating establishing programs in environmental education, the conference planners took into account their own experiences at UWGB and the results of other conferences on environmental education, as well as the report by Aldrich and Kormondy, Environmental Education: Academic Response (1972). Thirteen major problem areas were identified, and each conference participant was assigned to a small work group, which would deal with one of the problem areas. The individual work groups were given the responsibility of formulating recommendations which would be useful to institutions of higher learning and government agencies.

4. *National Working Conference on Emerging Issues in Environmental Education--June 3-6, 1974 held in Ann Arbor, Michigan.*⁴

This was a three-day conference on "Emerging Issues in Environmental Education," held in Ann Arbor, Michigan, in June, 1974. The conference, together with extensive pre-conference research and post-conference documentation, was funded by the Office of Environmental Education.

³From the proceedings of the National Conference on Environmental

In July of 1973, a brief questionnaire was sent to 300 environmental educators. The questionnaire asked for suggestions on: 1) current issues to be resolved; 2) emerging issues to be introduced; 3) little-known readings to be shared; and 4) exciting people to be considered as conferees.

From the questionnaire response, the staff came up with a list of nine emerging issues. Short papers were produced on each of these topics* to serve as working documents for the conference.

The conference proceedings include the complete text of the pre-conference essay on each of the emerging issues, and the edited texts of small-group discussions on the nine issues. The proceedings also consider the results of a survey on the views of environmental educators around the country and of participants at the conference concerning emerging issues in environmental education. These results provided a solid data base for assessing the attitudes of environmental educators, the attitudes of conference participants, and the relationship between them.

The conference proceedings also provided a checklist of criteria for planning and evaluating environmental education programs. The checklist was developed by the conference staff based on the conference transcripts; letters of response from participants comprise an integral part of the final checklist.

5. *Environmental Education Perspectives and Prospectives Conference-- July 6-12, 1975 held in Snowmass, Colorado⁵*

This conference, which was sponsored by the Western Regional Environmental Education Council and the Alliance for Environmental Education, met in July of 1975 at Snowmass, Colorado, and was attended by educators, ecologists, representatives of government agencies, of labor, industry, and business, and of environmental and conservation groups.

The purpose of the conference was to bring together a select group of people representing a wide variety of expertise and interests in the field of environmental education to: 1) review the status of programs and accomplishments in the field; 2) identify ideals and develop objectives toward which we should be working; and 3) suggest ways and means for achieving these objectives.

*Skill training in Environmental Education; the relationship between environmental issues and issues of social justice; the constituency of environmentalism; the support system for Environmental Education; the relationship between Environmental Education in schools and the structure and process of education; Environmental Education and the concept of values;

Specific issues in various fields of expertise were studied and recommendations made to appropriate audiences. Major and overriding concerns which affect a number of fields of expertise were studied, and recommendations made to a number of audiences.

The product of the conference was a concise written report and summary of the findings and recommendations of the participants.

6. *Belgrade International Workshop on Environmental Education--
October 13-22, 1975 held in Belgrade, Yugoslavia*⁶

Some 100 educational specialists from 64 countries gathered in Belgrade 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 project, co-sponsored by Unesco and the United Nations Environment Programme (UNEP), aimed at developing an overall framework and direction for a cooperative international program to further 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 81 member states in the developing world. On the basis of the replies to the questionnaire and the experts' reports, a fairly comprehensive initial assessment of needs and priorities was drawn up.

Discussion at the Belgrade Workshop centered on this assessment and on the 14 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.

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

In addition, regional seminars were held during 1976 and early 1977 which brought together representatives from each region of the world to discuss regional environmental activities and pilot projects and to revise the recommendations of the Belgrade Workshop and adapt them to regional needs.

7. *North American Regional Seminar on Environmental Education--October 5-8, 1976 held in St. Louis, Missouri*

The idea of a North American Regional Seminar was developed at the 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, considering 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.

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 judgments about the priorities in environmental education and a clearer sense of the strategies needed to implement effective programs.

8. *Intergovernmental Conference on Environmental Education--October 14-26, 1977 held in Tbilisi, U.S.S.R.*

This Intergovernmental Conference on Environmental Education was a Category II meeting. In a Category II meeting, only official delegations from United Nations' Member States, Organizations of the United Nations, other international organizations, and international non-governmental organizations recognized by the United Nations can attend. The adopted policy recommendations of the conference are for all practical purposes binding on the member states (countries) and organizations present. Therefore, it is a very important type of meeting.

The overall representation at the Conference was excellent. In total there were official delegations from approximately 70 countries. In general, the preparation of the delegations was excellent. In practically every case the delegations had one or more official meetings prior to arriving at Tbilisi.

Most delegations arrived at the Conference with prepared draft resolutions aimed at furthering environmental education in their countries or regions. These draft resolutions were discussed and later synthesized with other draft resolutions that arose from floor discussions into approximately 40 national and international recommendations that were eventually adopted.

It is interesting to note that there was a remarkable amount of agreement at the conference at both the conceptual and strategy levels between the developing and developed countries, the Eastern and Western European countries, and within the developing countries.

There was also, at the end of the conference, a consensus among the delegates from all perspectives, including Unesco, UNEP, the various UN agencies, the member states, and other international organizations, that great progress had been made toward establishing a valid framework for international environmental education. The next step is to monitor each of the Tbilisi recommendations and to assist countries and groups in their implementation.

* * * * *

It is clear that we have come a long way since the President signed into law the Environmental Education Act in October of 1970. As a result of the combined effort of concerned and dedicated people from both public and private sectors, we have greater clarity and consensus as to what is environmental education and where it should be going.

A major challenge of most countries is to now identify a strategy to help implement the important recommendations that have been brought forward, revised and adopted over the past few years. It is for this very reason that countries, including the United States, should develop a national strategy to help implement the sound recommendations adopted at the meetings discussed above.

Major Elements of a National Strategy for Environmental Education

When I ponder on the question as to what are the major elements of a national strategy for environmental education, I think of a process to help facilitate the implementation of recommendations that have been adopted at one or more of the meetings discussed above that are important in furthering environmental education in the United States.

In thinking about the major elements of this process, I asked myself the following questions:

1. What do you want a national strategy to achieve in the field of environmental education?

2. What are some guidelines for achieving our stated goals and objectives (Guiding Principles and Programs)?
3. How do we know if we have been successful in achieving our stated goals and objectives (Evaluation)?
4. What kinds of support are needed to implement the recommendations (Institutional Arrangements, Communication Systems, Financial Resources)?
5. How will a national strategy in environmental education be developed, by whom, and when (Plan of Action, Responsibility, Timetable)?

In response to the first question, "What do we want a national strategy to achieve?" it would seem that the major purpose would be to help facilitate the implementation of recommendations that we deem important in furthering environmental education.

The other questions outlined above help to identify some of the major elements of a national strategy for environmental education. Some of these major elements, I believe, are as follows:

Goals and Objectives--identification of long-range goals of environmental education programs, as well as near-term objectives as they affect various target groups.

Target Groups--identification of the various target audiences and setting forth the place of each in reference to the others so that a coherent and internally constant and supportive plan emerges.

Guiding Principles--the conceptual framework aimed at helping the learner to acquire the stated goals and objectives.

Programs--identification of action programs for both formal and non-formal education (including mass media), training of personnel, and development of instructional materials.

Evaluation--both component projects and overall projects need to be monitored to determine if the goals and objectives of the projects are being obtained, and if not, to be able to make internal adjustments.

Research--in order to identify more precisely the most effective educational methods and procedures for achieving the goals and objectives of environmental education, a strong research program will need to be developed and the research findings distributed widely.

Communication System--suggest the elements of an inexpensive, fast, and efficient system that links performers, recipient audiences, and system monitors into a network which will support the complex infrastructure that is certain to emerge in environmental education.

Financial Resources--some preliminary assessments of budgetary needs and an early commitment of requisite resources is absolutely essential if the movement is not to be weak and ineffective.

Implementation Plan--identification of a procedure to help implement the national strategy. This needs to include a sense of priorities, recommendations to be implemented, targeting of recommendations, identification of implementation problems, identification of mechanisms to alleviate problems, a plan to communicate recommendations to institutions, and a follow-up plan.

Timetable for Implementing the Plan--establishment of a timetable and the responsibility for monitoring progress and making necessary mid-course adjustments must be developed.

Major Environmental Education Recommendations Before the United States

As a result of the seven national and international conferences held during the past eight years, identified earlier in this paper, many well-conceived recommendations have been discussed, revised and adopted. It is important to bring these recommendations forward and to view them in the context of the "elements of a national strategy for environmental education" outlined in the previous section. Many of the recommendations cited below were adopted at the Intergovernmental Conference on Environmental Education and were in many cases formulated and discussed at one of the earlier conferences.

The recommendations cited below represent some of the more important adopted recommendations which, if implemented, would certainly further the environmental education movement in the United States.

