

**DRAFT REPORT
OF
EPA TASK FORCE
ON
ENVIRONMENTAL
EDUCATION**



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DRAFT REPORT
of
TASK FORCE ON ENVIRONMENTAL EDUCATION

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Environmental Protection Agency

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PREFACE

When asked to define the environment, Buckminster Fuller replied, "The environment means everything that is not me!" While this comment is perhaps glib, it is nonetheless true. In an analogous way it can be said that environmental education is understanding how we relate to everything that is not us. So imposing is this notion and so great is the need that each person--children in school, students at universities, and citizens throughout their adult lives--must develop a fundamental understanding of environmental values. This never-ending learning process, is what we call Environmental Education.

The language of the Senate report explaining the Environmental Education Act of 1970 (P.L. 91-516) further defines the term:

"Environmental education is an integrated process which deals with man's interrelationship with his natural and man-made surroundings, including the relation of population growth, pollution, resource allocation and depletion, conservation, technology, and urban and rural planning to the total human environment. Environmental education is a study of the factors influencing ecosystems, mental and physical growth, living and working conditions, decaying cities, and population pressures. Environmental education is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life."

This term, Environmental Education, then, is generic, and encompasses the synthesis and transfer of all types of environmental information to all kinds of audiences. It includes various forms of human development from structured, intellectual pursuits to casually acquired information. In one sense, it connotes the formal study and the academic process of learning in the scientific environmental disciplines. In another sense, it embraces most types of formal and nonformal learning. Environmental education includes such specific pursuits as informing the public of environmental needs, assisting citizen groups in how to influence environmental decisions, instructing individuals on-the-job, formally educating students in our schools and universities, and performing environmentally oriented research.

Section 1

INTRODUCTION

In early July 1971 the Office of Public Affairs established the Environmental Education Task Force to examine what the role of the EPA should be in environmental education. Specifically, the Task Force was to

- . survey environmental information, education and manpower activities within the EPA, other governmental agencies, the education establishment, and throughout the public;
- . identify education and manpower programs conducted by EPA under a broad range of definitions of environmental education;
- . recommend how EPA should implement an environmental education program.

In accomplishing its mission, the Task Force staff interviewed hundreds of individuals in and out of government, met with key officials of federal agencies and private groups, visited five areas of the nation, and surveyed EPA's existing programs in environmental education. The Task Force has identified the educational needs of the environmental field and the programs EPA should conduct to meet these needs.

The Task Force assumed an all-inclusive view of environmental education: a lifelong process not confined to traditional concepts of formal education. Environmental education deals with individual behaviour patterns and attitudes which have an impact on those of every other citizen and with the physical environment within which we all live. The growing environmental movement has identified the need to make environmental education a basic part of the learning process of every citizen, of every age, in every walk of life.

In order to analyze EPA's role in this broad field the Task Force used a working definition with two basic, overlapping components; formal environmental education which deals with institutional learning programs, and nonformal environmental education which deals with informing the public and with learning that takes place outside the institutional framework. In the reports that follow, formal education will also be referred to

as structured learning and environmental studies, while nonformal education will be further broken down into community involvement and public awareness. This definition and the general mission of the Task Force is presented in greater detail in the Task Force Parameters (See Appendix A).

The Task Force also had to relate formal education activities to manpower and training. It recognized that there was a wealth of existing EPA training information that could be readily translated for use by schools and universities. Much overlap occurs, of course, between definitions of education and training. Since previous task force reports had covered EPA's grants and manpower programs the Environmental Education Task Force did not substantially restudy these programs.

PART I

FINDINGS

Section 2

STATE OF THE ART

Environmental education is the study of man and environments in their total relationship. Concepts such as conservation education, resource management studies or outdoor education are not alone adequate to interpret environmental needs. Environmental education must create a full awareness and understanding of how human beings interact with each other and with their biophysical context. Essentially, as expressed by Clay Schoenfeld, editor of the Environmental Education Journal, environmental education views resources as a community of which man is a part rather than as a commodity which man is to exploit. It seeks to lay a basis for action in the public interest, to elucidate the choices in environmental utilization and relate them to general values and social objectives, to provide integrated approaches to environmental management consistent with ecological principles, economic facts, esthetic insights and ethical dimensions.

The goal of environmental education, in a phrase, is to develop ecological accountability as a fundamental part of man's value structure and thus, environmental quality as a basic factor in all human behavior. The following is a report on the general progress toward that goal--the state of the art.

Succintly, the state of the art is oversell and underfund, overtalk and underevaluate. This is not to say there isn't a great deal being done--there is. Most of the efforts are commendable, some of them are outstanding. Encouraging prototypes of all kinds exist. On a general scale of four levels, awareness, concern, commitment, and action, it appears that most current environmental education efforts are in the commitment-action range.

Yet, with ecology riding a crest of popularity, the issue right now is less one of opportunities to initiate educational activity than it is a question of sustaining quality: the ability to properly sustain, expand, and replicate programs, and the development of a coherent and comprehensive philosophical framework to insure continuity through the entire spectrum of education.

Many approaches to studying the environment are being pursued under widely varying administrative circumstances. Whatever the situation, the impressive aspect is the range of activities being carried out at the local level: access to outdoor education facilities, addition of courses in environmental problems to high school curricula, increased media coverage of local and national environmental issues, development of projects involving schools with their community, conduct of field studies utilizing a local problems approach, and restructuring of academic departments to environmental orientation.

However, these activities have been generally fragmentary in the sense that there are few, if any, school programs K-12 fully executing a comprehensive philosophy of environmental education and projects or programs which are both educationally and environmentally well-conceived or implemented are very rare. Fragmentation also might be used to describe the fact that seldom is one program communicating with, or even aware of, others.

In environmental education, as in other complex problem areas, the barriers to progress are not so much lack of data or promising opportunity as a deficiency in theories of structure or lack of systematic integration. Current jargon supplies a particularly apt expression for the emerging pattern of environmental education needs--getting it together!

- getting educators together with environmentalists.
- getting scientists together with humanists.
- getting successful programs together with emerging programs.
- getting environmental expertise together with communications media and teachers.

Representative examples of the variety of activities in environmental education would take several volumes. Only a short time ago this was not the case--a long article would have adequately covered the field. Today, an understanding of specific ideas and activities can only be obtained by monitoring a number of journals, by having access to environmental education communication centers or by consulting the documents of several major inventories that have recently been undertaken. The intention in this report is not to indicate the state of the art through a catalogue of examples, but to identify trends, patterns and exemplary programs.

To accomplish this goal there are two areas of activity which, for the purpose of discussion, must be distinguished from one another. These areas may be characterized as formal and nonformal education.

Formal education refers to the efforts of the institutions in our system of education and recognizes that basic change in society's environmental attitudes must come about primarily through responsive and responsible teaching in the nation's schools. These include elementary and secondary schools, colleges and universities, vocational schools, extension services and continuing education.

Nonformal education means the general development of public awareness and knowledge of the environmental crisis, an urgent need which cannot be met by the normal pace and scope of response from the educational establishment.

Nonformal education can often be defined as the absence of a structured learning situation. The active agent, when there is one, would be referred to as a transmitter. Transmitters include

films, songs and graphics as well as news commentators, public officials, attorneys, planners, outspoken scientists and scholars, community programs, housewives, and students who report, discuss and opine--those who transmit but do not necessarily instruct.

It is clear, however, that schools are the key to meeting the challenge in time. The use of the educational system will determine the culture's ultimate ability to cope with environmental problems.

Also readily apparent is the importance of immediate public awareness, concern, and action, not only in manifesting the citizen's rightful role in determining the future but in waging an 'environmental holding action' until developing reinforcements can be deployed (i.e. the expertise of trained or retrained environmental management professionals, the increasingly eco-aware officials and leaders, the burgeoning citizen lobbies).

Not quite so obvious is the critical role that nonformal education must play on behalf of formal education. Effective environmental education will usually require difficult and substantial school reforms which the public must understand, support, and sustain--both philosophically and financially.

It is not a question of which area we should concentrate upon. They are equally essential. Development of pervasive environmental education in the schools must progress immediately as must systematic public effort toward a knowledgeable base of support for comprehensive environmental protection.

Nonformal Education--Public Awareness For most Americans the first explicit realization of environmental awareness came from activities associated with Earth Day, April 22, 1970--the National Environmental Teach-in. Since the avalanche of communication generated by that phenomenon there has been a great deal of nonformal education activity; the noteworthy aspect being the amount and level of overall activity.

Mass Media General media coverage, electronic and print, continues to be substantial while considerably less strident than before. The reality of the threat to survival is not diminished but the phase of doomsday alarmism which opened the new era of awareness seems to have passed. Special coverage is less frequent but more reliable, and reportage is more oriented to specific problems than to fundamental issues.

Established magazines of all description run environmental material regularly and several have included new environmental sections in their basic format. New national circulation magazines and newsletters devoted expressly to environmental concern abound.

Non-education Profession Efforts Environmental education is not a new pursuit for many national organizations or associations. Nonetheless, increasing demands or opportunities for service have caused organizations such as the Wildlife Federation, the Audubon Society, the Sierra Club, the Izaak Walton League and the Conservation Foundation, to reappraise their environmental education role. Friends of the Earth, the League of Women Voters, and the American Institute of Architects are prime examples of organizations whose commitment to general education is both cause and effect of the call for environmental literacy. In addition to transmitting information to their respective memberships which is a top priority to these organizations, their environmental education activities prominently feature sponsorship of conferences and workshops, publication of books and production/distribution of films. The Friends of the Earth's paperback environmental library, the Sierra Club's magnificent books and the Conservation Foundation's CF Newsletter and films are cases-in-point.

Citizen Action Groups A similar evolution can be seen in the educational efforts of local citizen action groups and environmental coalitions. Usually originating in response to specific issues, such groups as the Oregon Environmental Council and the Colorado Open Space Coordinating Council have now progressed beyond their 'citizen alert' activities to explicit environmental education activity--workshops, seminars and materials development. Other groups such as Ecology Action in Modesto and the Environmental Action Coalition in New York City specialize in action projects with significant environmental education ramifications.

A very important nonformal education vehicle which has been a common manifestation of the ecology center movement is the local environmental resource library and bookstore such as that maintained by Ecology Action in Berkeley. Of particular note is the Environmental Library of Minnesota (ELM)--an independent library intended to stimulate research and foster basic community awareness. ELM has received a grant from the Environmental Education Office of OE to more actively extend its services to the community.

A landmark nonformal education program is the "Quality of Life" project developed by the Puget Sound Coalition in the Seattle area. This impressive effort involved an extensive community-neighborhood network of 400 discussion--action groups which based their learning experience on shared impressions of a series of TV presentations with related readings and simple information-gathering tasks. It should be noted that the 3 TV shows on Pacific Northwest environmental issues were seen by thousands in addition to the action group participants.

The project was a tremendous success in terms of both accolades and objectives. "Quality of Life" won the Sigma Delta Chi National Award for Public service in TV journalism and 1971 Saturday Review TV Award. Rigorous evaluation also showed evidence of significant attitude change and increased awareness among its audience.

There is no question that fine things are being done in the area of public awareness but a great deal more is clearly required. The need for citizen/community education projects is dramatically expressed, for example, by the pattern of funding for fiscal year 1971 under Public Law 91-516, the Environmental Education Act. The Office of Education was able to fund only 74 out of 1,925 proposals in FY 1971 and of those, 28 or nearly half (accounting for about 1/3 of the available funds) were community education projects.

Although the nonformal aspects of environmental education have developed considerably in recent years, there is much room for improvement. A particularly vital problem is the lack of an in depth understanding of the issue and principles involved in environmental education, even where there is general and intense public support of the environmental perspective.

Formal Education--Colleges and Universities Many schools are moving to meet the environmental challenge but despite the impressive exemplary programs which exist, the overall response is inadequate.

The development and management of environmental quality requires contributions by all the arts, sciences, and professions; multi or transdisciplinarity based on a solid sense of gestalt is the key concept for successful environmental education. Understanding and protecting the environment requires a comprehensive perspective--a thinking-together that includes social, psychological, cultural, economic and aesthetic as well as physical and biological aspects. It would seem that universities and colleges are in a unique position to facilitate development of that perspective. There are understandable reasons why they have not, but these should be overcome.

The essential problem for higher education in dealing with environmental education is the complexity and interdependence of the ecological approach which is not readily adaptable to standard curricula or traditional organization of disciplines and departments. The problem-solving orientation of environmental education also fuels the age-old philosophical controversy over the university's function--the increase of man's fund of knowledge through scholarship versus the application of knowledge to solutions of problems and performance of services.

Environmental courses are now being offered in virtually all schools through three basic types of structural response:

1. Existing departments expanded Established schools in many universities have expanded the scope of once sharply-defined disciplines or departments (i.e. engineering, health science, natural resources, environmental design schools, etc. at Harvard, Purdue, Michigan, Johns Hopkins, MIT, Illinois, UC Berkeley, etc.)

2. Existing departments inter-connected More and more campuses are offering interdepartmental, multidisciplinary "Environmental Management" programs (i.e. physical/biological science--planning--engineering--earth science--social science--systems analysis--health--resource management complexes at Portland State, USC Wisconsin, Cal Tech, LSU, Purdue, Lehigh, Stanford, Williams, etc.) either as degree programs or through an Environmental Studies Institute or certificate program.

3. Environmentally structured schools A special response to providing for the multidisciplinary approach and action orientation has been to start entirely new schools which organize the whole college or university within an environmental studies context. The Green Bay Campus of the University of Wisconsin is the best known example of this alternative; others are Huxley College of the Washington State system, Ecology College, A Buffalo campus in the State University of New York system. A variation of this category is the liberal arts college such as Hampshire College in Massachusetts, Evergreen College in Washington and Prescott College in Arizona which provide a decidedly environmental focus to their entire curriculum.

Along these same lines the Community College phenomenon represents a particularly significant force with its proliferation of campuses which are community oriented by definition. Dedicated to practical service and particularly responsive to local needs due to their financial base, the community college is also not subject to traditional academic bias and narrow scholarly pursuits. There has been a relatively formal national commitment to environmental studies on the part of community colleges and some particularly innovative responses to that commitment. Man and the Environment, a freshman course at Miami Dade Junior College, is an example of such a response. The entire range of man's involvement with the environment is covered in an interdisciplinary course which stresses psychological, sociological, economic, and physical factors, the scope of current ecological problems and the rational knowledge needed to solve them.

Elementary and Secondary It appears at the moment that it will be no problem to attract sufficient numbers of students to careers in environmental management. A more difficult and important job is to make environmentalists or "new conservationists" of each citizen.

The purpose of environmental education should also be the development of a citizenry responsive to and knowledgeable about the environment and the issues associated with it--a citizenry with basic problem-solving skills, aware of the opportunities for citizen participation in environmental problem-solving and motivated to take part. Environmental education in elementary and secondary schools will carry the major burden of responsibility for that development.

In this area, especially, there is too much activity to document. Although nowhere approaching the pervasiveness that is hoped for, environmental education in the public schools is increasing and undergoing significant development. Overall, there seems to be a shift from the concepts and practices of outdoor education and conservation education toward the study of human ecology and pollution.

The great majority of programs, however, are still "outdoor education" in that they intend to give a general acquaintance with the outdoors or, at best, a very general sense of human ecology. One reason for this majority is that environmental education in the schools exists primarily in the upper elementary grades, a level where nature study is perhaps the appropriate orientation. Nature study continues to be emphasized even though the academic focus of junior and senior high environmental education is on scientific and technical aspects. Programs which emphasize the man-environment relation very rarely occur.

Another reason for this outdoor orientation is that a majority of programs combine classroom study with some type of on-site experience and utilize sites characterized by noteworthy natural features or facilities designed specifically for appreciation of the outdoors. Schools, especially in the west, make extensive use of rich natural resources and sites. On the other hand, city schools, with some notable exceptions, exhibit a puzzling lack of on-site urban ecological study or use of city institutions and facilities--a fact which may reflect administrative timidity but which also indicates that a broader concept of the environment is not widely accepted.

Ordinarily, teachers do their own environmental education curriculum planning. The standard personnel for environmental education are, typically, specialists in science from the regular school staff.

It is not surprising then that current environmental education curricula are dominated by science and applied science--especially conservation, ecology, biology, entomology, geology, botany, general science and meteorology. The realization is growing, however, that material of tremendous potential for relevant and vital schooling is not being utilized. There is increasing awareness of the broader eco-environmental implications, not only in terms of subject matter, but with regard to instructional technique and the very aims of education itself.

Thus the majority of programs, in addition to calling for increased financial support, acknowledge the critical need for assistance in developing reliable materials as well as for massive retraining of teachers. The demand for personnel with widely differing types of expertise is becoming apparent--not only for teachers but for resource people to plan curricula, coordinate activities, prepare sites or technical material and to evaluate what is occurring.

A major survey of existing environmental education programs in the public schools conducted by the National Education Association revealed that the types of assistance most needed to further their efforts were:

- financial aid from outside school systems
- financial aid from within
- instructional materials
- inservice training guidelines
- curriculum plans
- community involvement and assistance
- research and evaluation help
- identifications of and planning for use of resources for environmental studies
- public relations advice
- manpower resources through vocational training programs.

The following discussions deal with environmental education circumstances or manifestations which span all the previous categories.

Manpower Development What then is higher education environmental education supposed to accomplish? A college education must certainly help develop responsive and responsible citizens and leaders, and colleges should become the forum for discussion, research, and action on environmental problems. All students--not just environmental career majors--should be confronted with the conflicts about which as citizens and voters they will render crucial judgement. Most apparent and critical, however, is the production of professionals in environmental protection careers. This is a function which higher education fulfills or shares through extension services, community colleges and vocational programs as well as through higher degree granting institutions. Whichever the vehicle, the aim will be to meet the tremendous demand for environmentally related manpower which is only now developing and which is not likely to diminish soon. The challenge is to be more than expedient in meeting this demand and, in doing so to produce technical experts and specialists who retain a comprehensive understanding of environmental problems.

Manpower needs are an aspect of the environmental crisis that nearly everyone recognizes, yet few realize the magnitude of present requirements, let alone the projected shortage.

Four major environmental career manpower groups may be distinguished--the resource management professionals, the quality control professionals, the environmental design professionals, and the vast body of subprofessionals and technicians that will be required to support these basic categories. It might also be worthwhile to consider a fifth group as a vital manpower need--environmentally oriented educators: teachers, curriculum designers and environmental education consultants. Although the programs established to date are certainly not adequate to meet even the known needs, government agencies have given the most attention and support to environmental education in the manpower area either through special training programs of their own or through contracts and incentive grants to institutions of learning.

Developing Research Base The state of the art reveals a single overriding need for a philosophical foundation to provide a practical and comprehensive environmental education framework. It is a double-edged need which must sustain the diversity essential for vitality while meeting the requirements of coordination, integration and continuity.

One of the encouraging aspects of the state of the art is that a philosophical base for environmental education is being validated by extensive and rigorous research. Work toward an integrating framework--an ecological/environmental context for the entire education continuum--is proceeding at the Environmental Education Office of USOE and elsewhere around the country. OE's effort is emphasizing the definition of measurable program objectives on which to base environmental education planning. Another particularly noteworthy instance of basic and applied research which has explicitly to do with environmental education is the doctoral study of Robert E. Roth at the University of Wisconsin Research And Development Center for Cognitive Learning. An abstract follows.

"It is hard to overemphasize the contribution of this research to meaningful environmental education. Greatly simplified, Roth's methodology was as follows: He reviewed the literature for environmental concepts. Then he interviewed eight University of Wisconsin scholars interested or actively engaged in conservation and/or environmental education. They represented forty disciplines, including the sciences, humanities, and social studies. The concepts finally identified then were rated for relevancy to environmental education by a panel of 350 scholars and representing twenty-four universities across the country. The results were computer-analyzed yielding a ranked order of 112 concepts from the most to the least important.

Upon further analysis of the 112 concepts, several things were especially revealing. First, a count of the words most frequently used clearly showed the breadth, or interdisciplinary nature, demanded in environmental management. Consider how broad a spectrum is covered by some of the most frequently used words in these key concepts: environment, man, populations, resources, economic, social, culture, individual, life, needs, values, long-range, political, public, quality, and society. The point is clear. Environmental management is NOT simply contour plowing, white-tail deer management, and life cycles of plants. That is, it is not the narrow focus traditionally labeled conservation. Instead, environmental management is of the broadest scope in that it requires an understanding of man and his total relationship to his environment.

The second startling revelation from analysis of these key environmental concepts is that forty-four of the fifty most important concepts, as ranked by the computer, can and should be introduced in the kindergarten through sixth-grade curriculum. The grade level determination was based upon the evaluation of 120 kindergarten through twelfth-grade teachers. Obviously, however, these concepts once introduced must extend throughout the student's education. It is manifest that educational curricula have not discussed man's relationship to his total environment in terms of energy flow, values, cultural, social, political, legal and long-range quality implications. Nor have we provided any significant environmental instruction at the kindergarten through sixth-grade level. These educational gaps have resulted in a nation of socio-ecologic illiterates committing an unending series of ecological atrocities with little thought of the long-term effect. Furthermore, these gaps have contributed to an almost total lack of communication among society's present decision-makers, and insufficient pressure from the public for broad environmental action programs."

