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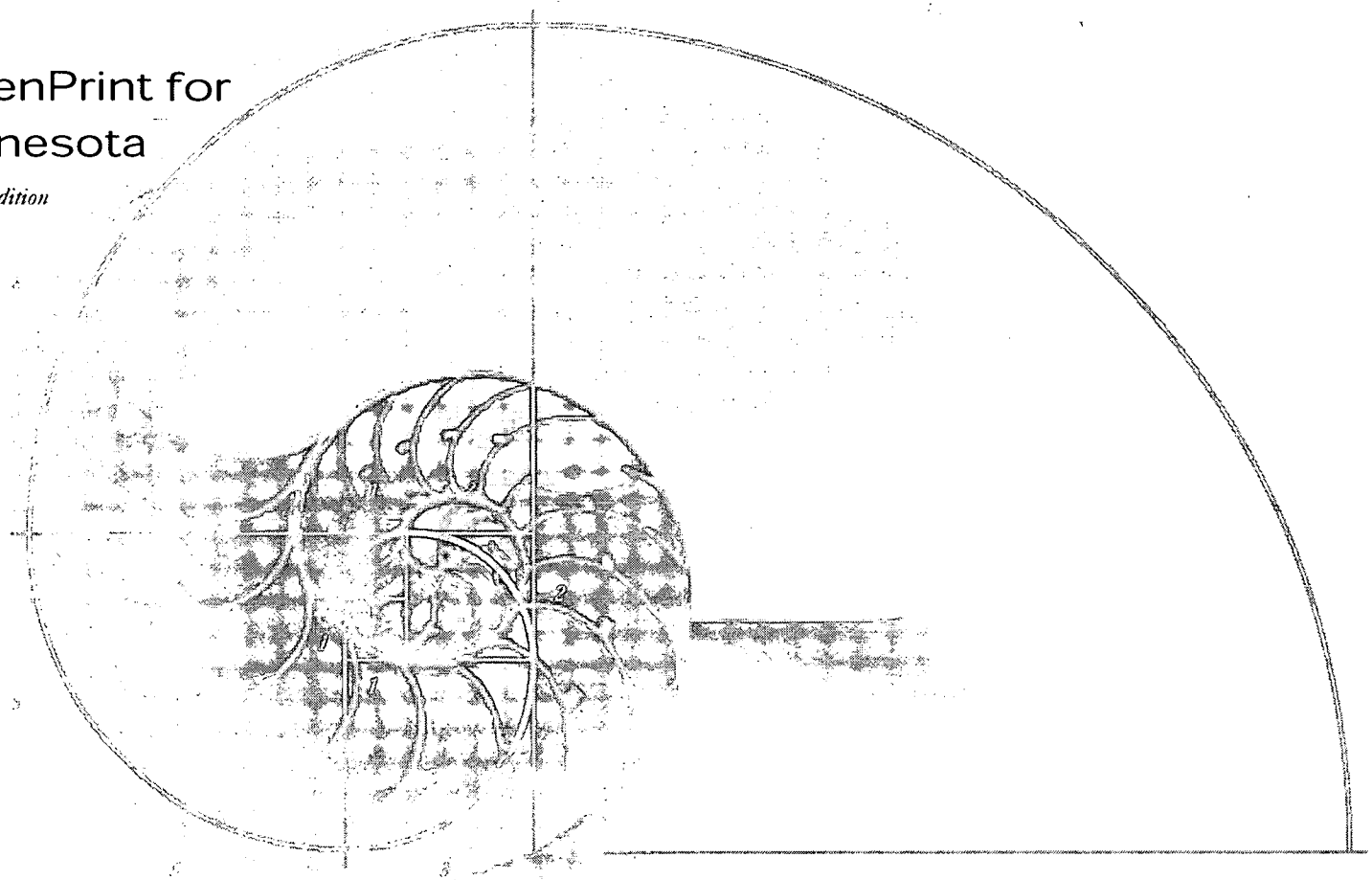
ABSTRACT