1. Goals and Objectives of Environmental Education are:
 - a. to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
 - b. to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
 - c. to create new patterns of behavior of individuals, groups and society as a whole toward the environment

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

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

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

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

2. Target Groups for Environmental Education

The principal audience of environmental education is the general public. The categories are:

- a. Education of the general public. This education should be provided at every age level and at all levels of formal education, for pupils and teachers, and in the various non-formal education activities for young people and adults, including the handicapped. In this education, voluntary organizations may play an important role.
- b. Education of specific occupational or social groups. This education is focused on those whose activity and influence have an important bearing on the environment, for instance, engineers, architects, administrators and planners, industrialists, trade unionists, policy makers and agriculturalists.
- c. Training of certain professionals and scientists. This training is for those working on specific problems of the environment, such as biologists, ecologists, hydrologists, toxicologists, soil scientists, agronomists, foresters, landscape architects, oceanographers, limnologists, meteorologists, and sanitary engineers. Various levels in formal and non-formal education should contribute to this training. It is important that the training of scientists include an interdisciplinary component.

3. Guiding Principles of Environmental Education

Environmental education should:

- a. consider the environment in its totality--natural and built, technological, and social aspects (economic, political, cultural-historical, moral, aesthetic);

- c. be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
 - d. examine major environmental issues from local, national, regional, and international points of view so that students receive insights into environmental conditions in other geographical areas;
 - e. focus on current and potential environmental situations, whilst taking into account the historical perspective;
 - f. promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems;
 - g. explicitly consider environmental aspects in plans for development and growth;
 - h. enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
 - i. relate environmental sensitivity, knowledge, problem-solving skills and values clarification at every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
 - j. help learners discover the symptoms and the real causes of environmental problems;
 - k. emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
 - l. utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.
4. Programs of Environmental Education:
- a. Development of Instructional Programs
- It is recommended that:
- 1) in all Environmental Education programmes there be systematic development and application of instruction based on the learner's motivations, having due regard to his psychological development as well as to the cultural environment surrounding him.

- 3) environmental education not be confined to providing the learner with knowledge but should develop environmental attitudes and values reflecting awareness of the surrounding environment and acceptance of the responsibility that will lead to practical action to resolve environmental issues and problems.
- 4) learner involvement in the actual professional solving of environmental problems (biophysical, social, and cultural) be part of every Environmental Education programme.
- 5) introductory courses in Environmental Education should give major emphasis to a problem-solving technique.
- 6) preparation of programmes which provide information on present or planned activities with major potential impact on the environment be developed. Such programmes should stress the importance of participation by the general public and non-governmental organizations in the relevant decision-making process. The programmes should present different possible solutions to the problems in question and aim at developing a responsible attitude in participants.
- 7) in primary and secondary schools learners be provided with a general knowledge of the work environment and its problems.
- 8) undergraduate, graduate, and technician-training programs of study for pre-professionals and professionals in environmental areas incorporate methods of instruction and materials which provide students a total systems orientation to environmental issues and problems and their potential solutions through specialized preparation.
- 9) all institutions of higher learning develop at least one interdisciplinary Environmental Education course for the general learner aimed at introducing the learner to environmental concepts, problems, their causes and possible solutions.
- 10) Environmental Education programmes for the general public be designed to bring about action in which men, women, young people and children take part together, so that the entire community is responsible for the solution of its own environmental problems.
- 11) Environmental Education programmes for adults count on the participation of the mass of the population, securing their interest so that they may assist in identifying environmental problems clearly, analyzing their causes in detail and seeking solutions to the problems encountered.

b. Development of Mass Media Programs

It is recommended that:

- 1) the planning and coordination of environmental education programmes provide for suitable measures to ensure that they reach broad sectors of the urban and rural population by means, for example, of the mass media.
- 2) the dissemination of knowledge about the protection and improvement of the environment by press, radio, and television be encouraged.
- 3) governments utilize mass media more effectively for the purposes of Environmental Education.
- 4) mass media producers be conscious of their educational role in forming consumption behavior, so as to avoid encouraging the consumption of goods that are detrimental to the environment.
- 5) a mass media-public information campaign on national or regional environmental problems be promoted to help inform the general public.
- 6) research be launched into the role of the mass media in the home with respect to Environmental Education.

c. Development of Instructional Materials

It is recommended that:

- 1) national or regional banks of Environmental Education materials and resources be established where educators can obtain instructional materials.
- 2) teachers in training should be given an understanding of as wide a range as possible of educational materials and aids, with special reference to low-cost materials and opportunities for adaptation and improvisation in local circumstances.
- 3) educators at all levels assume responsibility to work to secure the necessary human and material resources and work to establish a support system for an effective environmental education program.
- 4) a faculty and/or student international exchange programme be initiated and coordinated that can analyze needs and resources for Environmental Education and then recommend the most mutually advantageous relationships.

d. Development of Programs for the Training of Personnel

It is recommended that:

- 1) elementary and secondary educators, administrators, and all others concerned with the education of children accept responsibility for the development of an environmentally literate citizenry which possesses the skills, attitudes and knowledge necessary to identify and solve environmental problems, and learn to live in harmony with the ecosystem;
- 2) all institutions of higher education include in their general education programs broad opportunities for learners to have interdisciplinary experiences concerned with environmental issues, problems, and systems in order to produce environmentally literate citizens;
- 3) programs designed for the preparation of professional environmental educators require a sound knowledge of several related disciplines such as economics, political science, environmental biology, psychology, or others;
- 4) there be teacher preparation (pre-service and in-service) on environmental education, in both content and methodology, for those who are, or will be teaching the general student in environmental matters;
- 5) training institutions be directly involved in real-life environmental issues and investigations by bringing persons from outside the teaching profession into pre-service and in-service courses and by organizing field trips to a variety of socio-ecological learning environments;
- 6) teachers receive an appropriate environmental training relating to the area, either urban or rural, where they are going to work;
- 7) the implementation and development of in-service training, as well as practical training, in environmental education be carried out in close cooperation with professional organizations of teachers, both at international and national levels;
- 8) groups of countries on a regional or sub-regional basis organize exchanges of Environmental Education teachers and in-service training courses for teachers and teachers of teachers.
- 9) programs be undertaken for the training of curriculum developers with a view to integrating Environmental Education perspectives into all subjects of the curriculum in such a

- 10) parents be given training in Environmental Education so as to assure the informal Environmental Education of their children and so that the role of the home can be emphasized as a legitimate learning environment;
- 11) organized training courses for journalists, newspaper editors, radio and television producers and other relevant mass media personnel be developed, which will enable them to deal properly with environmental issues and education and to exchange among countries, programmes and films dealing with environmental issues;
- 12) education be offered to people already working, giving them the possibility of acquiring such knowledge about the work environment as is relevant in their jobs;
- 13) persons assigned to teaching others about the problems of the work environment be given an education to enable them to do so;
- 14) decision-makers, consultants and other key persons influencing the working environment be educated so as to become aware of the problems of the work environment, suggest solutions and ways to implement them. They, too, should be given the possibility of specialization and further education;
- 15) the training of professionals such as economists, business administrators, architects, planners, forest managers, engineers and technicians and others whose activities, while not specifically in the field of environmental planning and management, nevertheless directly or indirectly have a major impact on the environment, include a common core of interdisciplinary environmental studies dealing with both the natural and man-made environments, related to their professions. In addition, special attention should be given to the development of suitable methodologies and organizational arrangements;
- 16) programs be instituted or reinforced for the in-depth training of mass media specialists in environmental concerns.

5. Evaluation of Environmental Education Programs

It is recommended that:

- a. All environmental education programmes and projects incorporate an explicit component of evaluation.
- b. evaluation have an action and feedback mechanism so that programmes will improve.
- c. evaluation always involve the students and

- d. an international survey of evaluation methodology and techniques be undertaken within a variety of fields for useful discoveries, techniques and evaluation instruments, and alternative comprehensive evaluation models be developed and tested to meet a variety of needs.

6. Research Relating to Environmental Education

It is recommended that:

- a. there be developed national policies and strategies to further environmental education research projects, incorporating their findings into the general educational process, through appropriate courses and publications.
- b. research be carried out concerning the environmental knowledge, attitudes, values, and skills of individuals regarding the environment in order to assist curriculum coordinators, planners and producers of instructional programs.
- c. research be undertaken concerning the conditions that foster development of environmental education, directed more particularly toward: identification of content; the establishment of methodologies for the effective acquisition of relevant concepts, values, and attitudes by the various population groups; and the use of various learning environments.
- d. research be undertaken for the development of educational methods and curricula in order to sensitize the general public, particularly with regard to use of the mass media and the preparation of evaluation tools for assessing the impact of such curricula.
- e. there be included in courses of initial and in-service training of teachers, research methodologies for designing and developing methods and instruments which enable them to effectively fulfill the objectives of environmental education.
- f. research be undertaken with a view to the design and development of purpose-built instructional systems, methods and materials enabling interdisciplinary environmental curricula to be developed. With this in mind, the possibility of using elements of the natural and social sciences and the arts as a basis for integration should be studied.
- g. research be undertaken in order to develop low-cost educational methods and materials.