This analysis can be further buttressed by the findings of Dr. William Stapp, Director of Environmental Education and Outdoor Education, University of Michigan who has identified the more pertinent deficiencies obstructing a successful national effort directed toward environmental education through instructional programs in kindergarten through the twelfth grade. With slight modification for the special problems and logistics of the nonformal and higher education, these deficiencies are characteristic of the entire environmental education spectrum: A general lack of

- a coherent philosophy of environmental education among leaders in the field of conservation education
- teacher interest and background in environmental education
- school administrators dedicated to environmental education programs for school systems
- existing programs that focus on environmental education
- well-conceived instructional material directed toward environmental education
- textbook orientation to environmental education
- individuals trained to serve as environmental education consultants for school systems
- collegiate programs that provide adequate training in environmental education
- citizen concern in environmental education
- national, state, and local leadership in environmental education
- coordination among private and public conservation organizations
- a continuing information system directed toward environmental education

EPA has, or can readily develop, the capability to offer unique contributions toward the correction of these deficiencies. It is important to note that this can be accomplished well within both the Agency's environmental protection mandate and the Environmental Education Task Force premise that EPA's environmental education effort will in no way duplicate or usurp existing local, state or federal functions but aim clearly to augment and render service.

Section 3

TASK FORCE SURVEYS

This section contains reports on the following surveys made by the Task Force:

- A. EPA Survey
- B. Federal Agency Survey
- C. Field Survey of Five Areas
- D. Survey of Citizen, Service and Professional Organizations
- E. Legislative Survey
- F. Minority Consciousness Survey
- G. Survey of Washington Area Colleges and Universities

It was apparent to the Task Force that EPA should be the subject of a special survey both to define existing efforts of an educational nature, and to assess agency potential in environmental education. At the same time it was necessary to survey other federal agencies which had an interest in environmental education in order to avoid duplication of effort and, more particularly, to set up rudimentary channels of communication which could lead to cooperative agreements at a later date.

For similar reasons, national private agencies involved in environmental activities were surveyed. It was reasoned that non-governmental groups would have a better relationship with and understanding of citizen groups across the country and could provide alternatives to existing government programs which could help define the EPA effort.

The largest survey undertaken by the Task Force included visits to five U.S. cities in an attempt to get citizen reaction to the idea of environmental education and suggestions based on area needs as to how an education program by EPA could best be implemented. The cities were selected in part to represent a wide range of geographical and environmental conditions, but also because sources within these cities made it possible for the Task Force to contact and interview a great number of people in diverse occupations concerned with the environment and with the role of education in environmental protection.

A legislative survey was undertaken to review the legislation which EPA acquired when the various components of the agency were assembled, and to derive from them implications for environmental education which could be considered a mandate for the agency. Environmental education legislation pending in Congress was also reviewed.

Other surveys covered existing environmental studies programs in area colleges and universities, potential uses of a volunteer program in environmental education, and the special needs of Black and Chicano minorities in relation to environmental education.

A. EPA Survey

EPA is currently giving support to environmental education efforts in educational institutions through a variety of activities in public affairs, the program offices, and the regional offices. Post high school needs are often met by research and manpower development programs which tend to have a more technical or scientific nature, while the information for elementary and secondary schools has been more general and has often been supplied by public affairs programs.

Direct involvement in education to date has been primarily job oriented (i.e. fellowships, technician training, research support) or in response to specific request (i.e. technical papers, films, manuals, information bulletins). At present all of these materials and programs relate to specific EPA program areas--air, water, solid waste, pesticides, radiation and noise--with the result that integration of this specific information for environmental instruction must be done by the institution which receives it. EPA materials have not been developed to meet general curriculum needs.

There are indications that the education establishment is looking to the EPA for guidance and support in general education activities. To date EPA has received 17 requests from scholars re establishing university departments of environmental education; 33 unsolicited grant applications for program and curriculum development; 1400 unfilled requests for EPA funded secondary school curriculum; and an estimated 3300 inquiries per week from students and teachers for general environmental information.

Another indication of public interest in environmental education is the number of proposals and inquiries received by EPA which request grant support for projects oriented to improving general public environmental awareness. Thirty-three such proposals (see Appendix B) have been referred to the Grants Operations Branch which is normally concerned with funding programs to train professionals and technicians in specific pollution control problems. Of these, twenty-three were referred to the Office of Education HEW, and the remainder were filed unresolved pending a policy decision about environmental education within EPA.

It should be emphasized that EPA stands in a unique relationship to environmental education efforts because of its access to information on pollution and its regulation. However, it should also be emphasized that the agency is hampered in its attempts to aid educational programs due to the lack of coordination. Communications are often delayed because no central office exists to coordinate educational programs or to correctly refer inquiries, subsequently, resources are wasted through duplication of efforts.

The following project reports are included as examples of formal environmental education activities which are typical of the programs EPA is capable of significantly aiding. Also worthy of mention are a number of EPA programs which could be adapted or used "as is" in schools, such as the Breathers' Lobby materials produced by OPA.

Training Grants Four of the program offices within EPA administer a system of training grants. These grants, in the fields of air, water, solid waste and radiation, are awarded to institutions of higher education ranging from the community college level to that of post doctoral research. Monies are intended either for student support or course development directed toward the production of technicians and professionals in the various program areas. As shown in the Summary of Current EPA Programs on pages 21 through 23, the vast majority of training grants are for graduate education. The Water Quality Office with the largest budget, is alone in awarding grants for training outside the strict technological limit of its program area. Training grants for professionals in scientific, engineering, and social science disciplines which impinge on water pollution control activities are specifically mentioned.

President's Environmental Merit Awards Program The President's Environmental Award Program was developed in response to the President's interest in encouraging high school participation in environmental education and community service programs. Because EPA is responsible for administering the program, it will focus even greater attention upon the Agency as a major source of assistance in environmental education programs, and will increase the involvement with educational institutions at the pre-college level. The OPA has been assigned the direction and implementation of this program.

SPARE The Summer Program for Action to Renew the Environment (SPARE) was a cooperative effort between the EPA and the Department of Labor, Neighborhood Youth Corps (NY), designed as a nationwide education and employment program for disadvantaged young people. Briefly the purposes were:

To provide summer jobs which will be meaningful work experiences and which may improve the natural and man-made environment of the community.

To develop a broader understanding of the environment.

To introduce the youths to career opportunities in the environmental fields of both the public and private sectors of the community.

To develop successful models of the various programs, which can be used in the future on a continuing basis in the school systems and in the communities.

There were over 10,000 SPARE enrollees in over 50 communities with programs varying in number from 3 in Minot, North Dakota, to 1,000 in Cleveland, Ohio. Environmental jobs included such diverse tasks as community surveys of environmental problems and needs (Baltimore), water sampling and laboratory study (Seattle), improving city property (Los Angeles), a survey of lead-base paint poisoning (St. Louis), and recycling center installation and operation (Omaha). There was a stipulation that time be spent for enrichment or study which SPARE requested be used for environmental education. The environmental education components included varied from casual "rap" sessions on community problems to highly structured class situations; but all were directed toward giving students an understanding of how their work related to the total environment and helping to develop an awareness of the environment in a group of young people not ordinarily involved in environmental issues. A full evaluation of the SPARE program was conducted and is available through the OPA.

National Youth Advisory Board The National Youth Advisory Board, with members from each of EPA's 10 regions, is charged with developing contacts with youth groups across the country, so that the opinions of young people might be reflected in the decisions made by bureaucracy.

The Youth Advisory Board is currently involved in Young Adults for Resources on the Environment (YARE), funded from the Water Quality Office (WQO) Training Grants Branch. YARE is a program operated by the Izaak Walton League and is intended to train college community environmental leaders through seminars and workshops. The purpose of the grant is to train 12 young adults in the effective establishment of communication channels between young adults on and off campuses and citizen action organizations.

Environmental Voluntarism The OPA has a contract with the National Center for Voluntary Action for a brief national survey of volunteer activities in environmental programs. A survey will provide a profile of existing volunteer efforts in the environmental movement, problems of organization, communication, information, and the relationship of these organizations to the EPA. The report will recommend various ways the Agency can assist these volunteer activities and what services the National Center for Voluntary Action could provide.

The University Consortia EPA is also involved through the Office of Air Pollution with four consortia of universities, totaling about twenty schools, in California, North Carolina, New York City, and the Boston area. The main purpose of these consortia is to foster inter-university cooperation in the development of programs and materials in the air pollution control field. They will initially be offering career oriented courses through packaged materials and classroom curricula and ultimately will be offering translations for general environmental school programs.

Tilton EPA has been integrally involved since 1969 in a secondary school program termed the "Tilton Project". This environmental teaching concept differs from others by its emphasis on the problem solving method and its process of training teams of teachers and students simultaneously. It began as a water program, has expanded to air and environmental law, and eventually will include all environmental concerns.

In 1967 a summer training program on environmental studies sponsored by the Cleveland Public School System, the Natural Science Museum, and the University of Maine was conducted for 40 children from grades 7-12. The following summer, 70 students participated in a study of community environmental problems. By 1969, the organizers of these sessions had determined that environmental education can be best taught utilizing a multi-disciplinary problem solving method. They convinced the Ford Foundation and the Department of the Interior's Federal Water Pollution Control Administration Office to provide funds for the two year development of the concept which would result in a training model and a learning guide. The Curriculum Activities Guide for Water Pollution and Environmental Studies was written during the summers of 1969-1970 at Tilton School, Tilton, New Hampshire. During this same time period, the Federal Water Quality Administration funded the University of Massachusetts to conduct a teacher training session. As part of the evaluation of the program conducted in 1969, the University developed an inventory which strongly suggested that teachers need training to understand and instruct environmental subject matter.

Teachers and students who participate in programs such as "Tilton" return to their communities and begin projects of their own. Dorothy Strong, a Fairfax County, Virginia teacher attended Tilton in 1970. During the summer of 1971, she received funding as an EPA summer intern, and organized a voluntary environmental program.

Evidence of student concern was seen during the summer when students organized and conducted a community supported surveillance program. The program was conducted because the students were concerned about the educational and environmental status of their local surroundings.

Twenty secondary school students became involved in a watershed study of the Accotink Creek, a local stream in Fairfax County, Virginia. Facilities for the study were located at Sidney Lanier Intermediate School, Fairfax. The Accotink study was established in an effort to achieve several goals:

- a. To obtain a valid survey of the biological, chemical, and physical parameters and their interrelationships within a local stream.
- b. To educate students through performing monitoring procedures implementing a process approach to environmental education.

- c. To develop a corps of enthusiastically concerned students who have a commitment to improve their environment. This corps would develop similar environmental programs in surrounding areas.
- d. To develop an environmental awareness in segments of the community other than education through involving service organizations, industry, and governmental agencies in funding, outcomes, and on-going activities of the program.

In an effort to materialize the above goals, the organizing students approached service organizations, governmental agencies, industry, and commercial establishments in Fairfax for \$1,000 support to obtain the equipment needed to study the ecological parameters of the Accotink Creek. The community responded with equipment loans and financial contributions. To each contributor the students promised a conclusive report of their study in order to develop an environmental awareness in the membership of the group.

The specific parameters performed daily on the stream (i.e. biological, chemical, physical) because they were economical, they could be performed proficiently by junior high students, and the results were indicative of the ecological status of the stream.

Besides quantifying the above parameters designated as scientific learning, students learned many sociological concepts during the six week study. Students learned to function among their peers: group attitudes and behavior developed on a junior high school level as each student learned to contribute his time freely to achieve the common goal of obtaining monitoring results.

Another teacher who attended the 1971 Tilton Program, Ronald Smetanick, Science Supervisory, Thomas Wooten High School, Montgomery County, Maryland, convinced the county educational authorities of the need for in-service training. Forty-three Montgomery County resource teachers and department chairmen from every secondary and middle school were exposed to the "Tilton" type experience.

The summary that follows on pages 21 through 23 provides a breakdown of existing EPA programs that can be classified as environmental education. These programs, currently in various offices of the Agency, are concerned with elementary, secondary and higher education as well as the general public. Programs directed toward the training of technicians for the various program areas are not included.

Summary of Current EPA Programs
in
ENVIRONMENTAL EDUCATION

Graduate Education Programs - for the education of professional personnel (Masters and Doctoral level) through grants to institutions of higher education.

Program Office	Universities (1)	FY 72 Budget (2)
Water	83	\$ 5,381,800
Air	26	3,273,000
Radiation	16	693,000
Solid Waste	11	440,700

\$ 9,788,500

Undergraduate Education Programs - for the education of undergraduate personnel through grants to community colleges, technical schools, colleges and universities. Also included are undergraduate course development programs and scholarships to students.

Program Office	Schools	FY 72 Budget
Water	6	\$ 345,000
Air	11	432,000
Radiation	3	107,000

\$ 884,000

Secondary School Programs - for teacher training through workshops, curriculum guides, and classroom activities.

Program Office	Title	FY 72 Budget
Water	National Program in Environmental Education	\$ 53,761 (4)
Water	Water Pollution Science Program	5,393
Public Affairs	The President's Environmental Merit Award Program	120,000

\$ 179,154

Youth Activity Programs - for youth and general school related programs.

Program Office	Title	Budget
Public Affairs	(SPARE) Summer Program for Action to Renew the Environment	\$ 157,000
Public Affairs	Environmental Education Task Force	35,000
Administrator	National Youth Advisory Board	0
Water	(YARE) Young Adults for Resources and the Environment	11,250 (4)

\$ 203,250

Public Education Programs - for education of the general public about environmental pollution.

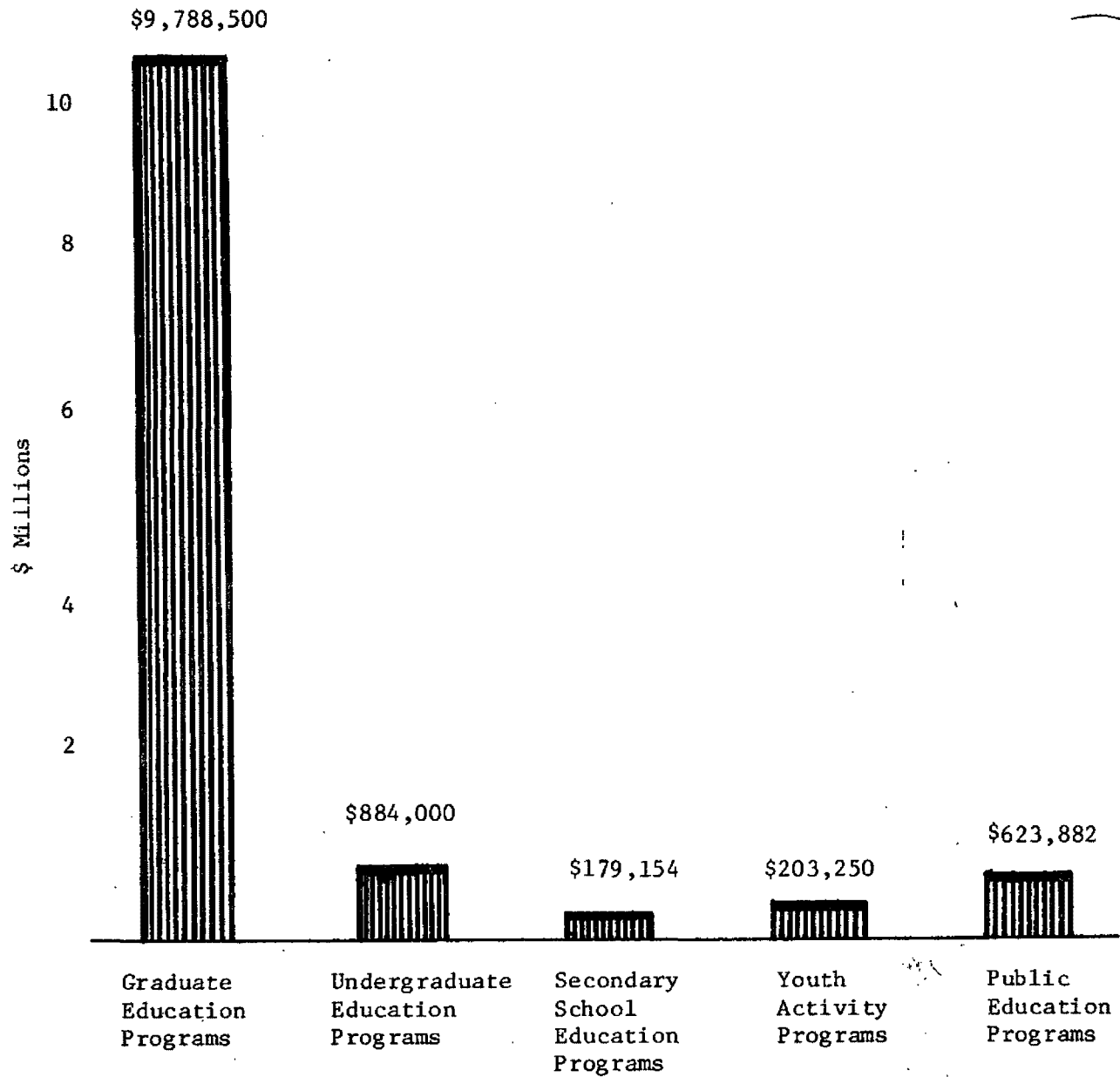
Program Office	Title	Budget
Public Affairs	Cit. Coal. Clean Air	\$ 238,000
Water	Seminars for Community Leaders on Land and Water Use	55,882
Public Affairs	2 Motion Pictures on Protecting the Environment	275,000
Public Affairs	National Center for Voluntary Action - evaluation of Community Volunteer Needs	55,000

\$ 623,882

Current EPA Environmental Education Programs	Total	\$11,678,786
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- (1) Grants from several program offices may be awarded to the same university: the number of different universities is about 125
 - (2) FY 1972 budget data: does not include administrative costs for graduate and Undergraduate programs but generally does for others.
 - (4) FY 1971 expenditure for a continuing program.

Combined EPA Budget
for
ENVIRONMENTAL EDUCATION
FY 72



B. Federal Agency Survey

A literature search, materials review and interviews conducted with representatives of 22 public or quasi-public government agencies (See Appendix E) are the basis for this report. Interviews concentrated on agency activities in environmental education that could be characterized as public awareness, community involvement, and structured learning. A general summation of the interviews follows:

- the amount of environmental education activity on the part of government agencies is minimal - especially if manpower training is not acknowledged.
- most of the environmental education programs that do exist are being conducted or sponsored by three agencies: Office of Education, National Park Service and the National Science Foundation, although valuable efforts are occurring under the aegis of others - Forest Service, EPA, Fisheries and Wildlife, etc.
- the Agency efforts aimed at education of the public devote their resources primarily to in-service training of teachers as the most expeditious strategy toward significant effect on environmental problems.
- most of the other agencies are concerned primarily with in-house education of their own personnel rather than environmental education outreach. Several expressed the feeling that EPA might develop short courses for government agency personnel.
- the need for coordination of agency programs was repeatedly emphasized. Several agencies referred to the possibility of Memoranda of Understanding with EPA. The strongest requests were for exchange of basic literature and regular environmental liaison - i.e. notice of meetings, courses and activities on a regular basis, perhaps by way of an interagency circular. Most agency representatives who were interviewed expressed cautious interest in a joint or interagency committee on environmental education, mostly to keep abreast of what is going on among the agencies and within agencies, but also to assure that the public gets factual information about agency programs dealing with the environment.
- expenditures for environmental education are relatively small with almost no budget earmarked for environmental education as such with the obvious exception of the Office of Education. Everyone is looking for money to fund environmental proposals - workshops, courses, etc. - and and repeatedly expressed impression was that EPA has money for these purposes.

- many of the agencies show considerable interest in coordinated Federal Environmental Education activity while showing particular concern for
 - .. promoting existing efforts and protecting environmental 'investments' they have made.
 - .. being in on the 'ground floor'.
 - .. avoidance of duplicating basic activity, on one hand, infringing on areas of special expertise, on the other.
 - .. clearly understanding what would be expected of them under inter-agency agreements.

Office of Education (H.E.W.) The federal agency with the most specific authority for environmental education is the Office of Education, Department of Health, Education and Welfare. This authority is due to the comprehensiveness of the Environmental Education Act (PL 91-516) which gives the Office of Education a broad mandate to engage in environmental education programs.

The Office of Education, under PL 91-516 and other legislation, supported the following environmental education programs in FY 1971:

Educational Personnel Development Act \$199,369 - allocated for 12 educational personnel conferences concerning environmental education.