This document provides recommendations and strategies to achieve the goals for environmental education in the state of Minnesota. It represents the second edition of the state plan for Minnesota which provides guidelines to individuals, organizations, and agencies to support environmental education (EE) to achieve state goals. Contents include: (1) "The Minnesota State Goals of Environmental Science Education"; (2) "How to Use the Green Print"; (3) "Progress Since 1993"; (4) "Statewide Environmental Education Outcomes and Strategies"; and (5) "Priority Audience Outcomes, Needs and Recommended Strategies." Appendices include: (1) What is Environmental Education; (2) Partnership Opportunities; (3) Local and National Environmental Education Programs and Activities; (4) Minnesota's Environmental Education History; (5) Environmental Education Focus Group and Survey Results; and (6) Environmental Education Acronyms. (YDS)

A GreenPrint for Minnesota

Second Edition



STATE PLAN FOR ENVIRONMENTAL EDUCATION

GreenPrint, Second Edition
State Plan for Environmental Education

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August 2000

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The Minnesota Environmental Education Advisory Board (EEAB)

The **EEAB** is an advisory board consisting of 11 citizen and nine state agency representatives that provide counsel for the development and implementation of programs designed to meet Minnesota's State Goals for Environmental Education (EE). The **EEAB** gave direction to the completion of the original *GreenPrint* in 1993 with funds provided by the Minnesota Legislature as recommended by the Legislative Commission on Minnesota Resources (LCMR) from the Minnesota Environment and Natural Resources Trust Fund. The **EEAB** plays an important role in guiding organizations with the implementation of the *GreenPrint*, providing opportunities for forum discussions of EE issues and setting guidance for the future of EE in Minnesota. For more information on the **EEAB**, including a current board roster and meeting minutes, visit SEEK at *http://www.seek.state.mn.us* or contact the OEA at 651-296-3417 or 1-800-657-3843.

Preface

The *GreenPrint, Second Edition* Revision Process

With the support of staff and resources from the Minnesota Office of Environmental Assistance (OEA), members of the Minnesota Environmental Education Advisory Board (EEAB) planned and implemented a process to revise the original *GreenPrint for Minnesota: State Plan for Environmental Education.* Members of the EEAB and OEA staff, along with support from the Minnesota Association for Environmental Education (MAEE), conducted focus groups in the fall of 1998 to collect input from environmental education (EE) providers and others who attended one of seven workshops held throughout the state. A major part of the workshops was focus group discussions on what currently is needed to accomplish the state's EE goals and a review of the original *GreenPrint* audience outcomes, needs and strategies.

In addition to regional workshops, OEA staff, EEAB members and MAEE board members conducted additional focus groups with EE stakeholders with whom they were affiliated or represented. These audience-based focus groups and regional workshops provided input from 445 different stakeholders, which included all of the original *GreenPrint* audiences. Several participants noted the workshops greatly increased their awareness and understanding of the *GreenPrint.* The workshops also provided participants with the opportunity to learn more about local EE programs and to discuss regional EE activities.

Upon completion of the focus groups, OEA staff coordinated the design and delivery of an EE survey in the spring of 1999. One thousand surveys were mailed to a random sampling of EE providers throughout Minnesota with a return rate of 47 percent. In total approximately 900 individuals were involved in the *GreenPrint* revision process. Their combined needs, strategies and recommendations for the future helped shape *A GreenPrint for Minnesota, Second Edition.* Specific results from the focus groups and survey can be found in Appendix E.

Major changes from the original *GreenPrint*

The Minnesota Environmental Education Advisory Board (EEAB) originally identified and developed the *GreenPrint* priority audiences during the development of the first State Plan for Environmental Education in the early 1990s. During the most recent revision process, participants in the process were asked to identify additions and revisions to the audience sections.

One of the major changes that surfaced during the revision process of *GreenPrint, Second Edition* was the addition of three new audiences and the removal of one. Participants in the review process strongly felt that families and media were not represented fully by other audience groups in the original *GreenPrint* and have been added. Participants suggested that teachers also be treated as a separate audience. In the original *GreenPrint*, strategies for pre-kindergarten through 12th grade (PreK-12) educators were found in both the PreK-

12 students and higher education students sections. To make those sections more clear and to recognize the important role teachers play as EE providers, PreK-12 teachers was added as an additional *GreenPrint, Second Edition* audience.