7. Institutional Arrangements for Environmental Education

It is recommended that:

- a. the President and the Congress of the United States be urged to

- b. the Subcommittee on Environmental Education, Federal Interagency Committee on Education (FICE), be expanded to include representation from all appropriate agencies.
- c. Federal agencies increase their sensitivity to citizen input, seeking a partnership in the decision-making process through:
- utilizing every possible method of communication.
 - monitoring input from the point of policy formulation to implementation of action programs.
 - evaluating systematically the effects of action programs to insure that these effects are responsive to public needs, thus keeping programs current.
 - increasing efforts to inform the public of the opportunities and mechanisms that make available information and assistance from those agencies.
- d. the Alliance for Environmental Education:
- develop a mechanism through which the interests and concerns of the field can be represented to the political and business communities.
 - change the organizational by-laws so that all interests--state agencies, business and industry, elementary and secondary education, higher education, federal agencies and private conservation organizations--can be represented by the Alliance.
 - assist in the establishment of groups similar to the Alliance at the state level.
- e. regional centers be established to initiate and develop regional Environmental Education programmes, study groups and training programmes and to coordinate the development and diffusion of Environmental Education information and instructional materials.
- f. each state provide the human and material resources and high-level leadership necessary to develop and implement an effective environmental education plan. State plans should identify both formal and informal public education needs, inventory available resources, and set up priorities and a timetable for a program of coordinated and effective action.
- g. each state set up a function similar to FICE, to be charged with the following responsibilities:
- inventory the environmental education resources available from the various state governmental agencies, developing a plan for the efficient utilization of these resources at all levels.

work with appropriate agencies in neighboring states to coordinate efforts, share information, and develop joint programs, activities, and materials as appropriate.

cooperate with FICE and other appropriate organizations to coordinate state and Federal environmental education programs.

- i. state agencies be urged to demonstrate leadership and commitment for environmental education in the following specific ways:

develop a policy statement or similar written declaration of the agencies' position on environmental education, fixing responsibility for the agency program.

participate in a variety of educational activities including teacher training, curriculum and materials development, technical assistance and materials distribution and by making environmental study sites and facilities available for educational purposes.

make state legislators and other appropriate officials aware of the environmental education needs of the agency, the status of programs underway, and by including in budget requests adequate funds for effective programs.

set up cooperative working relationships with other agencies so that more effective programs may be developed and offered. Interagency coordinating committees have proved effective for this purpose in many cases and should be considered.

- i. a state advisory committee representing a wide variety of environmental education interests and expertise be appointed by the governor or similar high-official body, and should be charged with the following responsibilities:

State planning--

review of present status of state environmental education planning as well as programs in other states.

development of a state plan or modification of an existing one.

development of implementation strategies and assistance with program as appropriate.

periodic review and evaluation of the state plan and its implementation.

Other suggested activities --

reviewing of applications for federal and state grant programs.

assisting in statewide student activities such as the EPA-sponsored Presidential Environmental Merit Award Program.

serving as a public forum for new ideas, programs and various environmental education activities at all levels.

providing expertise, advice, and information to state officials, legislators, state and local board of education members, and the media as appropriate.

8. Communication Systems in Environmental Education

It is recommended that:

- a. a systematic international exchange of existing teaching materials for Environmental Education be established on a world-wide basis.
- b. national and regional organizations establish a network for the exchange of environmental education information and materials.
- c. steps be taken to promote exchanges of information among national and educational research bodies, the broad dissemination of research findings and evaluation in the educational system;
- d. measures be taken, using all communication channels, to develop awareness among professional groups, policy-makers and others concerned with general education, of the need to introduce Environmental Education components in the education of the general public, from children to senior citizens.
- e. utilization be made of all existing communication and dissemination mechanisms—ERIC, Environmental Education Report, Journal of Environmental Education, federal and state agencies, newsletters from a variety of sources, libraries, etc.—for the benefit and advancement of environmental education programs.
- f. cooperation be developed with the press and media to ensure a balanced coverage of environmental concerns.
- g. an international environmental education center be established to facilitate education which fosters mutual exchange of ideas and understanding of global environmental concerns, and which encourages diverse cultural response to these concerns. This international center could focus on:
 - 1) preparation of personnel;
 - 2) identification and development of resources;
 - 3) development of curricula and educational processes;
 - 4) dissemination and diffusion of activities;
 - 5) coordination of cultural exchange programs in environmental education for students, teachers and leaders;
 - 6) research and evaluation.
- h. institutions of higher education have on their staffs people responsible for environmental education information retrieval; the existence of these specialists should be publicized so that all potential users may avail themselves of their services.

9. Financial Resources of Environmental Education

It is recommended that:

- a. funds be made available for the development, implementation and evaluation of Environmental Education programmes designed to increase the environmental awareness, knowledge, feelings and skill of individuals at all age levels.
- b. Congress appropriate additional financial support for the Environmental Education Act.
- c. an index of funding agencies and other sources and the kinds of activities they fund be compiled with a view to identifying funds for Environmental Education activities.

10. Timetable for Implementing the Recommendations

A plan and a timetable for implementing each of the elements of a National Strategy for Environmental Education would need to be developed. It is also important that responsibility for monitoring progress and making adjustments would need to be designated.

Implementation of a National Strategy for Environmental Education

The planning committee for this conference has recommended that we form into the following five working groups on Wednesday:

1. Federal Role in Environmental Education Strategy
2. State Level Networking
3. State Legislation
4. Teacher/Leadership Education
5. Acquisition and Dissemination of Materials

In line with this framework, a recommended strategy is to have each of the five working groups consider the following actions (it may be necessary for each working group to form a sub-committee to complete the necessary tasks following this conference):

1. Reach an agreement as to the elements of a national strategy for environmental education. This paper recommends the following:
 - a. Goals and objectives of environmental education
 - b. Target groups of environmental education
 - c. Guiding principles of environmental education
 - d. Programs of environmental education:
 - 1) development of instructional programs
 - 2) development of mass media programs
 - 3) development of instructional materials

- 4) development of programs for the training of personnel
 - 5) others
- e. Evaluation of environmental education programs
 - f. Research relating to environmental education
 - g. Institutional arrangements in environmental education
 - h. Communication systems in environmental education
 - i. Financial resources for environmental education
2. Identify the major recommendations to be implemented, within each of the elements identified above, that fall within the domain of each working group. Consider those recommendations identified in this paper and adopt, modify, delete, or add as appropriate. The following sections of this part of this paper (Major Environmental Education Recommendations before the United States) should be of particular importance to each of the working groups:

	<u>Sections</u>
a. Federal Role in Environmental Education Strategy	1,4,7,9
b. State Level Networking	2,8
c. State Legislation	1,4,7,9
d. Teacher/Leadership Education	3,4,5,6
e. Acquisition and Dissemination of Materials	2,4,8
 3. Identify to whom (U.S. Office of Education, state governments, etc.) each recommendation identified above should be targeted (sent with a cover letter).
 4. Group the recommendations identified above as to those to be immediately implemented (Phase I), as opposed to those that should follow (Phase II, Phase III). It may not be possible or desirable to try to implement all recommendations at one time.
 5. Identify any particular problems (constraints) in implementing certain recommendations and develop a strategy for overcoming the problems (constraints) cited.
 6. Considering all of the above, draw up a plan for implementing the recommendations according to a well-thought through time line.
 7. Assign responsibility for taking the initial steps in implementing each recommendation (U.S. Office of Education, Federal Interagency Committee on Education, Alliance for Environmental Education, State Environmental Education Coordinators Association, etc.).

8. Identify an evaluative procedure (with responsibilities identified) to determine if each step identified above has been properly implemented.

Summary

In the short time that I have had to think about the Elements of a National Strategy for Environmental Education, I have tried to identify some of the key components.

It became clear as I undertook this task, that as a result of the effort of many people seated in this room, and others like you scattered across the country, we have come a long way during the past ten years in conceptualizing the environmental education movement.

We have adopted in the form of recommendations our long-range goals of the movement, as well as near-term objectives. We have also brought forward in the form of recommendations a conceptual framework aimed at helping the learner to acquire these stated goals and objectives. We have identified through recommendations the various target audiences and set forth the place of each in reference to the others so that a coherent and internally constant and supportive plan might emerge. We have identified many recommendations for action programs for both formal and non-formal education, as well as some evaluation and research strategies. We have also identified by way of recommendations the necessary institutional, communication and financial support systems.

The task and challenge before us is to refine and link these elements into a coordinated implementation plan with a reasonable timeline, assign responsibilities, and establish an evaluative procedure.

It is within this type of a strategy that the foundation for an environmentally literate citizenry can be laid. This foundation and continued environmental education programs will make it possible to develop new knowledge and skills, values and attitudes, in a drive toward a better quality of environment and, indeed, toward a higher quality of life for present and future generations living within that environment.