Cooperative Research Act \$212,283 - contracted with the Education Research Information Center (ERIC) and other programs to review environmental education activities.

Elementary and Secondary Education Act, Title III & V \$2,621,354 - awards for exemplary elementary and secondary programs.

Education Personnel Development Act \$179,351 - grants for pre-service training of environmental education personnel for higher education.

Higher Education Act II B \$30,000 - award for production and dissemination of ecological materials.

PL 83-480 \$10,000 - funds for a program for international exchange of problem-solving techniques.

Environmental Education Act PL 91-516 \$1,725,000 - funds were used for activities which will permit (1) the exploration of new approaches to environmental education, (2) the identification of specific needs, and (3) the sharing of ideas, experiences, and knowledge necessary to avoid the waste of resources, time, and effort.

Under the initial allocation for FY 1971, 74 proposals out of 1,925 submitted were awarded. A list of these grants is included in the Appendix. It indicates the broad scope and distribution of the activities under this Act as administered by the Environmental Education Office.

The Office of Education spent \$4,977,757 for environmentally related programs in 1971. Indications are that approximately 13 million dollars will be spent in FY 72 for similar programs. This amount is considered to be inadequate simply on the basis of the number of proposals submitted to the Office of Environmental Education. The guidelines for Environmental Education Act grants appeared only 60 days prior to the FY 1971 deadline and yet almost 2,000 proposals were received requesting approximately \$80,000,000 in funds.

The National Science Foundation The National Science Foundation is a quasi-public agency that supports basic research and education in the sciences. A major project "The Environment and Technology Assessment" is being conducted at Oak Ridge National Laboratory with NSF funds. Some 17 percent of support goes to the Cooperative Science Education Center, Inc., which cooperates closely with school and public groups to educate through the use of simulation techniques, regional modeling and conferences. The Center is also managing a volunteer statewide air quality monitoring program.

The Foundation includes environmental education on a par with traditional disciplines such as chemistry. In the Division of Pre-College Education, a grant supports the development of a national curriculum, "Environmental Studies, A Program for Urban Youth." A teachers' workshop is to prepare a study guide on problems of air pollution. Over 500 teachers attended the 29 conferences and seven institutes on environmental topics that were scheduled for summer 1971. Two summer conferences of 3 weeks were conducted for teachers who will use the Tilton Project Materials. "Experiments in Environmental Studies" are being developed through another grant.

In the Division of Undergraduate Education, several programs include environmental emphasis. In a preservice teacher education project, one of five disciplines is a new major in Environmental Science Teacher Preparation. In this Division the most notable activity has been the Student Originated Studies Program that supported a May 1971 conference of environmental educators from across the nation and federal agency staff members. A recent grant will support development of a college level interdisciplinary curriculum in environmental studies.

The Division of Graduate Education has supported a program leading to the Ph.D. in environmental science and engineering at UCLA, and masters degree programs in environmental engineering at Wayne State University and in remote sensing at Colorado State University.

The annual level of funding for the above projects exceeds \$2.5 million. An increase is expected.

The breakdown by Divisions includes:

Division of Undergraduate Education in Science

Student originated Studies	\$1,500,000
EE Conferences	10,500
New grant for development of interdisciplinary EE curriculum at Dartmouth	200,000
Environmental Science Teacher training 5 years	166,000

Division of Pre-College Education & Science

Summer Projects	33,800
Environmental Studies for Urban Youth	350,000

Summer Conferences

Tilton Conferences (2)	30,000
Institutes - Interdisciplinary Environmental Studies	200,000

General Education Projects

Oakridge Course Development	17,000
Oakridge Environmental and Technology Assessment	110,000

A new effort in the Foundation Research Applied to National Needs, will no doubt have an education thrust in that many grants will employ student trainees in various tasks. NSF officials view EPA's role in environmental education as one of balancing programs and money among the Federal agencies. They are concerned that environmental education be centered in an agency which would consider it to be a high priority activity.

Department of the Interior Four agencies within the Department of the Interior are conducting significant public environmental education programs for which the total identifiable funds expended will approximate \$425,000 for FY 1971, and an estimated \$501,000 in FY 1972.

	<u>FY 1971</u>	<u>FY 1972</u>	
National Park Service	325,000	325,000	
Bureau of Indian Affairs	67,000	80,000	(Est.)
Bureau of Land Management	25,000	36,000	"
Bureau of Sport Fishery & Wildlife	8,000	60,000	"
	<u>\$425,000</u>	<u>\$501,000</u>	

The estimated output of these programs which primarily reflects 228 in-service workshops and the utilization of 100 National Environmental Study Area sites is 5,500 teachers trained, and programs or area-use which involved some 124,000 students.

All programs are coordinated through the Task Force on Environmental Education and Youth Activities, the Office of the Secretary, which is developing an integrated departmental environmental education program.

The Department, through the Task Force, has introduced environmental education programs into the Job Corps Program at the 10 Conservation Centers. These efforts are directed toward the educational and interest levels of the Corpsmen, and are presented within the vocational, educational and group living portions of the Job Corps program.

The Youth Conservation Corps, which has just completed its first year of operation, employed 2600 young people in 64 camps operated by the Department of the Interior and the Department of Agriculture, U.S. Forest Service. The program presented a combination of work programs, environmental education, and group interaction between young people ages 15-18, in residential and non-residential operations. In the Interior program of 1286 enrollees a total of 262,000 man hours with a project value of \$868,000 was completed. 84,000 hours of environmental education were participated in by Interior enrollees.

National Park Service feels that environmental education is the most important function it may have. In recent years they have been very active in the development of environmental education materials and guidelines. They feel that their charge to help people understand and support the park rationale is sufficient mandate for extensive involvement in interpretation and education programs.

Through its Office of Environmental Interpretation, funded by the National Park Foundation and in cooperation with the U.S. Office of Education, the National Education Association and the American Association for Health, Physical Education and Recreation, the Park Service has facilitated the development of several park related education programs.

National Environmental Education Development (NEED) presents an attempt to infuse and integrate traditional subject areas with the environmental concepts referred to as the "five strand" approach.

National Environmental Study Areas (NESA) is a program for utilization of National Park Sites in support of environmental education. Guidelines for use of these natural or historic 'laboratories' are based on the environmental strand approach.

National Environmental Education Landmarks (NEEL) is an elaboration of the NESA idea which refers to a registry of exemplary environmental education sites (with provisions for staffing by university student interns.)

These programs are milestone efforts. The formulation of the environmental strands is both academically and practically uneven but is under constant revision and, in any case, represents a tremendously valuable contribution.

In addition, the regional offices of the Park Service sponsor numerous in-service teacher workshops as well as rendering informational and teaching aid services to local school systems.

The Bureau of Land Management manages the natural resources on 450 million acres of public lands in the 11 Western states and Alaska. BLM resource management specialists can assist educators involved in environmental education to identify learning opportunities on the public lands.

"All Around You," a guide for third to eighth grade teachers to help students become aware of and explore the many interrelationships in their environment will be available in July, 1971.

BLM does not yet have a funded environmental education program. However, the Bureau conducted a demonstration project in Oregon in the summer of 1970 and will conduct three demonstration projects in Idaho, Montana and Wyoming during summer 1971. The purpose of these projects is to identify ways BLM can best assist elementary and secondary schools, colleges and other organizations involved in providing environmental education for young people and the adult community. The Bureau is studying a program for designating Environmental Study Areas on the public lands and will work with universities and teachers colleges to incorporate environmental education concepts into preservice and continuing education programs for teachers.

The Bureau of Sport Fisheries and Wildlife is working with the Environmental Science Center in Golden Valley, Minnesota, training refuge managers at the Sherburne National Wildlife Refuge north of Minneapolis and drawing up a guideline curriculum for grades K-12. Funds have been requested to offer environmental education as a part of the contribution wildlife refuges make to the nation.

Environmental education programs of definitive public value can be conducted on the over 400 national wildlife refuges and hatcheries. Refuges and hatcheries have unique resource capabilities due to the broad spectrum of habitats and the distribution of areas near population centers. By careful selection and designation of environmental education study areas, a vital link can be established between refuges, school systems and other organizations. This partnership in developing an environmental ethic will help both refuges and surrounding communities become aware, knowledgeable and responsive to the improvement and maintenance of our environment.

The Bureau of Indian Affairs has introduced and encouraged development of environmental education programs in its 200 agency schools. Two publications have been produced to introduce teachers to environmental education, and a series of workshops have been held with the assistance of the National Park Service.

The Forest Service of the Department of Agriculture has an Environmental Education Office which coordinates programs and provides guidelines for environmental education in its nine regions. They have arranged hundreds of workshops geared to teachers and community leaders which emphasize techniques and processes of environmental education rather than subject matter. These workshops suggest resources for outdoor education, identify source materials, and attempt to bring environmental education into the social sciences, arts, and the humanities in addition to the physical sciences. The Forest Service is also working on identifying and making available to school districts areas of forest land suitable for environmental study. Total revision of existing publications and materials is underway. They have exchanged Memoranda of Agreement with the Office of Education and the National Park Service which stress interagency cooperation and coordination of activities relating to environmental education.

The National Oceanic and Atmospheric Administration of the Department of Commerce has potential for cooperation in environmental educational efforts. NOAA, through its Environmental Research Laboratories and Environmental Data Service is charged with the generation and dissemination of data about the physical environment, and the development of technology and systems for resource assessment, environmental monitoring, and possibly, environmental control.

Ongoing activities in environmental education are limited, but an employee, Odom Fanning, has made a substantial contribution on his own by authoring the book, Opportunities in Environmental Careers. There exists a great need for occupational information directed towards both students and guidance counselors.

ACTION, the new agency for volunteer programs, has commenced an effort called "University Year for Action." The activities will be conducted under VISTA authority and will include over 500 students devoting an academic year (for university credit) to assist low-income groups. The University of Wisconsin at Green Bay will have the first program oriented toward environmental problems affecting low-income groups. Action is planning to extend the environmental component pending the results of a program evaluation late in FY 1972.

Others The remainder of the 22 Federal agencies interviewed were minimally, if at all, involved in environmental education. The efforts which did exist were broken down into:

In-house training The Corps of Engineers and the Department of Defense generally have reacted to national concern over the environment by re-orienting staff training programs around the production of a departmental environmental expertise.

Public hearings The impact statement is responsible for revitalization of public hearings procedures. The Department of Transportation, the Federal Power Commission and the Army Corps of Engineers all have a public hearing structure which exists to inform the public about projects in specific areas.

Public awareness Hud would like to see major environmental education efforts in the area of urban development, but the department itself has not progressed beyond the production of films with an environmental bias and a single demonstration project for city and legislative officials.

Community involvement Other Federal agencies whose programs have potential for environmental education are the Job Corps of the Department of Labor, NASA's Space Science Education Project, the Atomic Energy Commission and the Public Health Service. The Job Corps, which serves over 40,000 youths a year, operates approximately half of its residential centers as Civilian Conservation Centers in cooperation with the Forest Service and the National Park Service. The Public Health Service has two action programs, NEEDS and the Home Environment Aid Program which stress environmental health. NASA and the Atomic Energy Commission both provide information and assistance on request in their areas of expertise, i.e. remote sensing environmental evaluation and radiation.

The Federal agencies concerned with international affairs, AID and the Department of State, answer requests for aid and maintain open lines of communication with foreign countries interested in environmental protection.

Interagency Agreements Due to informal requests from other agencies and the obvious need to coordinate federal environmental education activities, the Task Force explored the justification needed to establish interagency agreements. EPA utilizes three types of interagency agreements: (1) payment agreements, one agency agrees to perform a specific function in return for monetary reimbursement; (2) project agreements, two agencies agree to cooperate to achieve a common goal; (3) administrative agreements, statements delineating general policy between two agencies who have statutory authority in the same subject matter.

An agreement between the Office of Education and EPA is clearly indicated in Section 4, PL 91-516, Environmental Education Act.

"The Secretary of Health, Education, and Welfare, in cooperation with the heads of other agencies with relevant jurisdiction, shall, insofar as practicable upon request, render technical assistance to local educational agencies, public and private nonprofit organizations, institutions of higher education, agencies of local, State, and Federal governments and other agencies deemed by the Secretary to play a role in preserving and enhancing environmental quality and maintaining ecological balance. The technical assistance shall be designed to enable the recipient agency to carry on education programs which are related to environmental quality and ecological balance."

Agreements with other federal agencies, where substantive¹ legislation does not exist, can in most instances be justified by the Economy Act of 1932. In these instances, administrative agreements to co-fund specific programs would be beneficial to both agencies. The Task Force has requested liaison with federal agencies concerning environmental education activities. A list of those designated is in Appendix D.

The Council of Environmental Quality (CEQ) has recently established an office to determine what should be done in environmental education and manpower. Studies are underway but not general program has been defined yet.

C. Field Survey of Five Areas

The five cities visited by the Task Force are briefly described below. An analysis of the major trends in public awareness, community involvement and structured learning follows this description. (A list of all the people contacted during the field survey is in (Appendix F).

Mobile, Alabama, the first city visited, was unique in that 140 people from three states, Alabama, Florida and Mississippi, came to a series of meeting with Task Force members to discuss environmental education. Those participating represented a variety of interests and occupations--educators, industry leaders, state, local, and regional government officials, citizen action groups, and newspaper and TV journalists. The problems discussed were equally varied and complex, and included Gulf Coast ecology, industrial pollution, educational reform, and deep south psychology and its relation to the acceptance of environmental awareness.

Cleveland, Ohio was chosen as typical of the heavily industrialized and polluted middle American cities. In addition, the social and economic problems of Cleveland are characteristic of most large cities, permitting an examination in some detail of the dichotomy in both interests and activities between the suburbs and the inner city regarding environmental education.

Charleston, the capital of West Virginia, provided an opportunity to talk with representatives of state government concerned with all aspects of environmental activities, from enforcement to executive action to legislation, as well as a complement of citizens, educators, and journalists. The only state to fall completely within the Appalachian region, West Virginia has been called "the last colonial territory" in the United States, and as such is an interesting example of an area whose industrial development has brought little gain to its inhabitants. The interviews conducted there indicated the existence of fertile ground for environmental education programs.

On the west coast, the Task Force Survey team visited Portland, Oregon. The citizenry of Oregon exhibits a very high degree of environmental awareness which has had definite impact on government and educational circles within the state. Oregonians are taking action to preserve the vast unspoiled areas of their state, an attitude which contrasts sharply with that of influential southerners.

Dallas, Texas, the last city visited in the area survey, was chosen to represent an area of the southwest which derives its living from ranching and agricultural activities as well as from petroleum and other industries. The city as a major metropolis is quite young, and the life-style of the population still reflects

rural or frontier values which frequently conflict with those held by Dallas' small but persistent group of environmental activists.

Public Awareness Virtually everyone interviewed commented on the quality and extent of public environmental awareness and the importance of awareness programs to their particular activities. Educators were especially emphatic in this regard in the southern states, where pollution problems are not considered critical and there is no significant public demand for environmental education in the schools. Teachers and school board members from these states and others feel that the public imperfectly understands the concept of environmental education and the necessity for educational reform.

Citizen action groups and service organizations devoted to environmental preservation also felt hampered by public attitudes within their communities. Many of the groups interviewed, such as the Appalachian Research and Defense Fund in Charleston, the Audubon Society and Sierra Club in Dallas, underlined the need for public acceptance of environmental priorities as a prerequisite to effective action.

Local government officials and industry also unanimously endorsed the idea of an increased factual awareness of environmental problems.

The Task Force concluded from these interviews that a fundamental level of awareness is necessary to the success of any environmental education effort. This awareness should encompass a basic definition of the environmental education concept, an understanding of citizen responsibility in environmental protection, and appreciation of man's relation to his environment. This means, in effect, the formation of an environmental ethic for the United States which would color national response in all situations.

A limited number of people interviewed were expending major efforts on increasing public awareness. Some, such as the Burroughs Nature Club of Ohio, work to educate their own members through programs of film showings and discussions. The Citizens for a Safe Environment in Lake County, Ohio try to reach a broader audience by running booths at county fairs, holding discussions and giving out printed materials to passers-by.

Frequently local groups try to muster support for action and alert the public to specific environmental threats through newsletters and, when available, media coverage. These attempts to reach the public are commendable and often successful where specific local issues are concerned. Citizen action groups, however, do not possess the resources, or the expertise to mount a sustained and consistent public awareness campaign.

The mass media, newspapers and TV, seem to represent a much greater potential for developing wide public awareness on a multitude of issues. Unfortunately this potential has not been fully realized in many of the cities visited. A notable exception is the Charleston Gazette which publishes a weekly column by one of its reporters on local environmental issues. Station KERA-TV in Dallas also has a reporter with an environmental news specialty. Here too, the focus is primarily on issues of local concern. KERA has also developed and submitted a proposal for a children's TV series which would cooperate with local school systems in order to increase awareness of the self and the environment in the very young. The importance of public awareness was discussed in all the interviews held, but there was a paucity of constructive suggestions as to how this awareness might best be augmented. The more obvious suggestions were for public service announcements on TV and radio, for environmental quality spot reports, or for film shorts and documentaries to be shown on TV and in theatres.

The Institute for Urban and Environmental Studies at Southern Methodist University suggested conference/workshops modelled on its own RESCUE conferences. This was a two to three day effort which brought together eminent and knowledgeable environmentalists, concerned citizens, and civic officials in order to promote the concept of urban ecology. Several of the people interviewed in Dallas remarked on the excellence of these conferences, but as with other efforts at organizing seminars, workshops and the like, the participants were primarily people already aware and involved.

A suggested first step in reaching more passive segments of the population was to increase the visibility of EPA and other environmentally involved agencies. This would mean publicizing and defining agency responsibilities and actions, particularly on the regional level. Regional office visibility is very low in the cities visited. In Cleveland, most respondents were unaware that an EPA district office was located in the city, or that EPA information is freely available to the public. In Dallas, a regional headquarters city, only a small number of respondents reported any extensive interaction with the EPA office there.

Community Involvement The activities covered under the area survey of community involvement were many and diverse, and included litter clean-up campaigns; social clubs, whose activities center around the self education of their members through film showings, discussions and speaker programs; and watchdog groups which monitor sources of pollution, attend public meetings, and alert their fellow citizens to environmental threats. A somewhat more sophisticated, sustained effort is represented by the public interest law firms and defense funds which have focused on the environment as a priority problem.

Citizen action groups have come into being in answer to a widely held conviction that government on all levels is not carrying out its proper function particularly with regard to the setting and enforcement of pollution standards. Such groups represent an attempt to arouse citizen awareness by presenting informed opinion on issues and alternative courses of action to the public. They are also working to develop the concept of environmental health as an alternative or concomitant to economic growth.

The vigor and effectiveness of citizen action is subject to various constraints in the cities visited. In Texas these constraints were explained as outgrowths of a 'frontier mentality' which holds that the abundance of land available rationalizes existing abuses; in other words, a man's land is his absolute domain. This attitude is officially supported by the state to the point that executive and legislative disregard of environmental issues denied passage to 199 out of 200 environmental bills introduced in the legislature. The one bill which did pass both House and Senate, concerned with protecting endangered species, was vetoed by the Governor.

In other states surveyed by the Task Force, similarly inhibiting attitudes were found. Participants in the Mobile meetings from Alabama and Mississippi pointed out a prevailing southern attitude which has not recognized the environmental crisis as such and which has declared industrialization a top priority.

From these examples, which could be multiplied, it is apparent that a fundamental requirement for effective community involvement in environmental protection is increased awareness on the part of the average citizen. Such awareness should stress not only the threat to life and health inherent in environmental decline, but the value of responsible, informed action on the part of citizens and communities for reversing that decline.

Among the other, more specific needs mentioned by the groups interviewed, was coordination between citizen groups and with state and national governments. Such coordination, particularly at the local level, would prevent duplication of efforts and enable a more efficient use of resources. In Texas, the Task Force was informed that a statewide coalition of environmental action groups was slated to begin operations in September of 1971. This coalition will attempt to coordinate activities on two fronts--generation of information and materials to support action and increase awareness, and establishment and maintenance of a permanent lobbyist in the state capital to monitor legislative activities and to voice the environmental view.

All the groups interviewed emphasized the lack or inaccessibility of specific information on the legal, technical and scientific aspects of environmental quality. Some of the smaller groups which

do not have a source of legal and technical expertise suggested an EPA produced handbook for pollution testing methodology, and for legal procedures. This suggestion was put forward by private action groups such as the Ohio Public Interest Action Group, a Nader-style organization which seeks to mobilize community action on specific issues. State Senator Galperin of West Virginia mentioned the need legislators have for information on legislation and official programs in other states, as well as some kind of informational service which would balance the quantity of unsolicited and often biased material they receive from business and industry.

A most cogent list of suggestions came from the representatives of seven major industries at a meeting with the West Virginia Manufacturing Association. Although they stated a need for "non-controversial" material, suggestions were for information explaining purposes behind the establishment of laws and standards, support and organization of efforts to increase communication between industry and the public, attempts to widen the area of pollution concern to include non industrial sources, and the easy availability of results of technical research to both industry and the public.