The regulated community was one of the 10 original *GreenPrint* audiences. During the revision process it became clear that many of the components of the regulated community also were located in several other audiences, including business communities, consumers, outdoor recreation resource users, and producers/landowners. Deliverers of EE to business communities also pointed out that most businesses in Minnesota are going far beyond what is required by regulation to achieve significant voluntary progress on broader environmental issues, which are covered in the business communities audience. Consequently, the components of the former regulated community were included in the other remaining audiences.

GreenPrint, Second Edition audience sections were also condensed by combining and reducing the background information and partnership opportunities for each audience section and placing that information into separate appendices. Another major change from the original *GreenPrint* was the decision not to identify responsible parties for implementation of the individual audience strategies. One reason was not to put limitations on which organizations or individuals should or could effectively deliver education to the various audiences. Concerns included the difficulty in actually ascertaining which organizations or individuals are best equipped to fill those roles, the risk of excluding groups, and the lack of incentives or requirements for those identified to actually follow through on the recommendations. For many of the identified audiences, it is obvious which organizations have and will continue to play a major role in implementing the strategies. For other audiences that have not received much attention or progress, further discussions and resources will be necessary to facilitate progress. To assist individuals and organizations attempting to deliver EE, a myriad of potential EE allies were pulled together to create the lists found in Appendix B: Partnership Opportunities. The EEAB and its member organizations intend to lead further discussions to facilitate implementation of the *GreenPrint, Second Edition.*

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Introduction

In June 1993, the Minnesota Environmental Education Advisory Board (EEAB) first published *A GreenPrint for Minnesota: State Plan for Environmental Education*. The purpose of the *GreenPrint* was to outline recommendations and strategies for achieving Minnesota's goals for environmental education (EE) over a period of 10 years.

In the fall of 1998, members of the EEAB and staff from the Minnesota Office of Environmental Assistance (OEA) began the task of conducting the first comprehensive assessment and review of the *GreenPrint* through regional and audience-based focus groups, and a statewide EE survey. The result of that effort is the revised state plan for environmental education, *A GreenPrint for Minnesota, Second Edition*.

A GreenPrint for Minnesota, Second Edition offers guidance to individuals, organizations, and agencies that deliver or support EE to lead Minnesota citizens closer to achieving the state goals for EE found in Minnesota Statutes Section 115A.073 (1998).

The Minnesota State Goals for Environmental Education

Pupils and citizens should be able to apply informed decision-making processes to maintain a sustainable lifestyle. In order to do so, citizens should:

1. understand ecological systems;
2. understand the cause and effect relationship between human attitudes and behavior and the environment;
3. be able to evaluate alternative responses to environmental issues before deciding on alternative courses of action; and
4. understand the effects of multiple uses of the environment.

Minn. Stat. §115A.073 (1998)

The *GreenPrint* is designed to foster and expand partnerships to produce and provide EE programs and materials to Minnesota citizens. With an emphasis on people working together and providing lifelong environmental learning opportunities for all of Minnesota's citizens, the *GreenPrint* will play a major role in supporting the Ventura Administration's *Big Plan*. Specifically, the *GreenPrint* will provide the guidance for Minnesotans to achieve success toward the following environmental and social components of the *Big Plan*: smart growth, reliable and safe energy, effective and efficient transportation, efficient and cost-effective government and increased tourism. Implementation of the *GreenPrint* not only will increase the environmental literacy of Minnesota citizens, but also will provide them with the knowledge and skills to become active and engaged citizens to help keep our communities healthy and vital.

How to use the *GreenPrint*

Just as it was originally intended in 1993, *GreenPrint, Second Edition* is meant to provide guidance and policy recommendations to individuals and organizations that deliver or support EE programs to different audiences. *GreenPrint, Second Edition* consists of two major EE policy and planning sections that are designed to accomplish the state EE goals. These sections are:

- ☒ A list of prioritized statewide outcomes and strategies.
- ☒ Audience-based outcomes, needs and strategies.