RECOMMENDATIONS FROM WORKING GROUPS

Recommendations 1-4, from the Working Group on
The Federal Role in National Environmental
Education Strategy

Recommendation 5, from the Working Group on
State Legislation

Recommendations 6-12, from the Working Group
on State Level Networking

Recommendations 13-15, from the Working Group
on Teacher Inservice Education

Recommendation 16, from the Working Group on
Accessibility and Dissemination of Materials

RECOMMENDATIONS: The Federal Role in National Environmental Education Strategy

Recommendation #1: A National Center for Environmental Education should be established under the Department Secretary for Education in order to:

- a) Act as a clearinghouse and information center in environmental education training;
- b) Promote cooperation among environmental education associations, Federal government offices, citizen groups, and the scientific, research, and education communities;
- c) Provide a referral service for environmental education consultations;
- d) Support and participate in an international network of such environmental education centers;
- e) Monitor and report on the state of the art of environmental education;
- f) Establish a communications network with teacher centers, state and local education systems, and non-governmental organizations involved in environmental education;
- g) Monitor relative progress toward stated objectives in environmental education;
- h) Assist the Office of Environmental Education, U.S. Office of Education, in defining where technical assistance is needed, and advise and assist in development of appropriate programs;
- i) Serve as a mechanism for public participation in environmental education decision-making by executive agencies of the Federal government;
- j) Assist in planning for environmental education research and development;
- k) Encourage public accessibility to all practical usable public lands as sites for environmental education activities; and
- l) Serve as a referral center and repository for environmental education materials and information.

The Center should be staffed full-time by individuals from scientific, research, resource-based and other representative Federal agencies, a representative from a non-governmental organization, and a representative for state and local government liaison.

Targets: Assistant Secretary for Education, representative Federal agencies, Subcommittee on Environmental Education (SEE) of the Federal Interagency Committee on Education (FICE), Alliance for Environmental Education, and chief state school officers.

Constraints:

- a) A new organizational structure is being sought;
- b) The Environmental Education Act states that the U.S. Office of Education should perform the functions identified above;
- c) Implementation of this recommendation would stretch existing funds, and would require new funds.

Strategies: An ad hoc task force established by the Assistant Secretary for Education should:

- a) Develop a position paper on the goals and vision of the Center, a needs assessment, staffing requirements, policies and procedures, and a timeline;
- b) Discuss the proposal with the Assistant Secretary for Education;
- c) Ask the Assistant Secretary for Education to convene a management team to investigate other successful centers and design a marketable management scheme, budget process, and evaluation instrument for the Center;
- d) Present the proposal to the Secretary of Health, Education and Welfare;
- e) Develop support among other Cabinet Officers; and
- f) Seek funding from each agency/organization for its representative, with office and staff support provided by the Assistant Secretary of Education.

Monitoring: Until the Center is established, the Alliance for Environmental Education should initiate and monitor all action. One year after the establishment and full funding of the Center, the Center should monitor the stated objectives and be responsive to the management team and the Assistant Secretary for Education.

Recommendation #2: There should be established environmental education priorities and more effective communication of the large variety of environmental education-related programs and projects within the U.S. Office of Education.

Target: Assistant Secretary for Education.

- Constraints: a) Bureaucratic vested interest in the U.S. Office of Education; and
- b) Fear of loss of program control by divisions.

- Strategies: a) Inventory all U.S. Office of Education programs and projects which fund environmental education-related projects or programs;
- b) Strengthen the leadership role of the U.S. Office of Education in coordinating environmental education implementation through the Office of Environmental Education and the Federal Interagency Committee on Education.

- Monitoring: a) Establishment of written priorities by the Office of Environmental Education, U.S. Office of Education;
- b) Establishment of a U.S. Office of Education program inventory for all departments, offices, and grant programs; and
- c) Regular participation of Office of Environmental Education leadership in Federal Interagency Committee on Education Subcommittee on Environmental Education.

* * * * *

The work group which developed the above recommendations concerning the Federal Role in National Environmental Education Strategy voiced concerns relative to appropriate roles at the national level for non-governmental organizations, and submitted the following recommendations in such a context:

Recommendation #3: The Alliance for Environmental Education needs to develop a higher profile and substantive commitment for environmental education from its member organizations. An Alliance staff and office space is of high importance in this regard.

Target: Alliance for Environmental Education Board of Directors and member organizations.

- Constraints: a) Lack of support dollars in member organizations;
- b) Lack of commitment to environmental education in member organizations;
- c) Lack of adequate sales job to key member organizations by the Alliance; and
- d) Lack of equity of support from member organizations.

- Strategies:
- a) Alliance Board should develop rationale for member support of a full-time staff member;
 - b) Board or ad hoc committee should prepare and deliver a formal presentation for funding from large member organizations; this support could be used to hire a staff;
 - c) Funding of staff should be linked to the National Center for Environmental Education concept; and
 - d) Alliance Board should continue to seek industry, grant, and private funding for hiring an Alliance staff.

Monitoring: The Board of Directors of the Alliance for Environmental Education.

Recommendation #4: There should be established among Alliance member organizations a cooperative relationship in implementing environmental education projects and programs.

Target: Alliance member organizations.

- Constraints:
- a) Vested environmental education interests in Alliance member organizations; and
 - b) Difficulties in communicating cooperative programs and identifying the priority interests of member organizations.

- Strategies:
- a) The Alliance should develop an environmental education program/project task needs list;
 - b) An ad hoc committee of the Alliance should build a rationale, project list and bring this to the attention of member organizations;
 - c) The Alliance should communicate cooperative program efforts; and
 - d) The Alliance should seek industry/business support for cooperative projects.

Monitoring: The Alliance ad hoc committee should be charged with the responsibility to monitor membership cooperation.

RECOMMENDATION: State Legislation

Recommendation #5: Each state legislature should pass legislation requiring the establishment of an Office of Environmental Education within the State Department of Education, financed through state funds. A state environmental education plan should be developed to provide for adequate staff and financing the legislation should require, and the plan should address:*

- a) Teacher pre- and inservice education;
- b) Curriculum and instructional materials selection and development;
- c) Identification and coordination of program resources available from state agencies, Federal agencies, and private organizations;
- d) A state-wide advisory committee;
- e) Evaluation and monitoring of programs;
- f) Program coordination with other states;
- g) A grant program to assist local efforts;
- h) Efficient use of Federal discretionary funds for environmental education;
- i) A clearinghouse function for all appropriate funding sources such as Federal and private funding; and
- j) Linkages within the state educational agency among units responsible for various subject areas including but not limited to reading, social studies, sciences, math, etc.

Targets: State legislators and governors.

- Constraints:
- a) Lack of adequate state funds;
 - b) Lack of evidence of public support;
 - c) Lack of state-wide interest and knowledge about environmental education;
 - d) Opposition from industry, administration, anti-environmentalists; and
 - e) Competing interests.

*The above points are covered in environmental education legislation from the States of California, Florida, New Jersey and Wisconsin, which are in Appendix A.

Responsibilities:

- a) State Environmental Education associations and coalitions;
- b) State education associations;
- c) Alliance for Environmental Education; and
- d) Federal support from U.S. Office of Education, Office of Environmental Education, and the Federal Interagency Committee on Education.

Strategies:

- a) Prepare a tight and defensible general fund budget. Consider using special funds (such as revenues from special license plates), and directing Federal funds to state environmental education programs;
- b) Build an interest and power base for environmental education, which could include: key legislators and their staffs; state boards of education; appropriate state agencies; major lobbying and interest groups; environmental educators from other states; and Federal encouragement; and
- c) Contact and utilize the lobbying power of the Educational Commission of the States.

Monitoring:

The Alliance for Environmental Education should establish a committee to monitor the progress of each state in establishing state legislation for environmental education and make a yearly report to the Alliance Board of Directors.

RECOMMENDATIONS: State-Level Networking

Recommendation 16: State education agencies should have full-time specialists* in environmental education. These specialists should develop and utilize networks to facilitate environmental education communication, dissemination, and implementation.

Target: Ideally, the environmental education specialist in the state education agency is at the center of the network. This individual must be the initiator of the intra-state environmental education communication, dissemination, and implementation network. It may be necessary for other people and/or other organizations to initiate action if the state education agency has no specialist in environmental education, or if the specialist has priorities which preclude performance of this function. However, the environmental education specialist in the state education agency is the crucial link whose activities eventually lead into the classrooms and to the students.

If there is not even a part-time state environmental education specialist, then all interested groups and individuals need to press (a) the Legislature, (b) the State Board of Education, and (c) the chief State school officer, to assign the role to someone on the staff.

Constraints: Factors which limit or interfere with the establishment and operation of an intra-state network include:

- a) lack of interest, vision, enthusiasm, or time of the state education agency specialist;
- b) Lack of support of the specialist's supervisor and department leadership;
- c) Lack of sensitivity of other people and organizations which ought to be in the network; and
- d) Narrowness of specialist's range of acquaintances.