In general the respondents emphasized the importance of information stressing the interrelationships of land use, conservation of resources, population, economic growth and environmental health. Few, if any, of the people interviewed thought that the topic of pollution control and abatement was separate or separable from the entire realm of ecological issues, or that EPA should be so specialized in its function as to ignore the total picture.

A common view was that the delivery mechanism for such information should be a locally based institution and not the federal government. Dr. Epstein of Case Western Reserve University suggested that the university, with EPA sanction, could serve as a primary resource for the community both in generating information and delivering it. The university, he felt, did not operate under the same constraints as the federal government particularly with regard to the facilitation of community action programs.

In the South, respondents from Alabama, Florida and Texas cited the Regional Planning Commissions and Councils of Government as existing sources of information and suggested that they be pressed into service as intermediaries for information dissemination since their comprehensive planning function presupposes a concern with total environmental conditions.

In a different vein, the director of the Appalachian Research and Defense Fund, a public interest law firm in Charleston, West Virginia emphasized not only the need for funds to support efforts such as theirs, but the importance of some form of official recognition of constructive, committed groups working to solve community problems.

The following summary list of conclusions is from Human Resources Project, a formal study of citizen groups prepared by the Regional Plan Association of Southern California and funded in part by HUD. These conclusions corroborate Task Force findings during the area survey.

- The extent of energies unilaterally expended toward given organizational ends evidenced a high degree of vitality and commitment among existing citizen planning groups in Southern California.
- Very few groups are structured with a foundation firm enough for continued activity. Many spring up and disband over local emergency issues, others start in response to the current fad to "do something" about the environment. This is especially true of student-oriented ecology groups, with fluctuating degrees of fervor and participation as successive semesters bring shifting enrollment and attitudes.
- The great majority of citizen planning groups operate on little or no cash resources. Only a negligible percentage was subsidized or assisted by public sponsors.
- Of the two hundred groups surveyed in detail, more than 80% are producing newsletters. Review of newsletter content showed much duplication of material with many variations in interpretation of facts suggesting a contributing factor toward fragmentation in Southern California. It also indicates the lack of a common source for impartial, factual information.
- The bulk of citizen groups have come into being largely as a protest against an issue, suggesting that civic action is best fomented through dissatisfaction with existing conditions.
- Groups illustrated wide age ranges among memberships, suggesting a multi-faceted appeal for involvement.
- Similarly, a cross-representation is found in occupational categories.
- While the highest percentage of groups listed membership of 500 or more, such memberships were essentially "mailing lists." Actual task groups ranged between 25 and 30 members.
- Levels of government with which the groups predominantly interacted were city, county, and national. Indications of regional and state interaction were few.
- Groups which have completed a successful project have shown a willingness to continue activity in broader issues and serve their community in new ways.
- The Labor category was among those shown to participate least in citizen planning groups.
- "Raisons d'etre" among individual groups tended toward tangible pragmatic issues rather than ideological ones.

- There is a significant absence of horizontal communication among groups.
- Only a small percentage of groups are looking to regional level potentials for the resolution of local level problems.

Structured Learning Interviews in the five cities visited by the Task Force provided considerable evidence that educators and concerned citizens around the country are interested in developing environmental education programs for their schools. There was broad agreement on all levels that education, beginning with kindergarten and continuing through the university, would provide the only effective solution to the environmental crisis, and that implementation of such a program would have to be on an interdisciplinary basis. Environmental studies would therefore, be a part of all the courses normally taught including social science, humanities, fine arts, and science, the purpose being to aid children in the creation of an environmental ethic which will influence their future decisions as citizens in any occupation they choose.

Teachers and students interviewed agreed that the traditional conservation and nature course reached only those students predisposed to appreciate them, while ecology taught as part of the science curriculum is often given the lowest priority and again only reaches selected students.

The requirements for implementation of environmental education programs varied in the five areas surveyed, but when combined, displayed a definite pattern of development.

In Alabama and Mississippi, sources in the State Departments of Education indicated an official interest in the development of environmental education programs, and have begun to divert both funds and personnel to that end. The coursework which exists, however, is still by choice of the teacher, so that individual motivation and competence decide the existence of an environmental orientation.

In the south, in general, our interviews revealed that a need for public awareness efforts which would arouse a basic concern for the environment in the community. This concern is essential--without it there is no support for educational reform efforts--for the prevailing attitudes define education as the means of attainment of concrete, job-oriented skills, and not philosophical appreciation of ecological principles. Because communities very often exert great influence on their schools and on the subjects taught, this attitude must change before significant education reform can be achieved.

Beyond this, the communities represented in the southern area corresponded fairly closely to those in other areas of the country.

Elementary and secondary schools need teachers qualified to teach environmental studies within existing curricula. Both Cleveland and Dallas school districts represent a minimal attempt to retrain teachers to environmental awareness. The Dallas Independent School District cooperates with the American Institute of Architects who have set up two-week training workshops for environmental education for professionals, including teachers. Cleveland teachers must rely on outside sources to an even greater extent. The Ohio Education Association, a membership organization of educators, does not initiate programs, but has responded to members' requests in the past by devoting part of its annual conference to discussions on environmental education.

The Kanawha County Board of Education in Charleston, West Virginia, on the other hand, has taken a positive step by requiring a percentage of teacher inservice training to include environmental education. They currently offer four programs, which provide background information or review of ecological subject matter, help develop plans for interdisciplinary activities for students for use in the classroom and outdoors, and provide free and inexpensive reference materials for teacher and classroom use. Discussions with the science supervisors for the county and the director and coordinator of inservice and curriculum brought out the need for information on the various responses of other school systems around the nation, and for a handbook of resources for teachers which would stress the use of the community as a laboratory for environmental education.

The coordination of environmental education as a state wide program was discussed with various state coordinators for EE, some of whom, Florida, Oregon and West Virginia, have progressed to the formulation of a master plan, while others, such as Ohio are in preliminary stages, coordinating existing legislation (which often justifies conservation education only as part of the science curriculum) with budget, personnel and existing materials. The suggestion was made by the environmental education coordinator for the State of Ohio that a most useful role for EPA would be the promotion of national guidelines for environmental education through the support of writing conferences on a regional or national basis with representatives of every state department of education in attendance. Such an approach would not only promote uniformity among educational programs, but would facilitate communications between the various states on environmental education.

One of the most important issues discussed in the various cities visited was the development of materials and curricula devoted to environmental education. It is generally held that a vast quantity of printed and audio-visual material on the environment exists, some of it very high quality. The problem is not production of materials but getting the knowledge of those existing to people who can use them. The ERIC center at Ohio State University is currently engaged in the collation and evaluation of these materials, which should prove to be of great use to educators.

Teachers do not necessarily need new curricula because many school districts cannot afford or will not permit a massive reorganization. They need training and inexpensive materials which will enable them to fit environmental studies into the existing course structure of their schools. To this end the State Department of Education of West Virginia sponsored a two-week writing conference for twenty-five teachers from various disciplines to create units for their course which were environmentally oriented. They were aided by experts in various technical fields who assured the accuracy of the material generated. In Oregon the Northwest Regional Educational Laboratory, funded by the Office of Education and the National Science Foundation, is developing environmental education materials for the schools in their regions. They emphasize the cross disciplinary approach and are concentrating on overcoming resistance to comprehensive reform which exists in the Oregon school systems as it does everywhere.

The role of the university in environmental education was considered ideally to be an extension of the secondary school program, in that it would be interdisciplinary and would focus on the development of an environmental ethic which would affect equally all fields. Some professors demurred--they thought the existence or creation of a single course would fit the requirements of environmental education. In fact, this contradiction is the most serious problem the university faces. Most university people interviewed felt that the emphasis on disciplines and distinct departments, while anachronistic, was far stronger than any impulse towards interdisciplinary or multidisciplinary approaches. However, professors at Case Western Reserve, West Virginia University and the University of Texas at Arlington felt that funding for study and implementation of such approaches would provide irresistible motivation for change in the desired direction.

Dr. Samuel Epstein, Professor of Environmental Health and Human Ecology, at Case Western Reserve University suggested a second role for the university through the formation of a multi-disciplinary research group for environmental problems. Such a center, he felt, would draw from the extensive resources of the university and provide consultation services, and research and information on particular issues and their social, political and economic ramifications. This service would be available to the community and to the state, and national government, supporting action programs rather than engaging directly in them. Dr. Epstein also felt that the establishment of such a core group would stimulate multidisciplinary studies in the university.

A most obvious function of the university is the production of environmental specialists. The technical and scientific fields of pollution control, ecology, biology and the like are already fairly well represented in the university but, as various respondents have pointed out, a great opportunity exists to train or retrain professionals in other fields to an environmental specialization.

FIELD SURVEY

Breakdown by type of people interviewed

<u>Cities Surveyed</u>	<u>Mobile</u>	<u>Cleveland</u>	<u>Charleston</u>	<u>Portland</u>	<u>Dallas</u>
Business & Industry	10	4	11	4	1
Citizen Action & Service Organizations	20	16	3	10	11
Educators	54	19	20	3	7
Federal Government	17	2			
Labor		1			
Media	4	3	3	1	2
Regional Planning Commission	14				
State, County, City, Government	10	3	7	3	3
Total	129	48	44	21	24

Total interviews in five cities surveyed - 266

D. Survey of Citizen, Service and Professional Organizations

The Task Force initiated this survey anticipating that private organizations of national scope would, through their intimate links with citizens and communities across the country, provide ideas for credible and creative solutions to the problem of environmental education. Forty groups were interviewed (see Appendix G), some of which have long histories of action and concern about the environment, while others, such as the labor unions, are beginning or contemplate environmental activities.

As in the other surveys conducted by the Task Force, questions focused on the contributions these agencies had made in the fields of public awareness, community involvement and structured learning, and solicited suggestions for future action, possibly in cooperation with EPA.

Nearly all activities on the national level have a public awareness component. Every facet of popular environmental concern is touched upon in the issuance of printed materials, films, speaker programs, use of T.V. etc. Most materials are directed toward the elucidation of facts on specific situations and issues rather than the presentation of a broad ecological viewpoint or the development of an environmental ethic. Keep America Beautiful, Inc.'s national anti-litter advertising campaign is an example of this kind of single issue awareness project. An exception was Earth Day, an effort coordinated by Environmental Action which was directed toward arousing national public concern over the ecological crisis.

Public awareness efforts are often coterminous with efforts which support community action. Environmental Action, for example, has continued its association with more than 1500 community groups, providing them with information and tactical materials. Many of the other national agencies and associations interviewed are membership organizations devoted to answering the needs of their constituents. They generate and distribute materials which support action by local groups, or engage in action on a national level designed to stimulate public support on environmental issues. The most striking examples are the lawsuits initiated by associations such as the Environmental Defense Fund, and the Sierra Club. Also impressive are the workshops developed and run by the League of Women Voters over the past six years to train community leaders with an environmental bias. The Handbook developed for this program by the League has been used by other private organizations and by government agencies as well.

Other services designed to support community action and public awareness generally center around the distribution of information; how to get involved, what to do and who to contact. The National

Center for Voluntary Action maintains files of community groups across the country involved in environmental action and will send names of these to interested persons. A similar purpose is served by the Conservation Directory of the National Wildlife Federation which lists the various governmental and private agencies concerned with the environmental issues.

In a somewhat different vein the Ecology Center Communications Council, Inc., founded in 1970 provides needed communications and informational services to local ecology centers. The Council has so far helped to start more than thirteen local ecology centers. They also provide recycling information.

Many programs and much material have been developed for formal environmental education, much of it directed at workshops and conferences for teachers. Local school districts often cooperate actively; the Baltimore Chapter of American Institute of Architects is working with the Baltimore City Department of Education to develop a series of sixteen environmental workshops for art teachers. Among other associations which have organized workshops are both private and professional organizations. The Sierra Club, Audubon Society, and Conservation Foundation have joined, in effect, with the National Education Association, the Association of American Geographers and the National Science Teachers Association and many others to reorient the teaching profession around environmental education by exposing teachers to environmental materials, providing references for them and instructing them in the use of their own communities as a resource to relate man to his environment.

These same organizations and others have produced textbooks and curriculum materials on the environment which are distributed to teachers and students. Such publications as Ranger Rick Nature Magazines, Environmental Education and the Environmental Quality Index, all produced by the National Wildlife Federation; Man and His Environment, sponsored by the National Education Association; and the anthropologically oriented unit on Man: a Course of Study produced by the Curriculum Development Associates, Inc. are all excellent examples of environmentally oriented materials.

This is only a token indication of the effort being made by national citizen, service and professional organizations in the cause of environmental education. The Task Force has collected samples of materials produced by these organizations which are available to interested persons for their perusal. A constant refrain of these interviews concerned the need for coordination of both materials and efforts made by national groups. It was felt that some one office should have responsibility for collecting all the various kinds of environmental education information and further, have responsibility for referring private citizens and agencies alike to a proper source of aid.

E. Legislative Survey

The fundamental rationale for EPA environmental education involvement stems from the basic obligation of any agency to explain to the public its central mission. The agency was established to consolidate, facilitate and expand existing efforts in pollution control. Carrying out that mission will be impossible without fundamental understanding and active support of the public. One of the prime factors, then, in the very battle that the Environmental Protection Agency was created to wage is the failure of our society to fully perceive, understand or even acknowledge environmental issues. In order that EPA act effectively it is necessary to identify the educational activities essential to coping with the complex problems of pollution abatement and then to determine the role EPA itself should play in those activities. The legislative mandate for a prominent and vigorous EPA environmental education role is substantial.

Under Reorganization Plan #3, which established EPA, the agency inherited authority for programs of cooperative education and manpower development (1970 Amendments to the Water Pollution Control Act) and for research and public information (Clean Air Act of 1970). These programs are presently being administered by EPA's Office of Public Affairs and the divisions of Manpower and Training within EPA's media program offices. The Office of Public Affairs is also actively involved in development and implementation of programs in public awareness and community involvement. It has been the volume of requests for aid and information outside the scope of these current EPA programs - requests for explicit environmental education material or expertise - that prompted the Environmental Education Task Force effort to be undertaken.

EPA, then, has specific authority for the environmental education relating to its media programs while the Agency's Office of Public Affairs has established a precedent for broader activity under the same justification - public information services - that is the basis for environmental education activities of all the federal agencies (with the obvious exception of the Office of Education).

Perhaps the less explicit powers vested in the agency are the primary justification of key EPA involvement in environmental education. The President's Message on the Environment in the first annual report of the Council on Environmental Quality, describes the principal role and function of EPA as including "assisting others through grants, technical assistance and other means in arresting pollution." 'Other means' has been interpreted by the Task Force to encompass EPA educational activities that would improve public awareness, citizen involvement and structured learning with regard to environmental quality.

The only existing legislation which specifically refers to Environmental Education as such - P.L. 91-516, the Environmental Education Act - defines environmental education very comprehensively and clearly gives the Office of Education (HEW) primary jurisdiction. However, the Act stipulates "cooperation with the heads of other agencies with relevant jurisdiction" in order to render technical assistance to various agencies and organizations which enables them to carry on education programs related to environmental quality and ecological balance.

In addition, the Secretary of Health, Education, and Welfare is authorized to "utilize the services and facilities of any agency of the Federal Government or...in accordance with appropriate agreements." Such language stands out vividly as justification for significant EPA activity under P.L. 91-516. The Task Force chairman has, in fact, been involved in educational efforts within EPA since the earliest stages of the effort which resulted in the Environmental Education Act, therefore, an informal basis for sharing environmental education functions with OE is well established.

Although there is much to be determined pursuant to EPA's role in environmental education, the legislative mandate for extensive EPA activity is undeniable and the latitude and potential for significant cooperative ventures with various agencies and institutions is clear.

Environmental Education Legislation - Past and Pending The past history of legislation for environmental education is relatively limited. The Office of Education in HEW has been granting funds for environmental education since passage of the 1965 Elementary and Secondary Education Act, which authorized the establishment of over 100 environmental education centers. Title I authorized adult environmental study programs. Although these projects have been successful, neither program seems to have been successfully implemented. The Citizen Advisory Committee on Environmental Quality found the lack of comprehensive and effective environmental education programs was compounded by a serious shortage of instructors skilled in teaching environmental concepts and by inadequate teaching aids.

The Environmental Education Act of 1970 was an attempt to fill this void. However, less than \$2,000,000 was appropriated for the program's first fiscal year, though \$5,000,000 was authorized. Obviously the expenditures under this act have not been sufficient to properly respond to the problem, even though the Office of Environmental Education was successful in directing proposals submitted under P.L. 91-516 to other agency programs for funding.

The environmental legislation introduced in the 92nd Congress indicates two basic trends. First, there is a movement to expand the public information role of EPA, and encourage increased public participation.

An example of typical legislation along these lines is the proposed Noise Control Act. The bill would require public information programs directed at retailers, consumers, and others "adversely affected" by noise generation standards. The public participation aspect would allow those "adversely affected" by the standards to submit views, file objections, and have public hearings.

In fact, almost all of the Administration's pending bills are of this type, including provisions for increased public information and public participation designed to be administered by the Office of Education.

Secondly, a number of bills have been introduced which relate more directly to environmental education. By far the most comprehensive of these is HR 8516 (introduced by Congressman Steed) which calls for the establishment of State Environmental Centers which would carry out planning, management, and education programs. Target audiences for the programs include the general public and persons involved with civic groups, fraternal organizations, and other special interest groups in American society. The bill calls for EPA to administer the act, and would, if enacted, appear to justify the expansion of an EPA program of environmental education. A summary of this and other bills relating to environmental education follows.

Pending Legislation Authorizing
ENVIRONMENTAL EDUCATION

<u>BILL</u>	<u>TITLE AND DESCRIPTION</u>	<u>ADMIN. AGENCY</u>
S.659	"Education Amendments of 1971" Title IX, Section 921 provides for fellowships for graduate or professional study for persons who wish to enter careers relating to the control of <u>environmental pollution</u> .	OE (HEW)
S.807	"National Environmental Study Areas Act" To enable the Department of Interior, Office of NESA, to establish environmental study areas on public lands to be used by all citizens, particularly <u>elementary and secondary students and teachers</u> . Funds also provided to develop teaching materials, to conduct teacher workshops, and to train DOI personnel who will work with program.	DOI
S.2770	"Federal Water Pollution Control Act Amendments of 1971" To establish a system forecasting the supply of and demand for occupational categories concerned with water pollution. To authorize grants to institutions of higher education to conduct <u>interdisciplinary studies</u> of river systems, to develop undergraduate programs, and grant scholarships to undergraduates interested in careers in water treatment and quality control.	EPA
H.R. 8516	"State Environmental Center Act of 1971" To enable EPA to help establish environmental laboratories in each state, to promote research planning and <u>educational programs</u> . Title II, the technology transfer component, provides for continuing adult education and extension services through workshops, seminars, demonstration projects, the publication of information and a reference service. The education component is directed at the general public, employees of government, business, and industry, and special interest groups, clubs and associations.	EPA

F. Minority Consciousness Survey

In the course of the Environmental Protection Agency's survey of environmental education, interviews were conducted with representatives of two important sub-cultures of the United States.

Black respondents were selected over a wide geographic area, from the Gulf Coast in the deep South, to the southern end of Appalachia and west to Texas. Some large northern cities were also represented. Those interviewed represented a broad occupational spectrum, ranging from government employees, to teachers, community organizers, tradesmen, and service people.

The Chicano community, composed of U.S. citizens of Mexican ancestry, was largely represented by people in education or education-oriented professions who were able to provide information on a wide range of Chicano people and programs. This part of the survey centered on various communities in California and Texas. In both cases the emphasis was on the urban poor, the ghettoized population of the cities.

Time did not permit an in-depth investigation of these communities, so that what is contained herein represents feelings and opinions on environmental education and the problems of the culture of poverty, rather than facts or general conclusions.

The Task Force found that one of the few sources for information about and contacts with these communities was the Office of Economic Opportunity, which, through its local offices, works closely with both Blacks and Chicanos. With their help the interviewer met members of both communities who were willing and able to explain and interpret the Black and Chicano experience to assist the EPA effort and to give advice concerning environmental education. These intermediaries and interpreters were necessary both linguistically and conceptually, to make the EPA definition of environmental education relevant to inner city needs, and to explain it in the particular idiom.

Background It is a commonplace to state that Blacks and Chicanos represent cultural patterns distinct from those of white, middleclass, American society. These sub-cultures, variants of the American experience, are generally ignored or downgraded by the majority and this assumption of superiority, reinforced by the social and economic realities of inner city life, is responsible for the low valuation these people generally place on themselves and their culture. Both Chicanos and Blacks are subject to prejudice and discrimination, and they are objects of unflattering stereotypes all of which serve to alienate and embitter them, forcing them into a psychological isolation which is destructive of attempts at action or education. In addition, the poor in American society, particularly those distinct by color or language, are physically isolated--forced to live in ghettos or barrios in large cities and denied access to the services which the city provides.

The society of the ghetto or barrio is further handicapped by the high mobility of its population, due to the demands of migrant labor, evictions, and substandard housing, among others. This reduces the effectiveness of the educational and social service attempts which do exist, and effectively inhibits attempts at self-help which rely largely on community spirit.

Ecology is not a Minority Concept The immediate physical problems of poverty are not yet defined environmentally by residents or by outsiders. Whether a problem involves rats, housing, garbage or sewage disposal, poor or non-existent water supplies, air rendered noxious by industry, lack of space for living, recreational or aesthetic purposes, or the lack of food, jobs, and transportation, action is generally on an ad hoc basis. It is difficult for people immediately involved in the variety of problems of ghetto life to assume a detached, holistic view of their situation, to treat it as one segment of a functionally interrelated environmental problem and to devise an integrated approach for its solution. Neither time nor resources will permit this. Also, the priorities of poor people are out of phase with those of the middle class, where concern with the 'quality of life' has begun to replace concern with money, material security and status. Blacks, in particular, feel that pollution means jobs - "smoke is bread" - and fear attacking a possible source of employment and prosperity.

For these reasons and others, environmental education in the ghetto and among poor people generally, will fail unless it becomes an umbrella for social and educational reform. In formal education there is general agreement that teaching methods are totally inadequate when dealing with Black or Chicano children, already severely handicapped by their living environment. The Chicano child who speaks only Spanish is often prevented from entering the first grade and is denied education completely. The content of white-oriented education is similarly irrelevant to the minority child. There is no attempt to make him aware and appreciative of his own culture or to teach him to cope with the larger, often alien society. He comes to school feeling helpless and unimportant and leaves to find his built-in despair reinforced by discrimination and segregation.

Attempts to reach inner city children through traditional conservation education generally fail for lack of interest and relevance. The aesthetic appreciation of nature is difficult to attain in a slum environment, while the normal problems of arranging field trips are intensified in the inner city by the problems of poverty. It is not surprising, therefore, that both Blacks and Chicanos feel that environmental education in the schools will not generate any interest until the living environment of the community is corrected.

In the field of community action the situation is much the same. Environmental concern is a white middle-class concern while poor Blacks and Chicanos are trying to obtain food, housing, jobs, and health care. Any community program which neglects these overriding needs is doomed to failure. On the other hand, if a community environmental action program takes care to ally itself with existing community groups--the church, neighborhood councils, community centers, etc.--and works to alleviate specific complaints either by aiding citizens in efforts to utilize government structures or by lobbying for them, interceding with local and state agencies, it can then work to broaden these issues and give them a more specifically environmental orientation. This informal education process should result in citizens who are aware of the steps necessary to change their immediate environment while helping them to learn to get services such as health care. In particular it can help the older members of the community who are handicapped by language difficulties, superstition, and the despair resulting from a lifetime of poverty.

A most important prerequisite for any program directed to minority needs is that it be based on a profound and sympathetic understanding of the psychology, social structure, and other cultural manifestations of these people. Research, whether through reading or interviews will be important but not sufficient. It is necessary to work through the members of a community perhaps by supporting a local Community Development Specialist or by working through the established institutions of the community.

EPA can also be of great help to minority communities by supplying materials needed for environmental activities. This would include funding and designing in-service and preservice teacher training, not only on the environment, but on developing an appreciation of minority cultures. It would also mean working closely with local school boards and public officials who stand accused of racism, attempting to force open the lines of communication between them and their constituents.

At the college level, where there is very little environmentally directed activity among minority students, EPA could encourage such environmentally oriented studies with particular reference to the problems of minority communities.

In general, it is EPA's task to focus national and local attention on the problems and to assert, as is undeniably true, that poor people suffer most from environmental problems such as pollution and have the least efficient and available recourse. An important ally may be found in the labor unions, which, in some areas have declared the falsity of the 'smoke is bread' ideology, and which are willing to orient existing educational efforts around environmental protection issues.

G. Survey of Washington Area Colleges and Universities

Any report on environmental education would be incomplete if it did not address itself in some measure to the environmental curricula and programs in the nation's colleges and universities. A national survey would constitute a major undertaking not within the scope of the Task Force, and consequently the universities and colleges in and around the District of Columbia were chosen as a representative sample. By no means is this sample intended to reflect accurately the broad spectrum of activities within the nation's schools, but the variety of colleges surveyed should provide some insight to anyone attempting to discern the present and immediate future of these activities.

The sample schools covered have one common characteristic which should elicit caution in the reader--their proximity to the seat of the federal government. This characteristic however, should be considered in the light of the purpose of the overall report, which is to provide information for the possible future role of a federal agency.

This survey covers a rich assortment of both public and private institutions. The public colleges and universities include those administered by federal, state and local governments. The private schools surveyed include both church affiliated and independent, non profit institutions. Urban and non-urban schools are represented, as well as all degree levels, including associate, bachelor, masters, and doctoral programs. The following is a brief summary of findings:

American University: a private, Methodist affiliated university located within the District of Columbia. Programs are offered ranging from terminal occupational (less than bachelor's) through the PhD. degree levels. Environmental studies at American University are concentrated principally in the College of Continuing Education and handled by one director working with a minimum of funds and no staff. However, the assortment of programs is significant. On-going are a 16-credit curriculum in Environmental Systems Analysis and a masters program in Environmental Systems Management, the only area program to involve data processing. Course credit has been given for environmental institutes held at the college on a variety of subjects.

Under development are a doctoral program to produce an environmental specialist, a two-year associate degree in environmental technology, and certificate programs in environmental education for various types of constituencies.

In addition, series of radio programs on ecology are created and aired on WAMU for use by the District of Columbia elementary schools.

The Catholic University of America: a private, Roman Catholic affiliated university located within the District of Columbia. Programs are offered ranging from the bachelor's through the PhD. degree level. Environmental offerings are limited to an undergraduate chemistry course, an environmental law course, and a masters program in city and regional planning. An ecology course introduced into the biology curriculum last year was discontinued.

District of Columbia Teacher's College: a public (local government) college in the District of Columbia. Program offerings are intended exclusively for teacher preparation; the highest degree offered is the 4 or 5 year baccalaureate. The D.C. Teachers College offered the first environmental education course in the District of Columbia. Science 600 F, Environmental Education for the Elementary School Teacher, recently acted as the base for the Urban Environmental Study Area in the District. Entitled "Our Block of Earth" and run at the Madison Elementary School in Northeast Washington, the program grew into a major community project and was written up in "Science and Children" magazine. The program involved the creation of a landscape plan which provided for five basic ecosystems for an eroded area of Madison School property chosen as the ESA site. The plot was then developed by the school children who later branched into the community spawning new projects. An undergraduate ecology course for pre-service students is also offered.

Federal City College: a public (local government) college in the District of Columbia. Programs are offered ranging from terminal occupational through the master's degree level. The principal outlet for environmental education at Federal City College is through the Division of Community Education. It is one of the few colleges in the country offering a Bachelor of Science in city, urban, regional, environmental design, social planning, economic development, pre-law, and environmental health planning. Graduate programs are planned.

In addition, the Division of Community Education offers an undergraduate program in which it is possible to minor in environmental education. Internships in various community programs are required.

Federal City College is extensively involved with community action projects, including Operation Clean Sweep, SPARE, a project to study the impact of FCC on the Shaw Avenue area, a one-hour television show on the model cities program, environmental workshops and a community video center.

Gallaudet College: a private (independent, non-profit) college for the deaf, located in the District of Columbia. Programs are offered at the bachelor's and master's degree levels. Gallaudet offers an elementary ecology course as well as an environmental chemistry course. The extraordinary nature of the college precludes any further programs at this time.

George Mason College of the University of Virginia: a public (state) college in Fairfax, Virginia. Programs are offered at the bachelor's and master's degree levels. George Mason's offerings are limited to two courses on "Man and His Environment" which are open to all students, and a more advanced ecology course.

Georgetown University: a private, Roman Catholic affiliated university located in the District of Columbia. Programs are offered ranging from the bachelor's through the PhD. degree level. Some environmental offerings are given the Law Center and the Biology department has the usual upper-level ecology courses.

George Washington University: a private (independent, non-profit) university located in the District of Columbia. Programs are offered ranging from the terminal occupational through the PhD. degree levels. No undergraduate ecology courses will be offered this year. Previously, plant, aquatic, and animal ecology courses offered in the biology department were not well received. A department of Urban and Regional Planning offers a Master of Urban and Regional Planning as well as a master's and a doctoral degree in related areas such as public administration.

George Washington has an environmentally active law school which has a curriculum of six environmental law courses. Last year a student created law society brought suit against D.C. Transit.

A masters program in environmental management is planned to begin in January of 1972. It would be aimed toward Washington policy makers.

Graduate School, The United State Department of Agriculture: a public, (federal government) non-degree granting institution of continuing education located in the District of Columbia. There are no coordinated environmental studies programs, but the number of available courses is large. More than twenty courses are offered covering topics such as pollution in biology, man and/in environment, and world population trends and problems.

Howard University: a private, (independent, non-profit) university located within the District of Columbia. Programs are offered ranging from the bachelor's through the PhD. degree level. Howard University offerings are limited to an upper level ecology course, a law course on ecological jurisprudence and a Masters of City Planning program within the Graduate School.

The University of Maryland: a public, (state government) university located in College Park, Maryland. Programs are offered ranging from the bachelor's through the PhD. degree level. The most significant environmentally oriented curricula and proposals center in the College of Agriculture. One such curriculum is the newly revised undergraduate major in Conservation and Resource Development. The major has six options including environmental science teaching and is the most extensively developed and widely interdisciplinary program in the Washington area.

A proposal has been submitted for teaching, research, and extension activities in environmental sciences within the proposed College of Agriculture and Environmental Science. Also proposed is the establishment of a permanent interdisciplinary Environmental Science Faculty.

The Urban Studies Center initiated this year is the first implementation of a 1970 proposal for an Institute for Urban Studies and a graduate and undergraduate degree program in Urban Studies.

Maryland will soon build its Centers for Environmental and Estuarine Studies, a comprehensive facility for use by all departments.

An Introduction to Environmental Education course is planned for the College of Education. An environmental forum was held through the college to bring concerned faculty together.

Other degree programs: Environmental Engineering--Air Quality Control, Water Quality Management, Health Engineering, Environmental and Water Resource Engineering, and Social Planning.

Montgomery College: a public (local government) community college located in Rockville and Takoma Park, Maryland. Programs are offered for both terminal occupational and associate's degrees. Offerings at Montgomery consist of a four-hour ecology course and two community planning courses. A committee on Environmental Courses and Program Development considers possible new courses as well as federal and state funding.

Under an NSF Student Originated Studies Program a Montgomery student drew up a grant proposal which eventually resulted in the Rock Creek Study Project in which six Montgomery students are presently involved.

Northern Virginia Community College: a public (state government) community college located in Annandale and Bailey's Crossroads, Virginia. The proposed third campus of Northern Virginia Community is to have an ecological mission and diversity of programs including Water and Wastewater Technology, Community Services, Law and Environment, Environmental Psychology, Population Dynamics, Conservation and many others. The Southern Campus will be a two-year equivalent to the Green Bay campus of the University of Wisconsin.

Northern Virginia Community College presently offers two courses within the standard curriculum, Biological Problems in Contemporary Society and the Chemistry of Pollution. Students from a previous biology course studied Lake Accotink and a proposal has been made for a student-Regional park program to further study the lake.

Prince George's Community College: a public (state government) community college located in Largo, Maryland. Prince George's offerings are limited to a human ecology course open to all students.

Lack of an environmental curriculum at Prince George's was attributed to the pressure of a major environmental program at Charles County Community College nearby.

Summary of Environmental Offerings -- Washington Area Colleges

	One or more basic ecology courses offered	General Degree in environmental science or studies	Urban or regional planning curriculum (undergraduate)	Urban or regional planning curriculum (graduate)	Environmental engineering majors	Environmental Law courses	Environmental courses to train teachers	Environmental policy making or management programs	Some significant community action programs	Significant environmental degree planned (near future)	Career oriented environmental technology courses
American University	X							X	X	X	
Catholic University				X		X					
D.C. Teachers College	X						X		X		
Federal City College	X		X	X			X	X	X	X	
Gallaudet College	X										
George Mason College	X										
Georgetown University						X					
George Washington U.				X		X				X	
Graduate School, USDA	X						X	X			
Howard University				X		X					
Maryland University	X	X		X	X	X				X	
Montgomery College	X		X						X		X
Northern Virginia	X								X	X	
Prince George's	X										

A list of educators interviewed is included in Appendix H.

PART II

CONCLUSIONS

Section 4

ASSUMPTIONS AND POLICY QUESTIONS

Assumptions In order to determine EPA's role in environmental education the Task Force had to consider general information policies under which the agency might eventually operate. The Task Force proceeded with this assignment by making four basic assumptions:

1. In order to equitably perform its primary task of pollution control, the EPA should be concerned with virtually every environmental issue (e.g. population, land use, poverty, urban decay, overconsumption, transportation). Therefore, 'informationally' the agency should be comprehensive; 'operationally' it should be limited.
2. As a regulatory agency independent of any promotional interest (other than protecting the environment), EPA is unique. As such, it could provide the public with various views on a broad range of environmental issues.
3. While eventually there will be a net of federal advisory organizations and operating agencies sharing the burden of maintaining environmental quality, EPA should move ahead as one of the nation's general environmental advocates. This commitment, broader than pollution control would make EPA a pivotal force in general environmental affairs.
4. It is the basic obligation of any agency of the federal government to both define its central mission and seek support for that mission from the public. This obligation justifies EPA to be deeply involved in environmental education.

Policy Questions In accordance with the foregoing assumptions the Task Force recognized that decisions regarding the following policy questions would have to be made before the Agency could define its role in environmental education.

1. Should the EPA play a role in advocating environmental issues other than pollution control?
2. Should the EPA place emphasis on providing the public with the kind of information that would eventually lead to the development of an environmental ethic?
3. Should the EPA use its information and monetary resources to foster citizen action?
4. Should the EPA support the development of an environmental studies in the schools and universities?
5. Should the EPA be a major force in coordinating environmental education activities within the government?

Section 5

DISCUSSION ON POLICY

A Peoples Agency In this day of environmental consternation, government must establish a particularly close dialog with the people. No cadre of specialists or government officials, however knowledgeable or adept, can bring about the vast changes needed. Government can legislate against overt pollutive acts, perhaps curtail misuse of our natural resources, and possibly overcome urban decay. But it cannot develop remedies and bring about change without the active cooperation of the people. As a first step toward achieving this unity of action EPA should operate as a responsive source of environmental information for the people.

It is basic to the mission of the EPA to create in the minds of all Americans a high regard for the natural and man-made environments within which they live. This basic respect must be all-pervasive and must lead to the preservation of natural beauty, the conservation of natural resources, the management of man-created wastes, and the restoration of our air, our water and our life support systems. The policies of the Agency and the actions of its employees must reflect recognition that these goals require fundamental changes in the attitudes and behavior of the people. Our systems of formal education must be encouraged to participate in this vast undertaking, and we must enlist the support of continuing educators, the media, voluntary clubs and associations, citizen action groups, labor and business groups and, perhaps most important, government at all levels.

The environmental issue is a national one, but environmental problems are essentially local. Air pollution in Los Angeles for example, does not concern a New Yorker to whom garbage pileups in the street which foul his neighborhood are real and present. But these problems are linked because both are symptomatic not only of the ecological crisis - but of a pervasive and abiding disaffection with government at all levels.

Government has, to a very large extent, dedicated itself to economic development, frequently trading off part of its trust, the public interest, to accommodate economic interests. Real estate developers, road builders, manufacturers and businessmen have exploited the public interest through appeals to an incurious citizenry based on a simplistic promise of jobs, economic development and low taxes. And the environment deteriorates in the process.

To date, the public image of the EPA is largely one of an environmental 'trust buster', whose mission is to control the polluting acts of our cities and industries. This has so far served well

because our initial concern has been directed toward large, individual, easily identified sources of pollution. But EPA must, while continuing to establish itself as an efficient and even-handed regulator of industrial and municipal polluters, deal with the problems created by the more profuse and serious polluters, the people. This pollution results from the over-consumption of a life style which regards material satisfaction as the highest achievement of a culture founded on the freedom of individual choice and the right of private property.

The basic social factors involved can best be changed by decisions which are made with the people instead of for the people. If we are to relate the degree of personal freedom each person requires with a level of environmental quality the society wants, the goals and 'standards' and the means to achieve them will necessarily have to be developed by a national effort involving each citizen and all levels of government.

In a very real sense EPA has a unique relationship to its constituency. The constituencies of the Departments of Labor, Commerce, Agriculture, etc., are largely defined by that segment of the population most affected by their policies and decisions. The nature of the EPA concerns suggest that its constituency is necessarily all the American people. Its policies on environmental restoration, management, and maintenance must ultimately reflect the will of the people. It cannot be only "pollution" oriented, it must be "quality environment" oriented; it cannot only be the regulator of industrial and municipal polluters, it must educate individual polluters in the needs for structuring a high quality environment.

In accordance with this posture and the assumptions stated, the Task Force recommends that EPA develop a comprehensive information network designed to gather and disseminate environmental information. The net would provide such information as: the environmental responsibility of various government agencies; directories of national environmental organizations, citizen action groups, and laboratories interested in performing laboratory analysis; state and local government offices with purview over environmental matters; and a broad spectrum of general information, publications, technical data, and legal precedents. Only officially released or published information would be presented: EPA employees would refrain from expressing preferences or views.

The most general level of contact with the public would be through a widely publicized national phone information service. By dialing 800 ENV 1000 any citizen could find out who has responsibility for and jurisdiction over his problem, and where to go for further information or assistance. Phone information would be limited to a few key directories.

The more definitive level of contact would be through a national network of neighborhood EPA Environmental Information Centers. These centers would be located on the street level in heavily populated areas. They would be kept open after working hours, and would provide reading, meeting and film projection rooms.

The information network would also include several other major elements: strategically located regional environmental science libraries with an eventual computer link to a central national environmental library similar in nature to the National Library of Medicine (MEDLARS); an environmental career information and placement service; a broad program of public lectures and seminars; and programs utilizing EPA employees, laboratories and facilities to support citizen education activities.

Toward An Environmental Ethic EPA should assume major responsibility for fostering development of an environmental ethic. Dealing with priorities, values, and mores, such an ethic, which mediates between self interest and public interest, would be a code of life, a new faith, pervading both individual and collective actions. It can be set only by those who will live it. EPA should be the leader, providing the information for the public to develop the ethic.

In performing its mission EPA is involved in numerous environmental encounters. As a vigorous defender of the environment, EPA can serve as an example which contributes to public understanding of environmental threats and helps to restore confidence in government. The review of environmental impact statements along with EPA research activities can indicate the nature of environmental issues, suggest alternatives and lead to the development of preventive measures.

To deal effectively with the environmental challenge citizens will need to learn to live with change, to guide it and foster it. They will need to understand that economic reward at the expense of environmental degradation is unacceptable. The utilization of environmental resources must be limited to satisfying basic human needs in order to develop a more rewarding quality of life for all citizens. This goal, advocated by a growing number of people from every social and economic class, presupposes basic changes in cultural patterns.

Individuals must concern themselves with the consequences of their decisions and their acts on society. For example, an unconscious decision to toss a tissue or a beer can from the window of a car to the roadway must become unacceptable, the act having cumulative impact on the common interest. Concepts of freedom of action will need to be influenced by the effects of the action on the whole society. Our most immediate role is to place environmental concern in context with other public issues, and to assist society in understanding the need for modification of the traditional ways to doing things. The management of man's relationships with his environment can be a practical expression of concern: through the application of a system of values,

beliefs, and moralities between man and nature and between man and man.

A longer range need is to provide information in ways that will not 'turn people off.' The doomsday approach must be avoided as it ultimately breeds resignation and apathy. Environmental issues do not ordinarily spell immediate death for the living generation. It will be difficult to motivate environmentally sound behavior, but, hopefully by developing a rational understanding of the environment we will evolve an ethic that projects concern beyond our own life time.

Information, then, is the foundation for the development of an environmental ethic. One thrust must be information disseminated through the mass media. The survey made by the Task Force indicates a willingness on the part of television programmers to schedule environmental programs; it also indicated a scarcity of suitable materials commercially produced, either locally or by the networks.

Because of the tremendous importance of the mass media in providing information, EPA must create innovative mechanisms for working with them and supporting the production of environmental materials of all kinds. The Agency should regularly dispatch such resource information as content for editorials, film footage that can be incorporated into local programming, spot 'environmentals' and references where busy editors can get additional information.