Strategies: a) Identify people and groups with wide-ranging interests which include environmental concerns and which might be expected to include education. This would

*For the purposes of this recommendation, the term "specialist" is considered to be interchangeable with similar terms in use in state education agencies such as "consultant," "coordinator," "director," "program adviser," "program manager," and "supervisor." Generally, the term is intended to include any employee of a state education agency who is eligible for membership in the State Environmental Education Coordinators Association (SEECA).

include State agencies in such areas as natural resources, energy, public health, mental health, economic development, tourism, housing, and transportation. It might include State or regional affiliates of Alliance members, Garden Clubs, and so forth. It would include local officials of such Federal agencies as the Forest Service, the Soil Conservation Service, the Corps of Engineers, the Environmental Protection Agency, the Department of Energy, the Department of Transportation, the National Park Service, the Heritage Conservation and Recreation Service, the Bureau of Land Management, and so on. It would include university people and resources, and, if feasible, representatives of the media and of business and industry;

- b) Contact leaders within these groups and discuss with them environmental education needs in the State. Bring them together in workshop/conference settings to share experiences, information on responsibilities and activities, materials, and mutual concerns;
- c) Begin assuming the responsibility of continual communication on matters of mutual interest. Encourage one-to-one contacts as well as broader activities;
- d) Share in joint planning, implementing, and evaluating of joint activities with groups which demonstrate interest. Such activities may include conferences, workshops, one-to-one contacts, and newsletters;
- e) Make visible the results of these gatherings via mass and specialized media, conference/workshop proceedings, etc.; follow up with visitations to action areas by representatives of the Alliance for Environmental Education.

Monitoring: The President of the Alliance for Environmental Education should appoint a person to monitor and report through the Alliance Exchange, in each issue.

Recommendation #7: The President of the Alliance for Environmental Education should arrange for a representative group from the Alliance to meet periodically with the FICE Subcommittees on Environmental Education and on Energy and Education. Objectives:

- a) to seek Federal agency cooperation at regional levels to coordinate with and to inform State educational agency environmental education specialists about Federal environmental education programs and activities within the respective states;

Targets: The President of the Alliance for Environmental Education and the Chairpersons of the FICE Subcommittees on Environmental Education and Energy and Education.

Monitoring: a) Request copies of Federal agency memoranda that implement the suggestions for coordination; and
b) Spot-check the state environmental education specialists on results.

Recommendation #8: Several states within the Western Regional Environmental Education Council should experiment during the next twelve months in developing networks and linkages among State agencies, based on the FICE model, to see if such efforts can strengthen their environmental education efforts. If these efforts, well monitored, work, the model could be transferred to other States.

Target: President of Western Regional Environmental Education Council.

Monitoring: The President of the Alliance for Environmental Education.

Recommendation #9: The Office of Environmental Education should be encouraged either to (1) provide financial support to the State education agency specialists for environmental education, or (2) convene the state specialists occasionally for the purpose of seeking their views on the state of environmental education in the field and of obtaining policy and program recommendations.

Target: Office of Environmental Education, U.S. Office of Education.

Monitoring: The Alliance for Environmental Education.

Recommendation #10: Successful environmental education projects funded under the Environmental Education Act should be validated and entered into the National Diffusion Network.

Target: Office of Environmental Education, U.S. Office of Education.

Monitoring: The Alliance for Environmental Education.

Recommendation #11: The Office of Environmental Education and the State Environmental Education Coordinators Association (SEECA) should establish

Target: Office of Environmental Education and State Environmental Education Coordinators Association (SEECA).

Monitoring: The Alliance for Environmental Education.

Recommendation #12: The National Science Foundation should establish better liaison with non-governmental organizations through participation in annual conferences and meetings. NSF's participation in FICE provides the Federal sector with in-depth information on the Foundation's activities. A similar interface should be established with State environmental education specialists.

Target: The National Science Foundation.

Monitoring: The Alliance for Environmental Education.

RECOMMENDATIONS: Teacher Inservice Education

Recommendation #13: A study should be made to isolate those components of inservice teacher education that have the greatest actual or potential impact on the teacher in terms of environmental education, and efforts should be made to introduce and improve environmental education through these channels.

Target: The Alliance for Environmental Education.

Constraints:

- a) Lack of funds;
- b) Lack of understanding of importance of environmental education in our society;
- c) Lack of agreement on basic knowledge, attitudes and skills in the area of environmental education by environmental educators; and
- d) Lack of adequate communication among teachers, the public, students and inservice training agencies, institutions, and organizations.

Strategies:

- a) Establish a study group to: (1) identify key change agents in inservice teacher education; (2) identify the position of these agents on environmental education; (3) identify successful environmental education inservice programs; (4) recommend how the key change agents might facilitate inservice training in environmental education;
- b) Help the key change agents to improve or develop environmental education inservice programs through increased funding; provide them with a position paper, prepared by the Alliance, focusing on the importance of environmental education in inservice training programs, sources of funding, and information about source of materials, model programs, and professional input on program development; and
- c) Involve key persons in the development of environmental education inservice programs, through mechanisms such as state conferences involving State Departments of Education, superintendents, principals, teachers, and environmental education professionals.

Responsibilities:

- a) The Alliance for Environmental Education should set up groups to study key change agents, to produce

to determine how to seek funds for inservice environmental education programs, to designate key individuals or groups in each state to take responsibility for following up on inservice training-development in that state;

- b) The Alliance should send letters to all state environmental organizations inviting them to become members of the Alliance; and
- c) State environmental education organizations or state commissions on education should receive the Alliance materials noted above, and should take responsibility for development of inservice environmental education programs in each state through appropriate agencies, institutions, organizations, etc.

Monitoring:

- a) The Alliance for Environmental Education should review the status of the various components that have been developed at every meeting of its Board of Directors;
- b) State inservice representatives should report to the Alliance meetings on developments of inservice programs and identify further help needed from the Alliance.

Recommendation #14: A sustained effort should be made to incorporate environmental education into the "Teacher Center" movement.

Targets:

- a) U.S. Office of Education Teacher Center Program;
- b) Chief state school officers;
- c) State Commissioners in charge of curriculum development and instruction;
- d) State Department of Education designees responsible for teacher centers program; and
- e) State education agency specialists in environmental education.

Constraints:

- a) Lack of funds;
- b) Lack of incentives for teacher participation; and
- c) Lack of teacher interest.

Strategies:

- a) The Alliance for Environmental Education should request member organizations to identify influen-

- b) The Alliance for Environmental Education should prepare a position paper, with the endorsement of the National Education Association and the American Federation of Teachers, entitled "The Importance of Environmental Education in the Teacher Center Movement." This paper should be sent to the policy board of the U.S. Office of Education Teacher Center Program.

Monitoring: Continuous monitoring by the Alliance for Environmental Education.

Recommendation #15: The Tbilisi goals and objectives of environmental education should be further clarified for use by teachers; mechanisms for achieving these goals should be further identified to encourage environmental educators to utilize the environment in its totality and in all curriculum areas; the Alliance for Environmental Education should encourage the utilization of intermediate units (regional units within states, such as Boards of Cooperative Educational Services) for environmental education.

Target Groups:

- a) State education agency environmental education specialists;
- b) School district environmental education coordinators; and
- c) Environmental education building coordinators.

Constraints:

- a) Lack of a sense of urgency for environmental education among educators;
- b) Apathy;
- c) Lack of funding;
- d) Pressures from other mandated programs; and
- e) Backlash caused by misunderstanding of the environmental movement.

Strategies:

- a) The Alliance for Environmental Education and the Office of Education should recommend to every state that each school district identify one person as environmental education coordinator;
- b) The Alliance for Environmental Education and the Office of Education should identify levels of competency expected for building coordinators, school district coordinators, and intermediate unit

- c) The Alliance for Environmental Education and the Office of Education should recommend that each school district offer frequent environmental education in-service programs. Equal emphasis should be given to environmental education content and methodology in using the classroom, school grounds, community resources and natural resources; and
- d) The Alliance for Environmental Education should urge its members to distribute information regarding the efforts of the Alliance, and encourage all Alliance organizations to publish frequent articles about the Alliance in their journals and newsletters.

Monitoring: The Alliance for Environmental Education should provide a progress report of achievements regarding the above recommendations at each meeting of its Board of Directors; these reports should be printed in the Alliance Exchange.

RECOMMENDATION: Accessibility and Dissemination of Information

Recommendation #16: A contract or grant request should be generated to produce a standard classification system for environmental education that will provide a method for categorizing materials in libraries and resource centers. This system should be designed by people that now have systems, with the assistance of systems designers. Such a system should consider:

- a) Print and nonprint sources;
- b) Materials for formal and non-formal education, non-English materials, and materials for functional illiterates;
- c) Evaluation;
- d) Quality control factors;
- e) Glossaries and key word lists oriented to the lay person, avoiding jargon where possible; and
- f) Incorporation of as much of existing systems as possible.

The system should be as simple as possible, yet capable of easy expansion to encompass future issues and categories. It should be usable world-wide as well as in the United States, and it should include a plan for continuous maintenance and communication with other information systems.

It is further recommended that, once such a system is established, a user training process should be initiated.

In regard to the dissemination aspect of the model, it is recommended that ERIC amplify its list of existing dissemination structures for environmental education and organize a workshop meeting designed to help each component of the system become aware of materials available and how each component can improve its ability and capacity to bring those materials to potential users.

- Targets:
- a) Those with existing systems to initiate the search for funding; and
 - b) Key potential funding agencies (National Science Foundation, National Institute of Education, Office of Environmental Education, Environmental Protection Agency, libraries section of U.S. Office of Education).

- Constraints:
- a) Vast volume and variety of materials;
 - b) Rival organizational barriers;

- d) Lack of quality control on materials;
- e) Lack of national leadership; and
- f) Copyright problems.

Strategies:

- a) Contact possible funding organizations, as above;
- b) Once funded, call a meeting of people who now operate classification systems and design an effective system according to the guidelines noted above; and
- c) Recommend worldwide usage in regional environmental education or related centers.

Monitoring:

Alliance for Environmental Education should monitor funded projects and report to the Alliance membership, as well as initiate and monitor strategies above.

APPENDICES

APPENDIX A: Samples of State Environmental Education Legislation:

California Environmental Education Act of 1970
Florida Environmental Education Act of 1973
New Jersey Environmental Education Act of 1971
Wisconsin Statutes Related to Environmental Education-1975

APPENDIX B: Registration List of the 1978 National Leadership

CALIFORNIA ENVIRONMENTAL EDUCATION ACT OF 1970

Chapter 5.5. Environmental Education Act of 1970

(Chapter 5.5 added by Stats. 1970, Ch. 1616)

Article 1. Statements of Policy

(Article 1 added by Stats. 1970, Ch. 1616)

Legislative Findings and Declarations

565. The Legislature finds and declares that throughout the state and nation, there is a growing public awareness of the serious environmental and resource use problems facing mankind, and that the citizens of the State of California expect the educational institutions of this state to equip students with the knowledge and attitudes necessary to develop solutions to these problems.

(Added by Stats. 1970, Ch. 1616.)

Further Legislative Findings and Declarations

565.1. The Legislature further finds and declares that an informed public working for the common environmental good through its democratic institutions at all educational and professional levels and among all interested private parties can break the chain of destructive land use, restore land which has been improperly abused, and build balance and beauty into our cities of the future.

(Added by Stats. 1970, Ch. 1616.)

Further Legislative Findings and Declarations

565.2. The Legislature further finds and declares that an educational program is needed which is designed to build necessary attitudes of stewardship toward the maintenance of the quality of our common environment and to enable all citizens to use wisely, and not destructively, the resources at their disposal.

(Added by Stats. 1970, Ch. 1616.)

Further Legislative Findings and Declarations

565.3. The Legislature further finds and declares that without appropriate long-term funding, and without effective programs to encourage efforts and innovations at the school district level, and without needed materials and meaningful outdoor study opportunities, conservation education will remain a stepchild in the crowded family of public education.

(Added by Stats. 1970, Ch. 1616.)

Further Legislative Findings and Declarations

565.4. The Legislature further finds and declares that man has a moral obligation to understand the world in which he lives and to protect, enhance, and maintain its natural resources.

Further Legislative Findings and Declarations

565.5. The Legislature further finds and declares that conservation education should be a means of achieving an educational philosophy that will help each student develop a healthy attitude of personal responsibility toward his environment and its resources and provide him with the concepts, the knowledge, and the skills needed to contribute meaningfully to the decisionmaking process on issues involving the environment and its resources.

(Added by Stats. 1970, Ch. 1616.)

Further Legislative Findings and Declarations

565.6. The Legislature further finds and declares that in all grade levels, environmental facts should be taught as they relate to each other, rather than as isolated bits of information, and that students should become aware of the interrelated nature of living processes, gain understanding of ecological relationships and of the effect of human activities upon these relationships, and become sensitive to the interdependence of man and natural resources.

(Added by Stats. 1970, Ch. 1616.)

Legislative Intent

565.7. It is the intent of the Legislature in enacting this chapter to encourage development of educational programs for teachers and students commensurate with the importance of protecting scarce resources and safeguarding the quality of our environment.

(Added by Stats. 1970, Ch. 1616.)

Article 2. Advisory Committee on Conservation Education

(Article 2 repealed by Stats. 1971, Ch. 1188)

Article 3. The Conservation Education Service

(Article 3 added by Stats. 1970, Ch. 1616)

Conservation Education Service

567. There is in the Department of Education the Conservation Education Service.

(Added by Stats. 1970, Ch. 1616.)

Powers and Duties

567.1. The Conservation Education Service shall encourage the development of educational opportunities specifically related to the conservation, the interpretation, and the use of the natural resources of the State of California, including

Additional Powers and Duties

567.2. The Conservation Education Service shall have the following additional powers and duties:

(1) To assist school districts and county superintendents of schools in preparing teachers to present concepts of conservation, the effects of pollution and major land alterations on ecological systems, and the factors affecting the quality of the environment.

(2) To cooperate with and assist community colleges, state colleges, and the University of California in the development of preservice programs designed to prepare teachers to present concepts and facts relating to conservation, the effects of pollution and major land alterations on ecological systems, and factors affecting the quality of the environment.

(3) To assist school districts and county superintendents of schools in the development or acquisition, or both, of materials relating to wise use of resources and environmental issues.

(4) To assist school districts in the development of educational curriculum and educational opportunities for students, relating to the conservation of resources, factors affecting ecological systems and the quality of man's environment. Such opportunities may include but shall not be limited to, the development of outdoor education programs, nature centers, conservation and wildlife education camps, and participation in field trips.

(5) To establish and maintain a central library and repository for conservation education materials pursuant to Article 4 (commencing with Section 568) of this chapter.

(6) To review and to evaluate each application for a grant to, or a contract with, institutions of higher education, state and local education agencies, regional educational research organizations, and other public and private agencies, organizations and institutions (including libraries and museums) under the terms of the federal Environmental Education Act (Public Law 91-516), to support research, demonstration, and pilot projects designed to educate the public on the problems of environmental quality and ecological balance, except that no grant can be made other than to a nonprofit agency, organization or institution.

(Amended by Stats. 1971, Ch. 602.)

General Powers and Duties

567.3. The Conservation Education Service shall have such other powers and duties as shall be vested in it by law.

(Added by Stats. 1970, Ch. 1616.)

Article 4. Conservation Education Library
(Article 4 added by Stats. 1970, Ch. 1616)

Central Library and Repository

568. There is in the Department of Education a Central Library and Repository for conservation education materials. Such materials may be developed by private conservation groups, by industry, and by professional, scientific, and governmental sources.

(Added by Stats. 1970, Ch. 1616.)

Purpose

568.1. The purpose of the library shall be to serve as a master source of materials for the Conservation Education Service, public school districts, county superintendents of schools, and any regional conservation education centers which may be established.

(Added by Stats. 1970, Ch. 1616.)

Department's Duties in Establishing Library

568.2. The department shall, in establishing the library, explore new methods in data processing, new library procedures, and new means for distributing materials to local school districts, county superintendents of schools, and any regional conservation education centers which may be established.

(Added by Stats. 1970, Ch. 1616.)

Additional Duties

568.3. The library shall thoroughly evaluate new materials for validity, pertinence, objectivity, and usefulness, and shall advise the state board in the adoption of textbooks in regard to meeting the requirements for conservation education.

(Added by Stats. 1970, Ch. 1616.)

Grants for Conservation Education

568.9. The State Superintendent of Public Instruction, upon the recommendation of the Conservation Education Service, is authorized to make planning and implementation grants to individual school districts, or groups of school districts, unified school districts, county superintendents of schools, the University of California, the state colleges, and the community colleges to assist such entities in the development of programs and curriculum in conservation education.

(Added by Stats. 1970, Ch. 1616.)

Article 5. Grants for Conservation Education
(Article 5 added by Stats. 1970, Ch. 1616)

community college, and any regional conservation education center which may be established may apply to the Conservation Education Service for planning and implementation grants for purposes of conservation education.

(Added by Stats. 1970, Ch. 1616.)

Priority for In-service Teacher Training Programs

569.1. In applying for grants pursuant to Section 569, the governing board of any school district or county superintendent of schools, the governing board of any district maintaining a community college, and regional conservation centers shall assign priority to programs of in-service training in conservation education for teachers through cooperation with appropriate community, state, and federal agencies and university and college teacher education programs.

(Added by Stats. 1970, Ch. 1616.)

Public Universities and Colleges

569.2. Public universities and colleges maintaining teacher education programs may apply to the Conservation Education Service for grants to support special programs designed to provide preservice training for teachers in environmental control and the wise use of resources.

(Added by Stats. 1970, Ch. 1616.)

State and Local Agencies

569.3. State and local agencies, including cities, counties, regional boards and commissions, and special districts may apply to the Conservation Education Service for grants for programs to enhance conservation education in the public schools.

(Added by Stats. 1970, Ch. 1616.)

Superintendent of Public Instruction

569.4. The Superintendent of Public Instruction, upon the recommendation of the Conservation Education Service, is authorized to make grants pursuant to this article. Grants may also be made for the development of materials for use in the public schools, for support of education programs, and for special assistance to school districts, any regional conservation education centers which may be established, or county superintendents of schools in conjunction with approved programs.

(Added by Stats. 1970, Ch. 1616.)