In addition to active support of TV, radio and the newspapers, EPA should take steps to assure the success of at least two private publishing ventures on the environment: a general audience photo journalistic magazine, and a popular scientific magazine. EPA should support editorial treatment that is honest, candid and sensitive. In addition to providing factual information (for cognitive learning) publications should provide options in judgment and opinion (for affective thought). They should not hesitate to present mind-jarring alternate ways of thinking about ethics, mores, and the need for social morality.

The volume of information on the environment will astound the most professional environmentalist. Central to the success of the Agency's public information program will be its ability to carefully differentiate and abstract information. It must then be given effective textual treatment.

Fostering Citizen Action One of the outstanding transformations in American life is the realization by a great many people that they can and should affect change. Prior to the rise of student unrest, the Earth Day activities, Women's Liberation, and Nader's Raiders, citizens were less aware of the power of their actions. Moreover, they lacked leadership which would mobilize that power. Today many groups of people across the country have become a surprisingly knowledgeable and active political force. EPA should utilize this force to advance the environmental movement.

The growing awareness of deterioration in the quality of life has given rise to citizen action groups in many parts of the country. The more observable qualities of environmental problems -- the air

laden with fly ash and particulate matter, the wanton destruction of green areas, the filth on the surface of rivers -- have led to demands for governmental action to deal with these problems immediately.

Many citizen group leaders interviewed by the Task Force said that governments had purposively programmed apathy among the citizenry and had ignored their views in the decision making process. Elections, they felt, only provide the opportunity to change the top men, not those whose daily decisions affected their lives. Congressional elections, which should affect the purse-strings, generally misrepresent financial matters. Moreover, they realized that the bureaucrats who ultimately control most situations almost never change. This realization has led to a demand for access to government at all levels in the decisions that most affect them.

Many of the same community leaders who expressed frustration and disaffection with government felt that the current national concern for the environment provides new opportunity for effective citizen action. Some saw interesting new coalitions -- suburban housewives and urban ghetto dwellers banding together in a unity of environmental purpose demanding and effecting change to their mutual benefit. Many blacks, leaders and others, said that environmental concern was a white, middle class issue with little obvious relevance to their community. Localizing environmental issues can help change that attitude.

One thought ran through many of these interviews -- that EPA would become a powerful agency committed to restoring and managing their environment, reversing the trend of despoilation and disregard, vigorously prosecuting the despoilers, representing citizen concern, and registering citizen antipathy in effective ways.

In July, 1969, a Gallup poll, sponsored by the National Wildlife Federation, recorded the opinions of a cross-section of 1,485 Americans concerning the amount the government should spend in 10 leading areas from the space program to Veteran benefits. "National Resources", with 68% and "Education", with 78% received the most support. More than 85% of the public is concerned with the condition of the environment. Three out of four, including 63% of those with family incomes under \$5,000 per year, said they would pay increased taxes earmarked for conservation. Of particular significance to EPA, 97% of the American public advocated reallocating Federal expenditures to free more money for environmental protection and clean-up.

EPA should be devoted to citizen action and should make every sensible move to foster the organization of citizen groups and encourage them to become concerned with the environment. These groups are potentially the most independent force in our culture. All others, political, industrial, agricultural, military, transportation are

concerned with promoting needs and issues that ultimately may present a conflict of interest with environmental protection.

The citizen action groups can persistently pursue an environmental ideal. Composed of neighbors in a community or region where the problem exists, the group is acutely concerned and willing to endure the time required for due process of law. Operating as a group, such citizens are not ordinarily threatened when confronting clusters of power.

Most important, citizen action groups can exercise tremendous influence over the voting public. Many environmental issues can only be solved at the polls. The more obvious problems include ordinances for air quality, passing bond issues for waste-water treatment and making provisions for solid waste disposal. As time goes on, communal judgment will be called upon to decide more subtle, far-reaching issues. The need for information, for explanations, and for understanding will increase. The citizen action group can play a major role in meeting this need.

While gathering the information for this report the Task Force was frequently told that the greatest support the EPA could provide would be to assist local forces in coalescing their efforts. EPA's assistance would not always require money; it may simply require a show of EPA interest, a press release, an employee to provide technical assistance or a formal endorsement. Individuals in several groups were concerned that economic interests could spend full time pressuring all levels of government to advance their interests, whereas citizens, whose time is occupied mostly in making a living, can only give spare time to public efforts which then compete with their families, needs and interests.

EPA should conduct regional environmental forums to explain the Agency's ever evolving role to a broad cross section of the public. The forums would be fundamental in perpetuating responsive citizen action. This 'road show' would also be presented to state and regional government officials in the form of training institutes, using generally the same content but cast for a more select audience.

Perhaps no other tool can be recommended with greater certainty than an annual, official EPA Environmental Handbook. Various attempts are being made by others but no other organization has the interest EPA has. The Agency should provide the American public with a resource of working information to support their organized actions.

Also critically needed is a monthly environmental newsletter carrying a text to support citizen action. In addition to EPA events it

should contain such non-government activities of interest as announcements of new publications, reference services, laboratory services, environmental success stories, technical discussions, landmark legal actions, new legislation, new state standards, and all the many other informational entries that a good gazette has. This newsletter should be the major, official external news publication of the agency. It would eventually become the key resource for annual revision of the handbook.

Environmental Education - A Common Thread EPA should play a significant role in reforming traditional instruction in the schools--to bring a new perspective to directed study in all disciplines at all levels. To the three basic tools of living; reading, writing and arithmetic, environment must be added, not as a separate subject, but woven through all subjects--a common thread.

Generally, American educational systems are designed to train the young to live in a society of economic plenty, to fulfill roles in an expanding industrialized society whose national resources seem infinite and where exhaustion of one means moving on to another. Associated with this is a national reliance on technology as the answer to economic problems which resources cannot satisfy. Essentially these concepts are based on a frontier philosophy. Profligacy and haphazard concern for conservation of energy and resources has resulted: waste, destruction, and over-population are left in the wake.

EPA should foster an orientation in the American educational system which engages multidisciplinary environmental studies. The Agency should recognize that traditional disciplines will not readily yield to a new holistic view. But the study of natural sciences alone will not suffice as a foundation for achieving environmental integrity. All disciplines must be included to develop the integrated approach needed.

In addition to supporting multidisciplinary instruction EPA should use its stature and resources to encourage the problem-solving approach in American education. Not in the sense of solving academic brainbusters or complex social issues, but in the sense of preparing individuals to identify options and choose alternatives in a life of change. Knowing how to cope with social evolution and to bring about change will enable the citizens of tomorrow to be more effective in developing the social morality which must underlie environmental quality.

EPA should also work to bring about changes in the administrative structures of American education which obstruct environmental learning. The Task Force found many obstacles such as lack of

knowledge about the need for environmental education, administrative rules limiting instruction out of the classroom, problems of bussing and insurance, disorder in classroom scheduling, educational traditions which do not permit multidisciplinary instruction, and resistance of parents to change.

Parents often view existing educational curricula and methodologies as prerequisites for getting a job. In addition, there are innumerable jurisdiction regulations which inhibit the development of new ideas and approaches. Insurance policies, stipulations of classroom hours, and transportation regulations are some of these. More compelling though, is the lack of awareness that learning can and should be fun, and that it can best be carried out by involving students in real life environmental laboratories--their communities. Teachers, by virtue of training and experience frequently feel inadequate in dealing with materials, questions and problems that are not within the accepted boundaries of their disciplines. Problems associated with this observation could be dealt with by organizing multidisciplinary team teaching and by altering teacher training programs at universities, colleges, and institutes. Much of this can be done at the city and state level. The Agency must do what it can to encourage state legislatures and boards of education to establish departments of environmental education, specify minimum curriculum requirements, institute teacher training and appropriate funds for implementation of environmental instruction in the classroom.

The problem of encouraging environmental education at the university level is similar to elementary and secondary education in its need for multidisciplinary studies and the problem solving approach but different in its methods of solution. Whereas in kindergarten through twelfth grade we confront rigid laws and practices controlling content and administration, in higher education we confront time-honored degree requirements which are not compatible with environmental curricula, and faculty-reward systems which do not encourage academicians to move into interdisciplinary pursuits. Colleges and universities must be made aware that multidisciplinary, problem-focused environmental education should rank with traditional disciplines. Whether this takes the form of environmental institutes and centers drawing upon the faculty of traditional disciplines, or university departments and colleges staffed with a multidisciplinary faculty, cohesive units must be formed which offer environmental degree and research programs and provide faculty prestige and compensation commensurate with university activities.

Orchestrating Bureaucracy There are perhaps 80 offices in HEW, Labor, Commerce, Interior and other departments of the government that indicate an interest in environmental education. Some have long-standing programs, some are initiating new programs, some are planning programs, and some carry the title Office of Environmental Education, but few are coordinating their efforts with other departments. These efforts should be orchestrated.

There is also a need to foster a greater environmental orientation throughout the government. Many programs could be reshaped and given an environmental perspective. Many other programs have discretionary funds which could be applied to environmental areas. Finally, the actions of virtually all agencies impact on the environment and consideration must be given to the effects. To accomplish these ends, officials in a position to guide and structure programs need a clear understanding of the environmental viewpoint.

The need for coordination of federal environmental education activities is compelling. EPA should make a conscious effort to cooperate with, coordinate, influence, nourish and coalesce federal programs wherever possible. EPA can avoid confusion by maintaining a clear posture while inviting and giving assistance. In national education programs EPA should work in unison with NOAA and any other existing or proposed agencies relating to land use, natural resources, energy and manpower. EPA should encourage other federal agencies, i.e. NASA, AEC, HEW, and DOD to permit use of their laboratories for environmental research and analysis. When feasible EPA should work in conjunction with the regional activities of other agencies such as the Agricultural Extension Service and County Agency Programs.

It is, of course, the basic obligation of any agency of the federal government to both define its central mission and seek support for that mission from the public. It is important that EPA define its interest in environmental education and how this interest relates to programs of the USOE.

In meeting this obligation to the public EPA's interest must not be confused with Public Law 91-516 (The Environmental Education Act of 1970) which grants the US Office of Education broad powers to promote environmental education. EPA should work closely with USOE even though it does not appear that the office established under this law will soon receive appropriations sufficiently large to launch the broad-scale comprehensive education reform which is necessary. Most programs will continue to rely on the funds of other government offices both from within USOE and elsewhere. So it is that EPA must clearly state its intention to promote environmental education. EPA is to protect the environment, and to do this it must educate the people. A separate charge to educate the people has been assigned to USOE but it has meager funds and with the exception of the Environmental Education Office, a less than unequivocal dedication to environmental education.

Also, there is evidence that some USOE offices are resisting the development of the multidisciplinary approach to education.

A pertinent question is whether USOE actually wants to keep PL 91-516, an Act involving educators in untraditional instructional activities. It could well be there is high-level sympathy for transferring the Act to EPA. If this is true, a legislative program should be pursued; in any case, EPA's interest and the areas of interest of other federal agencies should be defined.

Also pertinent is the fact that a major part of the grants awarded by the Office of Environmental Education, USOE, under PL 91-516 were for citizen action and non-school activities even though much of the money was redirected from school related acts, USOE spent almost \$5 million for environmental programs in FY 71. Indications are that approximately \$13 million will be spent in FY 72 for similar programs.

Of the 5 million in FY 71, \$2.5 million was awarded under Title III or IV of the Elementary and Secondary Education Act while almost \$2 million was spent for 74 programs funded out of the Environmental Education Act (PL 91-516). The remainder, from other sources, was awarded for curriculum development, teacher training and conferences.

It is interesting to note the Environmental Education Office published the guidelines for Environmental Education Act grants only 60 days prior to the FY 71 deadline, and yet almost 2,000 proposals were received requesting approximately \$80,000,000 in funds.

SUMMARY OF POLICY DISCUSSION

EPA, to fulfill its mission, as the lead agency for environmental affairs in the federal government, should adopt the following posture.

Be an agency for change The Agency's scope of operations must include a heavy commitment to public understanding of a need for environmental change, advocating a national commitment to the goal of environmental quality.

Encourage responsible citizen action A high quality environment must ultimately be defined by the people, and implies a commitment to action by all sectors of the society. EPA should provide funding support, information and professional counsel and guidance to assure that any action will be responsible and realistic.

Explain and clarify environmental issues Environmental action by citizens groups will require a basic understanding of the complexities of environmental management. EPA should become the source of information adopting aggressive programs for its wide dissemination.

Encourage prevention of environmental degradation Obviously prevention is less expensive than cure, but prevention implies understanding the resulting illness, its symptoms and how to avoid contracting it. EPA by adopting broad environmental understanding as its basic mission can help the nation to prevent future environmental illnesses.

Foster the development of environmental literacy Each citizen must be equipped with sufficient knowledge so as to understand the consequences of personal action upon the rest of society. EPA can foster this understanding by providing information on localized environmental issues, avoiding abstraction and technical jargon to the fullest extent possible.

Provide technical assistance and environmental information to federal, state and local education agencies Effective environmental education programs will necessarily rely on broad inputs of environmental information. EPA, as it develops scientific and technical expertise and comprehensive information systems about the environment should make these fully available for use in the educational process.

Fund demonstration projects in multidisciplinary process education Experience indicates that the most promising method for instructing students on environmental matters is through problem oriented learning.

Stimulate and fund projects in environmental research and analysis A major contribution to environmental education and understanding can be derived from multidisciplinary environmental studies of real-life environmental problems.

Coordinate and assist other federal agencies in a national environmental education program. The Task Force believes that a successful environmental education effort will require the inputs of each federal agency whose missions relate to our national concern for environmental quality.

POLICY ALTERNATIVES

In order to relate the foregoing issues to operating procedures, the Task Force has identified various degrees of EPA activity for each of the policy considerations discussed. The degrees for each policy are enumerated in order of generally decreasing involvement. Asterisks (***) indicate the degree recommended by the Task Force for each policy consideration. Specific methods of implementation are covered in Section III, CONCLUSIONS and RECOMMENDATIONS, that follow.

Agency Posture

1. EPA should provide the public with information on all major environmental issues and take a position on all major issues.
- *** 2. EPA should provide the public with information on all major environmental issues and take a position on pollution control issues.
3. EPA should provide the public with information on all pollution control issues and take a position on all pollution control issues.
4. EPA should provide the public with information only on pollution control issues in which it takes a position.
5. EPA should not be a general environmental advocate in any sense of the term.

Environmental Ethic

1. EPA should provide the public with the kind of information that will foster the development of an environmental ethic: information on values, priorities and alternatives associated with individual freedom, life style, population control and other broad social and ecological issues.
- *** 2. EPA should provide the public with information to develop a general understanding of key environmental issues: whether pollution control, land use, conservation, energy or others.
3. EPA should only provide the public with information to develop a general understanding of pollution control problems.
4. EPA should limit information to the public to specific pollution control issues for which it needs support.
5. EPA should not attempt to generally inform the public on pollution control or other environmental issues.

Citizen Action

1. EPA should support and coalesce all types of citizen action groups with information, services (technical and legal advice, etc.), and funds.
- *** 2. EPA should support and coalesce selected citizen action groups with information, services and funds; political groups excluded.
3. EPA should support and coalesce all types of citizen action groups with information and services; funds excluded.
4. EPA should support and coalesce selected citizen action groups with information and services; political groups and funds excluded.
5. EPA should support and coalesce all types of citizen action groups with information; services and funds excluded.
6. EPA should support and coalesce selected citizen action groups with information; political groups, services and funds excluded.
7. EPA should not provide support to citizen action groups (other than general information provided to all publics).

Environmental Studies

- *** 1. EPA should support manpower training, primary education and secondary education, and higher education with professional services and developmental funds.
2. EPA should support manpower training, and primary education and secondary education with professional services and developmental funds.
3. EPA should support manpower training with professional services and developmental funds.
4. EPA should support manpower training, primary and secondary education and higher education with professional services.
5. EPA should support manpower training and primary and secondary education with professional services.
6. EPA should support manpower training with professional services.
7. EPA should not support manpower training and education activities.

Interagency Coordination

- *** 1. EPA should assume the role of the principal federal agency initiating and coordinating interagency programs in environmental education.
2. EPA should be a significant force in initiating and coordinating interagency programs in environmental education.
3. EPA should cooperate with other federal agencies in environmental education programs.

Section 6

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Task Force makes the following conclusions regarding EPA's current and future posture in environmental education:

1. While current EPA environmental education programs contribute to objectives of the separate administrative and program offices, they do not provide agency-wide support for national environmental education programs.
2. Agency-wide environmental education needs are not currently initiated or coordinated by any EPA office (except the Environmental Education Task Force which is serving as a focal point for both internal and external activities).
3. Environmental education is a growing public issue under increasing pressure from both the education establishment and Congress. It has long-range implications for the future of EPA.
4. EPA needs a central point of contact with the education establishment on environmental education matters.
5. Environmental education can provide the EPA with an information program which has both the esteem of an academic forum and the combined reach of the nation's schools and universities.
6. Current EPA environmental education programs can be made more effective by combining them under a single office.
7. Environmental education elements of the manpower training programs should be redirected to agency-wide objectives.
8. Present environmental education needs can be met with a modest increase in current personnel and funds: foreseeable future needs will require additional increases in personnel and funds.
9. At present, no EPA office has the following agency-wide staff responsibilities.

Agency policy and priorities for environmental education programs and manpower programs related to formal education;

- . planning and assessment of environmental education and related manpower needs;
 - . development and coordination of general environmental programs for elementary, secondary and higher education;
 - . development of agreements and programs involving formal education with government agencies and academic institutions;
 - . initiation and review of legislation relating to formal education and manpower programs, and preparation of reports to Congress;
 - . an EPA information and development resource on formal education programs and academically related activities, particularly for the regional offices.
10. EPA will not make significant progress in environmental education without organic legislation. This can be obtained through passage of new bills or the transfer of the Environmental Education Act (PL 91-516) from the Office of Education (HEW) to EPA.

RECOMMENDATIONS

The Task Force recommends that the EPA establish an Office of Environmental Education. The office should operate as a staff function to the entire Agency. Its central mission should be as a resource organization supporting various operating offices--primarily the Office of Public Affairs but also in manpower training, personnel and regional offices. It should both coordinate and advise environmental education activities in and out of the Agency and initiate and maintain programs requiring developmental work or academic resources. It should be instrumental in translating EPA technology for the academic establishment. Specifically, the Task Force recommends that the Office of Environmental Education be charged with the following responsibilities:

Coordinate

- . EPA programs which have an educational component with education and training programs of other federal agencies which have an environmental component.
- . education and training programs for EPA employees with environmental content.

Resource for

- . EPA offices on current environmental education needs and academic information.
- . educational institutions engaged in the development of new curricula, teacher training programs, etc., an EPA central source providing technical assistance through various office of EPA.

Initiate

- . training programs for special interest groups such as lawyers, and planners.
- . distribution of environmental education information to the public, scientific, cultural and social interests.

Maintain

- . a repository of books, films, materials and teaching equipment pertaining to the environment.
- . files of educators, institutions and instructional programs concerned with the environment.

Develop

- . curriculum materials through grants and contracts.
- . education and training programs in environmental education.

To further define the role of the Office of Environmental Education the Task Force recommends that it have the following operational objectives:

1. Establish identity within EPA and with the public at large as the source of environmental education information and materials at EPA. This is a continuing function obvious but necessary to effectively carry out the information oriented objectives that follow. This function does not presently exist.
2. Establish coordination with OE and other federal agencies concerned with development, operation and funding of environmental education programs. This would start as a formal association with FICE (Federal Interagency Committee on Education). Cooperation between agencies will eliminate duplication of funding and lead to a more unified government approach in environmental education programs. In addition, coordination with non-governmental organizations including foundations will enable EPA to act as a catalyst in further environmental education development.
3. Establish liaison with EPA regions to develop information flow channels. The organization would serve regions not only as an environmental education resource, but also as support for regional environmental education efforts in instruction, funding, and contracts. This would enable the regions to serve local needs without having to initiate separate information gathering and development activities.
4. Incorporate into an environmental education center information from internal EPA resources. Within EPA there are research activities, public information activities, legal programs and other information sources that represent a continually growing environmental education resource. To utilize these dispersed resources for environmental education a continuing centralized information center should be established.
5. Incorporate into an environmental education center information from non-EPA resources. This activity has been started in the area of instructional materials by the USOE sponsored ERIC Center at Ohio State. The EPA environmental education organization should support extension of these efforts in areas not presently being considered but of interest to EPA: namely, information on pollution from EPA resources, listing of all environmental education organizations and capabilities, instructional material indexing by learning outcome. By building on the existing activity not only is interagency cooperation immediately established, but the high development cost for initiating a computer information index/retrieval system is not required.

6. Translate existing EPA instructional materials and research information to meet environmental education needs. A significant amount of instructional, technical, and legal materials exist within EPA. In many cases significant environmental education needs will be met by merely translating the materials into a less technical or even non-technical format producing material tailored for specific audiences.
7. Develop new programs based on existing EPA resources. EPA has existing and projected programs where the addition of an environmental education component could be a minor effort and which could result in production of environmental education materials that would otherwise have to be developed from "scratch". This approach will result in more materials produced faster with less cost.
8. Design and develop new environmental education programs and materials. The environmental education organization would originate new educational programs and materials utilizing resources from both the Agency and the academic establishment.