Article 6. Environmental Internship Program

(Article 6 added by Stats. 1970, Ch. 1616)

Internship Program

570. Upon the approval of appropriate school district personnel, or the approval of the county superintendent of schools as to students under his jurisdiction, and with the written approval of the parent or

employed as an environmental intern by a federal, state, or local agency in California concerned with the regulation of natural resources or with the protection of the environment during the summer vacation period. These agencies shall include, but not be limited to, the Resources Agency, the Agriculture and Services Agency, the Business and Transportation Agency, the Department of Fish and Game, the Department of Conservation, the Department of Parks and Recreation, the Department of Water Resources, the State Water Resources Control Board, the State Air Resources Board, the State Lands Division, California regional water quality control boards, air pollution control districts, mosquito abatement districts, soil conservation districts, local planning agencies, and county and city park and recreation departments.

(Added by Stats. 1970, Ch. 1616.)

Duties of Interns

570.1. Duties of environmental interns employed pursuant to this article shall be established by the employing agency in conjunction with the local school district or the county superintendent of schools and shall be oriented towards providing maximum exposure to problems of environmental control and resource use.

(Added by Stats. 1970, Ch. 1616.)

Approval

570.2. Approval of environmental internships shall be required by the district superintendent or the county superintendent of schools.

(Added by Stats. 1970, Ch. 1616.)

Academic Credit: Temporary Employee Status

570.3. Successful completion of a summer program and submission by the environmental intern of a suitable project report to the school district may result in academic credit towards graduation from high school. Such students may be deemed to be temporarily employees of the agency involved for purposes of social security, unemployment insurance, and workmen's compensation or may be deemed for these purposes to be employees of the school district or the county superintendent of schools.

(Added by Stats. 1970, Ch. 1616.)

Application for Funds

570.4. The school district or county superintendent of schools and the employing agency shall jointly apply to the Conservation Education Service for funds. The Superintendent of Public Instruction, upon the recommendation of the Curriculum Development and Supplemental Materials Commission, and with the approval of the State Board of Education, is authorized to make grants for the purposes of this article, and for remuneration of interns and for travel and other job-related expenses, in an amount per person not to exceed three hundred twenty dollars (\$320) per month.

(Amended by Stats. 1971, Ch. 1188.)

FLORIDA ENVIRONMENTAL EDUCATION ACT OF 1973

229.805 Environmental Education

(1) This section shall be known and may be cited as the "Florida Environmental Education Act of 1973."

(2) It is the purpose of this act to stimulate among students, teachers, and administrators a new awareness of man's relationship to his environments, an increased comprehension of his environments, and an increased ability to utilize the tools of society to solve environmental problems. To achieve this purpose, the Department of Education shall foster the development and dissemination of educational activities and materials which will assist Florida students, teachers, and administrators in the perception, appreciation, and understanding of environmental principles and problems, and in the identification and evaluation of possible alternative solutions to these problems and assessment of their benefits and risks.

(3) There is hereby created an environmental education program for the state educational system. To administer this program, there is hereby created a Bureau of Environmental Education in the Office of the Deputy Commissioner for Education Management. Responsibility for the administration of the environmental education program shall rest with the Department of Education, and the administration of the program shall be pursuant to rules and regulations adopted by the State Board of Education. In developing the environmental education program, the office shall have the power and duties of:

(a) Coordinating the efforts of various disciplines within the educational system and coordinating the activities of the various divisions of the Department of Education that are concerned with environmental education.

(b) Assembling, developing, and distributing instructional materials for use in environmental education, with special concern being given to the urban environment.

(c) Developing programs for in-service and pre-service teacher training in environmental education.

(d) Coordinating and assisting the efforts of private organizations and governmental agencies that are concerned with environmental education.

(e) Integrating environmental education into the general curriculum of all public school grades.

(f) Developing an estimate of manpower needs in government, science, and industry relative to environmental protection. The estimate shall be revised annually and distributed to the senior high schools, community colleges, and colleges and universities

manpower needs and annually report to the commissioner and the Legislature regarding the adequacy of such programs. The State Manpower Service Council is authorized and directed to provide such technical assistance as is necessary for the development and revision of the manpower needs estimate and for the review of educational and training programs as described herein.

(4) Pursuant to policies and regulations to be adopted by the Commissioner of Education, each district school board, and each school principal through the district school board, may submit to the commissioner a proposed program designed to effectuate an exemplary environmental education project in the district or school. The proposal shall include a statement of the nature of the environmental education project proposed, the number of teachers and students to be involved, an estimate of the cost, a plan for evaluation of the project, the number of years for which the project is to be funded, a plan for integration of the project into the general curricular and financial program of the district at the end of the funded term of years, and such other information as the commissioner shall by regulation require.

(a) Upon request of a district school board or any school principal, the Bureau of Environmental Education shall provide such technical assistance as is necessary to develop and submit a proposed program for environmental education. The bureau may use its own staff or such other consultants as may be necessary to accomplish this purpose.

(b) The commissioner shall review and approve, disapprove, or resubmit for modification all proposed environmental education programs submitted. For those programs approved, the commissioner shall authorize distribution of funds equal to the cost of the program from funds appropriated to the Department of Education for environmental education purposes.

(5) The commissioner shall, at least 30 days prior to the 1974 session of the Legislature, transmit to members of the State Board of Education, the President of the Senate, the Speaker of the House of Representatives, and the chairmen of the Senate and House committees on education a statement of the overall environmental education program, criteria for approval of proposed programs or projects, and the recommended level of funding for the overall program during fiscal year 1974-75. Each year thereafter the commissioner shall transmit to the above-named parties an appraisal of the programs or projects funded under subsection (4) and of the overall environmental education program as to the effectiveness, efficiency, and utilization of resources, including therewith a statement of the overall environmental education program for the coming fiscal year, the recommended level of funding for that year, and any other recommendations deemed by the commissioner to be appropriate.

(6)(a) The commissioner shall appoint an Environmental Education Advisory Council consisting of 20 members to include persons from the public and private sector, with due regard to their interest, knowledge, and experience in academic, scientific, medical, legal,

relate to society and its effect upon our environment. Each member shall be appointed for a period of one year. Members shall be eligible for reappointment. The membership may change from time to time as deemed appropriate by the commissioner.

(b) As soon as practicable, following appointment of the initial members of the advisory council, the commissioner shall call an organizational meeting of the council. From among its members, the council shall elect a chairman who shall preside over meetings of the council and perform any other duties directed by the council or required by its duly adopted policies or operating procedures. The council shall also perform the following duties and responsibilities:

(1) Provide a channel for inventorying, reviewing, motivating and supporting environmental education.

(2) Formulate and recommend state-wide policies in environmental education.

(c) Members of the advisory council shall be entitled to receive per diem and expenses for travel as provided in s. 112.061 while carrying out official business of the council.

(d) Per diem and travel expenses as provided in paragraph (c) shall be paid from the funds provided to the Bureau of Environmental Education.

NEW JERSEY ENVIRONMENTAL EDUCATION ACT OF 1971

The following Environmental Education Act was passed August 4, 1971 by the General Assembly of the State of New Jersey.

AN ACT providing for the promotion, establishment, and operation of local school district environmental education programs; the establishment and operation of a network of Regional Environmental Education Facilities and Centers for the purpose of providing environmental education programs for public and non-profit school students and teachers, for the establishment and operation of a network of Environmental Education Curriculum Research and Development Centers, and making an appropriation.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. This act shall be known as the "Environmental Education Act."
2. The Legislature finds and declares:
 - a. The concern for the environment of man has become a dominant social issue of our time;
 - b. Since New Jersey is the most highly urbanized and the most industrialized State in the Nation, it serves as a microcosm of the entire country, and shows abundant evidence of environmental breakdown;
 - c. New Jersey's environmental crisis is not limited to tangible pollution problems;
 - d. The State Departments of Education and Environmental Protection have specific interest in improving education as a force for environmental quality;
 - e. The public and Legislature have expressed their concern by the passage of the Green Acres Bond Act of 1961, the Water Bond Act of 1969 and the establishment of a Department of Environmental Protection; and
 - f. It is a prime objective to create an environmentally literate citizenry who understand their interdependence with and responsibility for the total environment, and who possess the knowledge and concern to solve existing problems and to prevent future ones.
3. The Commissioner of Education is hereby authorized and directed to promote the establishment and operation of local public and non-profit elementary and secondary school environmental education programs, and to assist in the development of such programs.
4. The Commissioner of Education in consultation with the Commissioner of Environmental Protection is hereby authorized to designate and operate

programs in each school district and providing environmental education instruction to public and non-profit elementary and secondary students and teachers.

5. Any public or non-profit educational agency may apply to the Commissioner of Education for designation as a Regional Environmental Education Center.

6. Courses of study and schedules of fees of Regional Environmental Education Centers shall be subject to the approval of the Commissioner of Education and the State Board.

7. Instruction at Regional Environmental Education Centers shall include, but not be limited to the study of man and his environments, and problems of environmental pollution, erosion and survival as they relate to the fields of ecology and other sciences, social sciences, language arts, mathematics, the arts and humanities.