This summary defines the role of the office of environmental education in the Agency policy discussed in Section 5.

Previous sections of this report have set forth agency policy for environmental education in 5 areas. Listed below are specific actions that the Task Force recommends be taken in each of these areas. To the left of each is one or more of the following 5 codes indicating the functions the Office of Environmental Education should be charged with:

C -- Coordinate
D -- Develop
I -- Initiate
M -- Maintain
R -- Resource

Inasmuch as the Office would be a staff function it would absorb only the service cost of the programs indicated. The major cost of implementing the programs would be born by the various operating offices (i.e., OPA for informational programs, the regional offices for Environmental Center facilities and personnel, etc).

Systems for the Agency

Code

D,C . a widely publicized national phone information service,
D,C . street-level environmental information centers:
national and regional,
R . strategically placed technical libraries,
R . an environmental career information and placement service.
I,R . a comprehensive program of public lectures and seminars,
I,C . EPA laboratories and facilities to support information programs,

Information for an Environmental Ethic

R . a photo journalistic magazine on the environment,
R . television spot 'environmentals',
R . feature articles and programs,
R . radio and television talk shows
R . environmental vignettes (all media),
R . films, cartoons, coins, postage stamps, and
R . environmental themes in the theater.

Assistance for Citizen Action

I,C . technical assistance: training, laboratory analysis,
multidisciplinary environmental studies,
R,D . selective funding: grants, contracts and matching funds;
D,M . key information: an all-purpose handbook and professional
guides;
R . official sanction: joint endorsement or sponsorship;
R . publications: journals and newsletters, tear-sheet printouts,
R . speakers bureau.

Support for Environmental Studies

- I,M . encourage state legislatures and boards of education to establish departments of environmental education, assist development of curriculum, and fund teacher training.
- I,M . foster creation of university institutes and departments of environmental education, equalization of reward systems for multidisciplinary academicians, and inter-departmental and university appointments.
- D,M . make available grants and contracts, primarily for the development of multidisciplinary instruction, problem focused education, and teacher training;
- M . supply case studies, environmental materials, newsletters, technical data sheets, abstracts, periodicals, films and video tapes.

Coordination of Government Activities

- I,C . cooperative programs for informing the nation about environmental matters.
- I,C . interagency agreements, spelling out a coordinated environmental education mission.
- I,C . joint commitment of funds to support different aspects of a total program.
- I,C . public announcement of coordinated programs.
- I,C . interagency mechanism for joint evaluation of proposals.

The initial staff and budget for the Office of Environmental Education should be flexible. Education requirements will change rapidly as internal, academic and public needs are identified. Therefore, grants, contracts and the use of consultants should be relied on. It will be particularly important for the Office to be a responsive resource for Public Affairs. Interaction with other headquarters offices of the Agency, the regional offices, and the public should be established early. The initial budget for the Office should provide for resource services to the Agency and developmental programs to the education community.

APPENDICES

ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL EDUCATION SURVEY

Dear Participant:

We are here on behalf of the Task Force on Environmental Education established by the Environmental Protection Agency to determine the role the agency should play in this vital field. In order to prepare our report we are surveying public and private activities in environmental education on the federal, state, and local level both to report on the status of environmental education and to gather suggestions for making our recommendations.

We are interested in three areas of environmental education and have arranged interviews with people concerned with each. In the first area, Environmental Studies, we include both formal and nonformal education from grade school and university developments to manpower and adult training programs.

In the second area, Community Involvement, our concern is with the education components and efforts needed by public or private groups who conduct recycling campaigns, community workshops, and similar programs. We have also arranged to interview executives from industry and local government, church and civic leaders, ecologists and conservationists to determine their environmental education needs.

The third area, Public Awareness, is concerned with the development of a citizenry that is aware of man's impact on the environment, empathetic with the need for change, and informed of current issues.

As you can see, our definition of environmental education is quite inclusive. We are talking to people who are interested in its various aspects and who can suggest ways for the Environmental Protection Agency to develop a meaningful environmental education program.

Attached are working materials which will give you an idea of the guidelines we have set for the Task Force.

Thank you very much for your participation in this survey.

Sincerely,



Bernard Lukco
Chairman

Environmental Education Task Force

Environmental Education Task Force

PARAMETERS

The following charts define, in a very general way, the area under study by the Environmental Education Task Force. Because few environmental problems can be solved in isolation, the Environmental Protection Agency must be concerned with all environmental issues. Its primary mission, however, is the control of pollution.

Environmental Education is being defined by the Task Force in the broadest possible sense. Included are all forms of information for the public and private sector and all levels of instruction both formal and non-formal.

7/1/71

Environmental Protection Agency

Washington, D.C.

Chart 1

OVERALL ENVIRONMENTAL GOAL

- PROTECTING THE ECOLOGICAL BASIS OF LIFE
 - INSURING PURPOSEFUL ADAPTATION OF NATURAL
ENVIRONMENTS ACCORDING TO CAREFULLY CONSIDERED
NEEDS
 - SHAPING OF ATTITUDINAL AND CULTURAL FORCES
WHICH POSE THREATS TO THE QUALITY OF LIFE AND
ENVIRONMENT
-

Chart 2

E.P.A.'S DESIGNATED ROLE:

POLLUTION CONTROL

1. ESTABLISH and ENFORCE STANDARDS
2. MONITOR AND ANALYZE ENVIRONMENTAL IMPACTS
3. CONDUCT RESEARCH and DEMONSTRATION PROJECTS
4. ASSIST STATE and LOCAL GOVERNMENT

SOME ENVIRONMENTAL ISSUES

Population

Land Use

Poverty

Urban Decay

Pollution

ENVIRONMENTAL PROTECTION AGENCY

Overconsumption

Transportation

Economic Systems

Social Values

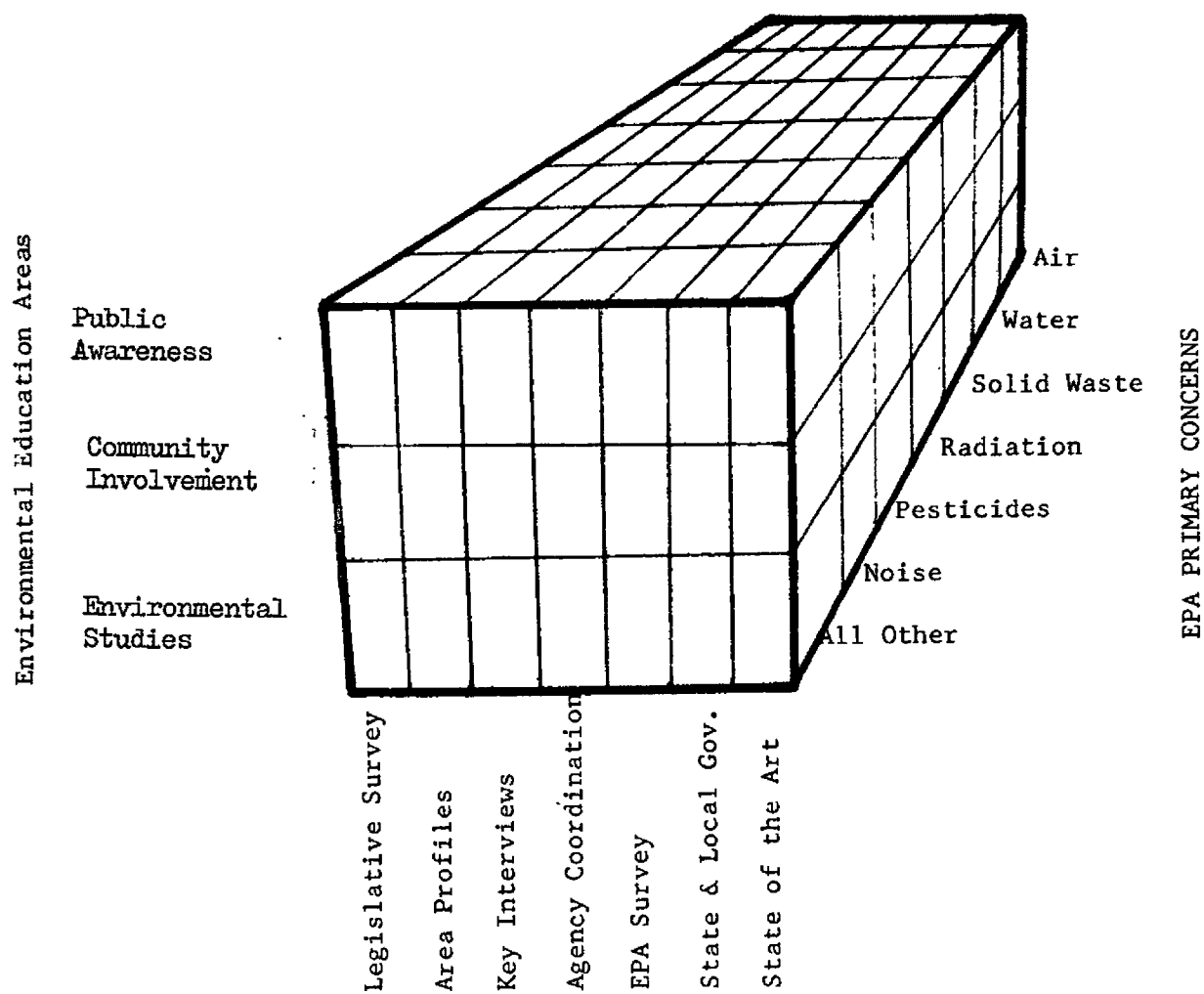
Chart 4

EPA PRIMARY FOCUS

	Allocation	Conservation	Pollution	Restoration
Air			ENVIRONMENTAL PROTECTION AGENCY	
Water				
Solid Waste				
Pesticides				
Noise				
Radiation				

ENVIRONMENTAL EDUCATION TASK CUBE

(Briefing Charts)



TASK FORCE ASSIGNMENTS

REPLY TO
ATTN OF:

DATE: OCT 7 1971

SUBJECT:

Environmental Education Grant Proposals and Inquiries Received by EPA

TO:

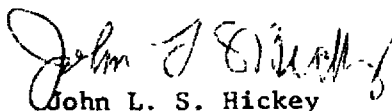
Mr. Bernard Lucko, Chairman
Environmental Education Task Force, OPA/EPA

In accordance with our conversation of October 1, 1971, I am sending you attached two listings containing 33 proposals and inquiries received by EPA, requesting or asking about grant support for projects oriented to improving general public environmental awareness or education.

At the time these were received (mostly in early 1971) OPA had not initiated an environmental education program, and so these inquiries were referred to the U. S. Office of Education or sent a holding reply, pending some resolution of EPA interest in such projects.

The first list dated July 1, 1971, indicates those proposals for which we sent a holding reply. The other list contains those referred to the Office of Education. Since about July 1, 1971, we have been referring such public education proposals to OPA for response.

If any of these briefly described projects interests OPA or your Task Force, we would be very happy to make the complete files available to you.



John L. S. Hickey
Grants Operations Branch
Grants Administration Division

Attachments: 2

GRANT APPLICATIONS AND INQUIRIES RECEIVED BY EPA
RELATED TO ENVIRONMENTAL EDUCATION

Application for a training grant from the University of Oklahoma for professional graduate training in community environmental health services; a five-year program requesting \$161,000. (Being reviewed by a study section).

Application for a training grant in "Environmental Health" received from University of North Carolina prior to formation of EPA. Application has received all necessary approvals but was not funded because it was multimedia in nature. The approximate amount requested is \$200,000.

Outline proposal from Paterson State College for an undergraduate and graduate training program in environmental chemistry.

Outline proposal from Southern Illinois University for a mobile environmental study unit which would sponsor an environmental motorcade to educate primary and secondary school children in environmental problems.

Complete proposal from Colorado State University for a graduate training program in environmental engineering.

A proposal from the American Camping Association to develop a camp ecological training project which would be aimed at training campers in various ecological areas.

A letter of inquiry from Hofstra University regarding EPA's interest in sponsoring a program for "retraining of engineers in the environmental sciences."

A letter inquiry from the Johns Hopkins University regarding EPA's interest in supporting a training program in the detection of environmental mutagens.

A proposal from Doane College for an environmental education program entitled "Quality of Life--Our Opportunities, Our Solutions". Amount request: \$30,000 for 18 month program.

A complete proposal from Southwestern State College for a summer institute on environmental planning. Amount requested: \$53,000.

An outline proposal from the University of Wyoming to establish an environmental research center for research and training of personnel in general environmental protection.

Letter inquiry from UCLA regarding grants for training in environmental biology at undergraduate and graduate levels.

Letter inquiry from Worchester Polytechnic Institute regarding grant support of a program to retrain aerospace engineers and scientists in environmental areas.

A complete proposal from California State Polytechnic College for a 12-week course to retrain aerospace personnel in environmental professional and technical areas.

A complete proposal from Technical Education Research Center to develop generalizable education programs in Environmental Management Technology. Request is for \$1,244,200 over a 4-year period.

Inquiry from Goucher College regarding availability of grants to purchase materials and equipment for an environmental studies program.

Inquiry from Los Angeles Trade-Technical College for funds to investigate the technician job market.

A complete proposal from Florida State University for a grant for graduate training in "Management of Public Resources".

Complete proposal from Fort Valley State College for a nine-week Teacher Institute on Environmental Quality.

Inquiry (followed by sample proposal) from University of Michigan for a grant for a graduate training program for environmental policy planners.

Letter inquiry from Montana College of Mineral Science and Technology regarding grant support for a general environmental engineering curriculum.

Letter inquiry from Colorado State University regarding grant support for a program to retrain aerospace engineers in environmental management.

Proposal from Versar, Inc. for a grant for student research internship programs in environmental sciences and engineering.

ENVIRONMENTAL EDUCATION INQUIRIES RECEIVED IN EPA AND REFERRED
TO U.S. OFFICE OF EDUCATION - DECEMBER 2, 1970 - SEPTEMBER 30, 1971

<u>INQUIRER</u>	<u>PURPOSE OF GRANT</u>
Western Electric Company	Grant for environmental education
University of Kansas	Produce photo documentation of pollution
Virginia Polytechnic Institute	National Symposium of critical environmental issues
Moorhead State College	Television course on environmental quality
Environic Foundation	Youth Conference on the environment
University of Tennessee	Conference on the environment
Southwestern State College	Summer institute in environmental planning
Rogers Cannell	Development of an "environmental handbook"
Columbia-Greene Community College	Development of an environmental studies program
Kirkland Hall College	Support environmental studies curricula
Coast Community College	Establish an environmental preserve
Minneapolis Public Library	Establish environmental library
Wichita-Sedgwick Co., Kansas	Support an environmental Action Corps
Youth for Ecology & Survival	Support an "Earth Fair"
Benton-Franklin Community Action Comm.	Support an Environmental Summer Campout
Stevens College	Establish an Environmental Education Center
Great Neck Public Schools (N.Y.)	Support environmental education programs

Environmental Education Grants Awarded by USOE (FY 71')

ENVIRONMENTAL EDUCATION CENTERS

Open Space, Inc., California
Community Environmental Council, California
Valley View School District, Illinois
Minnesota Environmental Science Foundation, Minnesota
St. Louis Public Library, Missouri
Pratt Institute, New York
Allegheny County Environmental Education Center, Pennsylvania
Fairbanks Museum of Natural Science, Vermont

CURRICULUM DEVELOPMENT

San Jose State College Foundation, California
Social Science Education Consortium, Colorado
Atlanta Public Schools, Georgia
College of Idaho, Idaho
Soil Conservation Society of America, Iowa
Environmental and Industrial Health, U. of Michigan, Michigan
East Syracuse-Minova School District, New York
Institute for Environmental Education, Ohio
Health Planning Association of N.W. Ohio, Ohio
LeMoyne-Owen College, Tennessee
West Virginia University, W. Virginia.

COMMUNITY EDUCATIONAL RESOURCES

San Diego Department of Education, California

SPECIAL EVALUATION AND DISSEMINATION ACTIVITIES

Center for Research and Education, Colorado
Environmental Education Planning Committee, Minnesota

SUPPLEMENTARY MATERIALS DEVELOPMENT

Department of Social Studies Education, Florida
Corvallis Board of Education, Oregon

SPECIAL EVALUATION ACTIVITIES FOR STATE PLANNING GROUPS

Moorehead State University, Kentucky
Massachusetts Audubon Society, Massachusetts
State Commission on Youth Education in Conservation, New York
Texas Office of the Governor, Texas

COMMUNITY ENVIRONMENTAL EDUCATION PROJECTS

Society for Environmental Stabilization, Arkansas
 Blacks United for Progress, California
 Portola Institute, California
 South Alameda County Economic Opportunity Agency, California
 Ecology Action Education Institute, California
 Frederic Douglas United Community Center, District of Columbia
 Winnebago County Soil & Water Conservation, Illinois
 Illinois Federation of Women's Clubs, Illinois
 Massachusetts Institute of Technology, Massachusetts
 Lower Roxbury Community Corp., Massachusetts
 Archdale Tenants Council, Massachusetts
 ENACT Ecology Center, Michigan
 School of Natural Resources, University of Michigan, Michigan
 Falls Creek Environmental Education Foundation, Montana
 St. Anselm's College, New Hampshire
 School Television Service, Channel 13/WNET, New York
 Environmental Action Coalition, New York
 Yadkin Valley Economic Development District, North Carolina
 North Dakota State University, North Dakota
 West End Health Center, Ohio
 Cleveland Council for Economic Opportunities, Ohio
 Luzerne-Lackawanna Council for Clean Air, Pennsylvania
 Group Against Smog and Pollution, Pennsylvania
 East Tennessee Development District, Tennessee
 Southern Methodist University, Texas
 Seattle-King County Economic Opportunity Board, Washington
 Harrison County Elk Creek Pollution Committee, W. Virginia
 Beloit College, Wisconsin

DISSEMINATION:

San Benito County Consumers Corp., California
 Environmental Library of Minnesota, Minnesota
 Environmental Clearing House, Ohio
 Group for Environmental Education, Pennsylvania
 Great Lakes Research Institute, Pennsylvania
 Committee for Community Environmental Awareness, Wyoming

ELEMENTARY AND SECONDARY EDUCATION PROJECTS

Punahoe School, Hawaii
 Pontiac School District, Michigan
 Nelson Conservation Commission, New Hampshire
 Multnomah School District, Oregon

EDUCATIONAL PERSONNEL TRAINING - INSERVICE

Arkansas State Department of Education, Arkansas
N.E. Missouri State College, Missouri
University of Texas, Dept. of Architecture, Texas

NONEDUCATION PERSONNEL DEVELOPMENT - INSERVICE

Prince Georges County Community Action Committee, Maryland
Children's Museum of Boston, Massachusetts
Worcester Polytechnic Institute, Massachusetts

WORKSHOPS FOR GOVERNMENT PERSONNEL

Indiana University Foundation, Indiana

COMPREHENSIVE COMMUNITY EDUCATION MODELS

Butler County Community Action Commission, Ohio

ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D. C. 20460

OFFICE OF THE
ADMINISTRATOR

Dr. William D. McElroy, Director
National Science Foundation
1800 G Street, N.W.
Washington, D.C. 20550

Dear Dr. McElroy:

An Environmental Protection Agency task force has been established to determine the extent and nature of our role in environmental education. The immediate mission of the task force is to evaluate existing environmental education activities and needs within the Federal structure. To accomplish these time-consuming and complex goals continued cooperation between Federal agencies is essential.

It is important that we are informed of your activities and experiences in environmental education. We would greatly appreciate liaison with a knowledgeable member of your staff who could assist us in this task.

Additional information can be obtained by contacting the EPA task force director, Bernard Lukco, (443-1935).

Your assistance will be appreciated.

Sincerely yours,

William D. Ruckelshaus
Administrator

Federal Agency Liaison Personnel

Dr. Elliot S. Pierce
Director of Division of
Nuclear Education & Training
Atomic Energy Commission
Washington, D.C. 20545

Dr. Dale Jenkins
Director of Smithsonian Institution
Ecology Program
Smithsonian Institution
Washington, D.C. 20560

Dr. Frank D. Hansing
Director, Office of University Affairs
National Aeronautics and Space Admin.
Washington, D.C. 20546

Dr. Donald C. McGuire
Dr. Jean B. Intermaggio
Dr. George E. Arnstein
National Science Foundation
Washington, D.C. 20550

Colonel Werner
Department of the Army
Office of the Chief of Engineers
Washington, D.C. 20314

Lt. Colonel Herbert E. Bell
Office of the Deputy Assistant
Secretary of Defense (Environmental Quality)
Department of Defense
Washington, D.C. 20301

Dr. Donald R. King
Office of Environmental Affairs
Bureau of International Scientific
and Technological Affairs
Department of State

Mr. Stanley Eames
Director of NOAA Office of
Public Affairs
U.S. Department of Commerce
NOAA
Washington, D.C. 20230

Mr. Alexander Zucker
Executive Director
National Academy of Sciences
Environmental Studies Board
2101 Constitution Ave.
Washington, D.C. 20418

Mrs. Pat Port
Special Projects
Departments of Transportation
Washington, D.C.