8. Any public or non-profit school in the State may arrange its schedule in accordance with rules of the Commissioner of Education so that all elementary and secondary school pupils may utilize the services and facilities of an environmental education center; and any school, except such school as is operated for profit in whole or in part, may, upon application, cause its pupils to utilize the services and facilities of a Regional Environmental Education Center.

9. Upon proper application submitted to the Commissioner of Education by the local school district, the Commissioner is authorized, subject to available appropriations, to enter into agreements with, and to make cost sharing grants of money to local school districts New Jersey Public Broadcasting Authority or Regional Environmental Education Centers for the purposes of assisting in the costs of services for local student participation and other education services provided by the Regional Environmental Education Centers and the New Jersey Public Broadcasting Authority.

10. Upon proper application submitted to the Commissioner of Education by a local school district, the Commissioner is authorized, subject to available appropriations to enter into agreements with, and to make grants of money to such local school district for the purpose of paying half of the cost of constructing and equipping local environmental education facilities.

11. Stepping Stone Environmental Education Center at Branchville, the Conservation and Environmental Studies Center at Browns Mills, and the Sandy Hook Environmental Education Center, by virtue of their long standing and demonstrated capability, aided by nearly \$2 million in Federal grants, are hereby designated as Environmental Education Curriculum Research and Development Centers for the purpose of providing to local, public and non-profit school districts services such as, but not limited to, development and dissemination of curriculum materials, teacher training, demonstration pilot programs, guidance in facility development and use, and consultative services to municipal conservation

their research and curriculum development efforts on problems related to pollution, erosion, land use, ecology, survival and related natural, physical and social sciences.

12. The Commissioner of Education with the approval of the State Board of Education shall:

a. Make rules and regulations for the establishment and operation of the Environmental Education Curriculum Research and Development Centers for the purpose of providing for local, public and non-profit school services such as, but not limited to, development and dissemination of curriculum materials, teacher training, demonstration pilot programs, guidance in facility development and use, and consultative services to municipal conservation commissions and other environmental interest groups. The Environmental Education Curriculum Research and Development Centers shall concentrate their research and curriculum development efforts on problems related to pollution, erosion, land use, ecology, survival and related natural, physical and social sciences.

b. Employ such personnel as may be necessary to carry out the purposes of the act.

13. There is hereby appropriated to the Department of Education the sum of \$100,000.00 for the purpose of carrying out the purposes of this act through June 30, 1972, the expenditure of which shall be conditioned upon approval of at least an equal amount of Federal funds.

14. This act shall take effect immediately.

WISCONSIN STATUTES RELATED TO ENVIRONMENTAL EDUCATION — 1975

Course Requirements

"118.01 Curriculum Requirements. (1) FUNDAMENTAL COURSE. Reading, writing, spelling, English grammar and composition, geography, arithmetic, elements of agriculture and conservation of natural resources, history and civil government of the United States and of Wisconsin, citizenship and such other subjects as the school board determines shall be taught in every elementary school . . . (8) COOPERATIVES AND CONSERVATION. Every high school and school of vocational, technical and adult education shall provide instruction in cooperative marketing and consumers' cooperatives and conservation of natural resources."

Teacher Training and Certification

"118.19 Teacher Certificates and Licenses. (6) In granting certificates or licenses for the teaching of courses in economics, social studies or agriculture, adequate instruction in cooperative marketing and consumers' cooperatives shall be required. In granting certificates or licenses for the teaching of courses in science or social studies, adequate instruction in the conservation of natural resources shall be required."

NOTE: "Adequate preparation in conservation of natural resources [Wisconsin Statutes 118.19(6)] must include a program of study including:

- History and philosophy of the conservation movement
- Appreciative understanding of the wide variety of natural resources
- Importance of conservation of natural resources in a national and international setting
- Relationship of supply of natural resources and economic structure
- Natural resource management: techniques, need for and type of controls
- Role and importance of resource use planning for the future; public and private

Public and private schools of higher education, where Section 118.19 applies, shall submit a syllabus of the course of instruction in the conservation of natural resources or a listing of units if the preparation in conservation is integrated in other courses. Time allotments must be indicated unless conservation of natural resources is offered for credit, in which case credit earned must be indicated." [Wisconsin Administrative Code 3.03(4)(a)5].

State Financial Aids

"121.02 School Libraries. State aid. (1) A school district shall meet the following standards under criteria established by the department in compliance with sub. (2).

- (b) Every teacher shall be paid at least the minimum salary and granted the sick leave specified in s. 121.17 and the district shall comply with ss. 42.39 to 42.44, 118.01, 118.02, 118.07(2) and 120.15(14).
(NOTE: see 118.01, page 1).

Outdoor Facilities

"28.20 Community Forests. Any city, village, town or school district may acquire land, engage in forestry and appropriate funds for such purpose. In the case of a city or village or its school forest, the forest may be located outside the city or village limits."

"118.05 School Conservation Camps. (1) To promote an understanding of geology, geography, conservation, nature study and other aspects of general knowledge which are learned best by actual contact with nature itself, any school district may establish, operate and maintain and levy taxes to support individually or in cooperation with other school districts or municipalities a school conservation camp. The camp need not be within the school district.

(2) The school board of any such district may operate, contribute to the operation of, participate in the joint operation of, pay or charge fees for the operation of the school conservation camp. The school board may admit non-resident pupils as well as resident pupils of the school district. The school board shall determine age and other entrance requirements and the program to be offered. The camp may be operated in summer or at any other time that the school board determines.

(3) The school board may acquire, rent or accept the free use of facilities and equipment to operate the camp and may accept private contributions of any kind.

(4) The school board may conduct the camp on property under the custody of other municipal, state or federal agencies when permission is granted or on private property with the consent of the owner.

(5) Every state agency shall cooperate in making their staff and facilities available to further the objectives of this program."

APPENDIX B SIGMA Xi VIETNAM LITE OF THE NATIONAL ACADEMY OF
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Reports of Previous Conferences

Listed chronologically below are the published reports of those previous conferences from which Dr. Stapp extracted findings and recommendations for his plenary session presentation at the National Leadership Conference.

Robert S. Cook and George T. O'Hearn, editors, Processes for a Quality Environment: A Report of the National Conference on Environmental Education (December 1970). The University of Wisconsin-Green Bay, 1971.

National Conference on Environmental Studies Programs in Higher Education, Environmental Responsibility in Higher Education: Processes and Practice (November 30-December 2, 1972). University of Wisconsin-Green Bay, 1973.

William B. Stapp, editor, Emerging Issues in Environmental Education (June 3-6, 1974). The University of Michigan, School of Natural Resources, Ann Arbor, 1974.

Rudolph J. H. Schafer and John F. Disinger, editors, Environmental Education Perspectives and Prospectives (July 6-12, 1975). Volume I: Key Findings and Major Recommendations; Volume II: Supporting Documentation. The Ohio State University, ERIC/SMEAC, 1975.

Trends in Environmental Education, the Working Papers of the Belgrade International Workshop on Environmental Education (October 13-22, 1975). United Nations Educational, Scientific and Cultural Organization, UNIPUB, Box 433, Murray Hill Station, New York, NY 10016, 1976.

James L. Aldrich, Anne M. Blackburn, and George A. Abel, A Report on the North American Regional Seminar on Environmental Education (October 5-8, 1976). The Ohio State University, SMEAC Information Reference Center, 1977.

Toward an Action Plan: A Report on the Tbilisi Conference on Environmental Education (October 14-26, 1977). Federal Interagency Committee on Education, Subcommittee on Environmental Education, Department of Health, Education and Welfare, 1978, G. P. O. 017-080-01838-1.

The Alliance for Environmental Education

The Alliance for Environmental Education is a consortium of 31 nongovernmental associations with a common interest in Environmental Education. Combined membership of all Alliance affiliates is some 12 million people.

The Alliance was created in 1973 as a result of work done by a Committee of the Conservation Education Association.

The Alliance performs two important functions: (1) it keeps members aware of the programs and activities of each other and encourages cooperation and program coordination; and (2) it sponsors programs, meetings, projects, and other activities of interest to member organizations and of value to the Environmental Education Field.

Affiliated Organizations

American Association of State Colleges and Universities
American Federation of Teachers
American Forest Institute
American Gas Association
American Institute of Architects
American Nature Study Society
American Society for Environmental Education
Association for Environmental and Outdoor Education
Boy Scouts of America
Conservation Education Association
Edison Electric Institute
Foresta Institute for Ocean and Mountain Studies
Girl Scouts of the U. S. A.
Humane Society of the United States
International Council on Health, Physical Education, and Recreation
Izaak Walton League of America
League of Women Voters of the United States
Massachusetts Audubon Society
National Association of Conservation Districts
National Association for Environmental Education
National Audubon Society
National Council for Geographic Education
National Education Association
National Parks and Conservation Association
National Science Teachers Association
National Wildlife Federation
The Nature Conservancy
Soil Conservation Society of America
United Auto Workers/Conservation Department
Western Regional Environmental Education Council
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