Mr. Carl W. Carlson
Program Officer (Ecology)
Environmental and Land Use Planning
Housing and Urban Development
Washington, D.C. 20410

Mr. Harry G. Geyer
Extension Service
Department of Agriculture
Washington, D.C. 20250

Mr. Jerry Brady
Mr. Don Eberly
ACTION
Washington, D.C. 20525

Mrs. Barbara J. Carroll
U.S. Department of Labor
Washington, D.C.

Federal Agency Survey - Officials Interviewed

Smithsonian Institution

Mr. Ronald Goor
Special Assistant to the Director

Dr. Wallen, Director of the Office
of Environmental Sciences

National Science Foundation

Dr. Don McGuire
Dr. George Arnstein
Jean Intermaggio
Mr. Richard Stevens

Agency for International Development

Mr. William Long
AID Environment Office

Department of Defense

Lt. Col. Bell
Staff Assistant to the Deputy Assistant
Secretary of Defense for Environmental
Quality, Environmental Office

Department of Housing and Urban Development

Mr. Morton Leeds
Deputy Director of Program Development

Mr. Andrew Eusten
Transportation, Environment & Urban
Design

George Wright

Art Ames
Housing Management

Mr. Mason Done
Housing Production

Mr. Art Siegal
Research & Technology

Mr. Richard Brown
Director of Transportation,
Environment, and Urban Design

Office of Economic Opportunity

Mrs. Marian Charnow
Program Management, Rsch & Demonstration

Mr. Richard Saul
Community Affairs

Mr. Art Frank

Nancy Chamberlain

Atomic Energy Commission

Dr. Elliot Pierce
Director Nuclear Education and
Training

Dr. John Cera
Asst. Director of Nuclear Education
and Training

Mr. Edward Brunenkant
Division of Technical Information

Mr. Joseph DiNunno
Director of the Office of
Environmental Affairs

Department of Justice

Mr. Alfred T. Ghiorzi
Pollution Control Section

Public Health Service

Dr. Loring
Bureau of Community Environmental
Management

Office of Education

Mr. Paul Cromwell

Mr. George Lowe

National Park Service of the
Department of Interior

Mr. Hugh Muller
Office of Environmental Interpretation

National Aeronautics and Space Administration

Dr. Harry Herzer
Space Science Education Project

National Academy of Sciences and
National Academy of Engineering

Dr. Steven Ebbin
Environmental Studies Board

Department of Transportation

Mr. Anderson

Department of Commerce

Dr. James Hibbs
Office of the Deputy Assistant
Secretary for Environmental Affairs

Department of Agriculture (Forest Service)

Jane Westenberger
Chief, Environmental Education

Corps of Engineers (Army)

Mr. Dean Pappas

Sports, Fisheries and Wildlife (Department of Interior)

Dr. David Erickson
Human Behavioral Research

Federal Power Commission

Fred Warren
Advisor on Environmental Quality

Department of State

Dr. Don King
Environment Office

ACTION

Joseph Blatchford

The Council on Environmental Quality

Mr. Robert Cahn
Miss Pixie Loomis

CLEVELAND, OHIO
AREA SURVEY PARTICIPANTS
August 8-13, 1971

Clyde Kirsch
City Water Pollution Commission
Chief Engineer

Gene Knight
State Director of Environmental
Education

Harold Groth
Cleveland Metropolitan Parks

Fred Wekes
EPA SPARE Program

Jack Gilchrist
EPA SPARE Program

Dr. James Mahan
Beechwood School System
Curriculum Coordinator

William Gaskill
City Public Utilities
Director

Dr. Louis Rosenblum
Technical Council for a
Clear Environment (NASA)

Julius Caesar
High School Leader
Glenville

Jeff Stenzel
High School Leader
Cleveland Heights

Victor Apanius
High School Leader
Richmond Heights

Merv Walsh
College Activist

Dr. Paul Olynik
Cleveland State University

Dr. Robert Roland
Cleveland State University

Dr. Andy White
John Carroll University

Dr. Samuel Epstein
Case Western Reserve University

Dr. Eugene Perrine
Case Western Reserve University

Dr. T. Dixon Long
Case Western Reserve University

William McCann
Cleveland Plain Dealer (Newspaper)

Robert Carpenter
Republic Steel Corporation

Bertram Raynes
Trygve Hoff & Associates
(Pollution Control Engineers)

Neil Van Ells
WKYC - Radio and TV

Dean Ostrum
Ohio Bell

William Hammer
Area Councils Association
Secretary

Mrs. Kerro Knox
Academic Council on Environmental
Problems

Melbah Mason
Retired Cleveland School Teachers

Joseph Chadborne
Institute for Environmental Education

Ann Felker
Air Conservation Committee

James Morello
Air Conservation Committee

Rev. Earl Cunningham
Area Councils Association
Citizens for Clean Air and Water

Frank Manick
Ohio Manufacturers Association
United States Steel

C.W. Elliot Paine
Greater Cleveland Garden Center

Geraldine Bolden
Area Councils Assn, Hough Area
Coordinator

Harold Zimmerman
Ohio Nature Conservancy

Kay White
Citizens for a Safe Environment

Melvin Witt
AFL/CIO

Margarette Hall
Girl Scouts of America

Alberta Flemming
Lake Erie Regional Nature Center

Dr. James A. Norton
Greater Cleveland Association
Foundation

Joan Holmes
Junior League

Dr. Victor Schowaffer
Educational Research Council of America

Penny Allen
Active Student

Dewey Saunders
Cleveland Supplementary Educational
Center

Dr. David Gitlan
Clean Air and Water

Ann Maret
O.P.I.A.G. (Nader's Group)

George Richards
Ohio Education Association

William Scheele
Cleveland Museum of Natural History

Mrs. Aurbach
Council for Economic Opportunity

MOBILE, ALABAMA
 AREA SURVEY PARTICIPANTS
 August 2-5, 1971

V.J. Cissua, Jr.
 Gulf Regional Planning
 Commission

Ned Bourdreaux
 Gulf Regional Planning
 Commission

Dennis Brooks
 Gulf Regional Planning
 Commission

Ralph E. Hode
 Gulf Regional Planning
 Commission

John Miller
 Corps of Engineers

Lieutenant General
 W.K. Wilson, Jr.
 TF 200, Goals Forum,
 South Alabama Regional
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 So. Ala Health Planning

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 U.S. Forest Service
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 Rm 5531-S

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 Baldwin County Board of
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M. McGaugh
 Southern Alabama Regional
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Norman J. Walton
 Southern Alabama Regional
 Planning Commission
 Chairman

Fox Davis
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 Corps of Engineers
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 Alabama State Docks Dept.

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Miss. Pollution Control
Commission

Jon Bennett
Planning Commission
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W.B. Stevenson
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Alabama-Tombigbee Regional
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E.W. Castellani
S. Ala. Regional Planning
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A.J. Chamberlin
U.S. Army Corps of Engineers,
Mobile District

L.E. Carroon
U.S.G.S. District Chief
Jackson, Miss.

Ronald J. Strauss
U.S. Forest Service
Supervisor, Fire Staff
Jackson, Miss.

Norton Haas
Mississippi Conservation
Commission, Chairman
St. Louis, Miss.

Tommy D. Quinn
Executive Secretary
M.M.C.C.
Biloxi, Miss.

Horace K. Brown
ASCS Region Specialist
Montgomery, Ala.

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Seafoods Division

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Baldwin County Health Dept.

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Charles D. Kelley
Ala. Dept of Game & Fish

Sam L. Spencer
Ala. Dept of Game & Fish

Robert A. Macrory
Ala. Dept of Conservation
Legal Section

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Water Resources Research
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Auburn, Alabama

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University of Alabama

John S. Hutchinson
Leon County Schools

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Director
University of Mississippi

Erline Curlee
Alabama State Department of
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Vola Morris
Alabama State Department
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James J. Hancock
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Chairman, Biological Sciences

Ray Davis
University West Florida
ITV Production Manager

Aubrey Morris
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Pensacola, Florida

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University of West Florida

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University of West Florida
Associate Professor of Biology

Frank Gillespie
University of South Ala.

Jim Fraser
University of South Ala.

Arthur Gannett
University of South Ala.

Adnan Shindala
Mississippi State University
Associate Professor of Sanitary
Engineering

Richard Tillis
Florida Department of Education

George Crozier
Marine Science Institute
Assistant Director

Judy Owings
Marine Science Institute

James D. Williams
Marine Science Institute

Gerald A. Moshiri
Assistant Professor of Biology

A.F. Hemphill
Department of Biology, SHC
Professor of Biology

Judy Stout
Alabama Marine Science Institute

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Dept of Civil Engineering
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Kay Brown
USM, NSF Institute

James V. Walters
University of Alabama
Professor of Civil Engrg.

Thomas McLeod
Institute of Higher Education,
Assoc.

Robert Rasheed
University of Southern Alabama
Asst. Professor Education
(Science)

Waymun Grant
Mobile County Schools
Principal - B.T. Washington

Samuel C. Burton
Mobile County Schools
Principal - Blount High Schools

Mary Jayne Myers
U.S.M. Hattiesburg, Mississippi
Institute

M.H. Myers
U.S.M. Hattiesburg, Mississippi
Maintenance

Mary J. Harris
University of South Alabama
Assoc. Professor-
College of Education

Dr. Elizabeth F. Martin
University of Southern Alabama
Assoc. Professor, Secondary
Education (Science)

Dr. Iva D. Brown
University of Southern Mississippi
Associate Professor of Science
Education

Lehman Barnes
Department of Science Education
University of Southern Mississippi

Rebecca Jones
Biology teacher
Fairhope, Alabama

John E. Morrow
University of Southern Alabama
Professor

Judy Owings
Bibb County
Biology & Math Teacher

Ruth Merwin
Davidson High School
Teacher

J.E. Edmonds
Jackson County School
Teacher

Pat Brown
Conecuh County High
Math Teacher

Asa J. Powell
Conecuh County High
Science Teacher

Christine M. Wise
Southside School
Special Education
Evergreen, Alabama

Sidney D. Upham
University Marine Center
Drawer AG,
Ocean Springs, Miss.

Charles B. Vickery
Office of the County Extension
Service, Auburn University
Auburn, Ala.

Samuel P. Snow
Center for Urban & Regional
Planning,
Auburn University

W. L. Rickard
Vocational Education
University of Alabama

Jim Battles
Instr. Mgm. Dev. Trade & Ind.
Education
University of Alabama

Dr. Worth Lanier
Auburn University
Auburn, Alabama

Joseph K. Gloscock
Miss. Power Company
Gulfport, Miss.

Sam Mims
Mobile Press Register

Rusty Rein
Mobile Press Register

B.T. Dean
Monsanto Textile Division
Wastes & Water Services Supervisor
Pensacola, Florida

Larry McNair
Southern Services Inc.
Supervisor Engineer
Birmingham, Ala.

Don DeLucia
WEAR-TV
Pensacola, Florida

Nanci Campbell
Daily Herald Newspaper

W. M. McGough
Consulting Engineer

C. J. Hamburger
Scott Paper Company
Technical Superintendent Pulp Mill

K.H. Tauss
International Paper Company
Senior Res. Associate

A. B. Meriwether
Merchants National Bank
Asst. Vice President
Mobile, Alabama

Andrew J. Curtis
MACAC, Inc.
Mobile, Alabama

George H. Whiteside
Container Corp. of America
Brewton, Alabama

Donald Brady
Goal Forum & SARPC

Mrs. B. L. Gilbert
TB & Health Association
Health Education Assistant

O.L. Adams
Goals Forum, Chamber of Commerce

Guy J. Babin
Goals Forum, Chamber of Commerce

Verda Horne
Environmental Consultant
Goals Forum

Mrs. James Hancock
Educational Committee
Goals Forum

Judy Coe
Citizens Water Workshop

Sandy Menge
Citizens Water Workshop

Portia Pasmussen
L.W.V. of Pensacola

Joe Parson
Alabama Wildlife Federation

B.B. Smallwood
Chickasaw, Alabama

Henry W. Carson
Foley, Alabama

J. D. Sellors
Robertsdale, Alabama

S. L. Wallace
League of Women Voters

Dixon Meyers
Chamber of Commerce

H.C. Butler
Goals, Forum

G.W. Hall
(K) Club South Alabama

Juanita Mason
A.A.U.W.

Van Watson
A.A.U.W.

CHARLESTOWN, WEST VIRGINIA
 AREA SURVEY PARTICIPANTS
 August 15-20, 1971

Information Board Member
 STAP-10000

Dr. Jay Barton
 West Virginia University
 Provost for Instruction

Dr. Charles R. Jenkins
 West Virginia University
 Assoc. Professor of Sanitary
 Engineering

Carol Commission

Chester A. Avents
 West Virginia University
 Dean of College of Engineering

Resources

Dr. Harold A. Gildard
 West Virginia University
 Assistant to Provost,
 Professor of Sociology

Resources

Educational
 Service Curricula

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 West Virginia University
 Professor & Chairman
 Dept. of Civil Engineering

Dr. William A. Sack
 West Virginia University
 Assoc. Professor

Gerald Orlick Solomon
West Virginia University
Assistant Professor of Education

Dr. Guy H. Stewart
West Virginia University
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Dr. William J. Wilhelm
West Virginia University
Assistant Professor of Civil
Engineering
Associate Chairman
Dept. of Civil Engineering

Dr. Rogers
Marshall University Geology Dept.
Professor

Mary Walton
Charlestown Gazette
Environmental Reporter

Charles Ryan
WCHS-TV Newsroom
Reporter

Bob Bruner
WSAZ-TV News
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Belle, Plant Manager

Peter Cross
The Dean Company
Production Manager
Princeton

Tom Durbin
PPG Industries
Clarksburg

George Hanks
Union Carbide Corp.,
Manager, Environmental Pollution
Control
South Charlestown

Chuck Manilla
Hvalington Alloy Products
International Nickel Co.,
Section Head, Environmental Control

Richard Peak
PPG Industries
Pittsburg, Pa.

Seth A. Savage
E.I. DuPont De Nemours
Washington, West Virginia

Fred E. Tucker
National Steel Corp
Vice President Environmental Control
Weirton

Paul Kaufman
Appalachian Research & Defense
League

John Rosenberg
Appalachian Research & Defense
League

Charles E. Hamilton, Jr.
West Virginia Manufacturers
Association
Executive Director

Donald E. Santee
W.V.M.A.
Legislative Director

PORTLAND, OREGON
AREA SURVEY PARTICIPANTS
August 15-20, 1971

Richard Hatchard
Columbia - Willamette Regional Air
Pollution Authority

George McMath
State Dept. of Environmental Quality
Commissioner

Dick Lakeman
City Planner
Director of Urban Design

Vern Anderson
Wilson High School
Teacher

Don Stotler
Portland State University
Portland Public Schools
Science Supervisor
Director of Environmental Education
Clearinghouse

Robert Lee
Georgia Pacific Corporation
Public Relations, Vice President

Harold Hirsch
White Stag
President

Bob Jackson
KGW-TV
Public Affairs Director

Tom Donaca
Associated Oregon Industries
Legislative Counsel

Mike Glammateo
Northwest Regional Education
Laboratory

Charlene McDonald
Northwest Regional Education
Laboratory

Marge Wintermute and others
American Institute of Architects
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Mary Anne Donnel
Coalition for Clean Air
Chairman

Barbara Lucas
League of Women Voters

Betty Merton
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Lobbyist

Larry Williams
Oregon Environmental Council
Executive Director

Charles Merton
Public Interest Law Practice

Mikhail Czernowitzky
Environmental Consultant

Alex Pierce
Oregon Roadside Council
Architect

Bill Luch
Northwest Steelheaders Trout
Unlimited
President

Steve Schell
Private Attorney

Buzz Willitz
New Careers Program
Director

DALLAS, TEXAS
AREA SURVEY PARTICIPANTS
August 22-26, 1971

Margaret Warren
Louise Swantesar
Dallas Public Library
Committee on Community
Education Chairman

Howard Parkee
AIA, Environmental Awareness
Committee

Dale Knotts
Dallas Air Respiratory Association
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Leonard Volk
Community Design Center
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Robert Norris
Sierra Club

Bland Pittman
Phillips, Procter and Bowers

Stephanie Sloan
Chamber of Commerce

Tolly Miller
National Audobon Society,
Conservation Department

Max Weaver
North Central Council of
Governments

Patsy Swank
Educational KIRA-TV

Nancy Johnson
Air Quality Coalition
Member

W.L. Moore
Greater Dallas Planning Council
Executive Director

Charles Gill
Texas Water Quality Board

Jim Schroeder
Local governmental Urban
Planning Group

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Editorial Writer

Dick Myrick
Dick Myrick, Inc.
Urban Planning Corporation

Mrs. John Godby
SMU, Institute of Urban and
Environmental Studies

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Dallas Public Schools,
Elementary and Secondary

Otto Friday
Dallas Public Schools,
Elementary and Secondary

Dr. James Caffey
University of Texas
Dept. of Civil Engineering

Dr. Harold Box
Cooper Center
School of Architecture

Dr. Ed Overman
University of Texas

Dr. Herman Benthol
Dallas Independent School District
Head of Ecology Task Force

Officials Interviewed

CITIZEN SERVICE AND PROFESSIONAL ORGANIZATIONS

Dave Clark
American Institute of Architects
Deputy Director of Environmental
Education, AIA National Office

Lee Kimche
American Association of Museums
Special Projects Director

James Collihan
American Association of Advertising
Agencies, Senior Vice-President

Dennis Vinton
National Education Association
Consultant to Task Force on
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Association, Executive Director

Lu Ouida Vinson
Executive Secretary
American Association of
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Carl Vogt
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Sciences Coordinator
Minnesota Environmental Sciences
Foundation, Inc.

Elvis Staks
President, National Audubon Society

Dr. Jerry Mackin
National 4-H Foundation
Director of Education Division

George Coling
Assistant
Washington Ecology Center

James L. Aldrich
Director of Education
Conservation Foundation

Dick Dalsemos
Director
Environmental Resources

Laura Freed
Program Manager
Keep America Beautiful

Robin Brooks
Dir. of Committee on Envir. Educat.
Sierra Club

Michael McCloskey
Executive Director
Sierra Club

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Environmental Action

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Environmental Defense Fund

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Changing Times Education Service

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mental Research Division
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National Geographic Society

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President
Council of Economic Priorities

Helga Roth
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National Center for Voluntary Action

Eleanor Sullivan
Manager, Washington Office
The Advertising Council

Ken Clarke
Project Administrator
Corporation for Public Broadcasting

Dr. Lois Sharpe
Director of Environmental Quality Affairs
League of Women Voters

Jack Coffey
Senior Associate for Environmental
Quality
National Chamber of Commerce

Ted Jacobs
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Center for the Study of Responsive Law

Dean Conrad
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Council of State Government

Ben Johnson
Asst. Director of Field Operations
National Urban Coalition

Robert Gallimore
Asst. Director of Field Operations
Common Cause

Joseph Bergen
Special Consultant, Air Conservation
National Tuberculosis and Respiratory
Association

Jevita Kilpatrick
Director of Outreach Program
American Cancer Society

Erma Angevine
Executive Director
Consumer Federation of America

Sheldon Samuels
Director of Occupational Health,
Safety, and Environmental Affairs
AFL/CIO

Jack Sheehan
Director of Legislative Affairs
United Steel Workers Union of
America

Rodger Rettig
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National Federation of Independent
Unions

Andy Paulick
Office of Conservation and Recreation
United Auto Workers of America

INTERVIEWS AT WASHINGTON AREA UNIVERSITIES AND COLLEGES

Mr. Roland Lambert
Assistant to Dean of the College
District of Columbia Teachers College

Dr. Matthew Whitehead
Dean of College
District of Columbia Teachers College

Dr. Joseph C. Paige
Dean of Community Education
Federal City College

Dr. Josh S. Schuchman
Dean of College
Gallaudet College

Dr. Kennedy
Professor of Biology
Catholic University

Dr. Ralph Rohner
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Columbus School of Law
Catholic University

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Prince George Community College

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George Washington University

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University of Maryland

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Takoma Campus, Montgomery College

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Takoma Campus, Montgomery College

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Central Campus
Northern Virginia Community College

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Professor of Biology
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Teaching Center
Department of Secondary Education
University of Maryland

Betty B. Meyers
Instruct Bilogy
Rockville Campus
Montgomery College

Joan F. Faber
Development Specialist
Rockville Campus
Montgomery College

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