For those individuals and organizations that are just beginning to develop and implement programs for a specific audience, the *GreenPrint* provides invaluable resources in the form of strategies and partnership suggestions. Many organizations and individuals have successfully used the *GreenPrint* as a tool to support requests to decision-makers and potential funders for their respective programs.

One goal of the EEAB is to bring together various individuals and organizations that are working on comprehensive EE programs to further refine their roles in addressing the statewide issues and strategies identified in *GreenPrint, Second Edition*. Environmental educators are encouraged to use the *GreenPrint* as a guide for determining to whom and how to most effectively deliver their programs. The *GreenPrint* provides direction by identifying the needs and strategies audience representatives and educators have determined are the most effective or most needed to achieve environmental literacy. Agencies, organizations and individuals also should strive to work in partnership when developing and delivering EE programs. Their programs should be consistent with the recommended educational outcomes and strategies identified for the following 12 priority audiences:

- ☐ Business communities
- ☐ Citizen and youth groups
- ☐ Consumers
- ☐ Families
- ☐ Government officials and boards
- ☐ Higher education students
- ☒ Media
- ☐ Outdoor recreation resource users
- ☐ Pre-kindergarten through 12th grade students
- ☒ Pre-kindergarten through 12th teachers
- ☐ Producers/landowners
- ☐ Religious groups

Progress Since 1993

All of the following recommendations for the Minnesota Legislature were identified in the original *GreenPrint* published in 1993. Following each recommendation is information on the known progress attained through the year 1999. Additional background information on state environmental education (EE) programs also can be found in Appendix C.

Provide $4 million per biennium to establish grants for EE programs and activities.

Primarily through the establishment of the Environment and Natural Resources Trust Fund, with funding recommended by the Legislative Commission on Minnesota Resources (LCMR), this recommendation has reached the level of the original funding request. The Legislature has provided $15.433 million (an average of $3.1 million per biennium) for environmental education/information projects since 1991. Since 1993 the OEA, through its grant programs, has awarded an average of $400,000 per biennium for environmental and waste education projects. The Minnesota Department of Natural Resources (DNR), through its Local Initiative grant programs titled Community Environmental Partnerships and Conservation Partners Program (funded primarily by the LCMR), has awarded approximately $800,000 per biennium for education-related programs and activities.

Provide $300,00 per biennium over a ten-year period for disseminating the EE model curriculum integration process established by the Minnesota Department of Education (now the Department of Children, Families and Learning) for K-12 teachers.

The funding from the Legislature, as recommended by the LCMR, that provided for the development of the new state plan in 1991, also funded the development of the *Addendum to the GreenPrint: A Guide to Integrating Environmental Education*. The *Addendum* was created by eight school districts to help teachers integrate EE into the curriculum. Funds were not provided however, for a statewide dissemination of an EE model curriculum integration process.

A small portion of the Teacher Preparation Project (described in greater detail below) and individual organizational training efforts include EE curriculum integration. Currently, there also are renewed efforts to develop and implement a Minnesota EE scope and sequence and EE integration process (see Appendix C). Total efforts to date on this recommendation, however, fall far short of the resources needed to train current preK-12 teachers on integrating EE into the curriculum.

Provide $400,00 to establish one-time grants to higher education institutions to incorporate EE into pre-service teacher education programs.

In 1995, the LCMR provided $500,000 to train 332 current teachers through the Minnesota Environmental Education Teacher Preparation Project. Ten higher education institutions cooperated in the development and testing of a 40-hour course to qualify participants to teach EE. Eight of the 10 institutions incorporated components from the environmental education course content into pre-service courses. Beyond the mixed levels of continued participation by the 10 Teacher Preparation Project institutions, the 16 other higher education institutions with teacher preparation programs in Minnesota do not have coordinated EE programs. Research from the Teacher Preparation Project also found that teachers need more than one course in order to acquire the necessary background to prepare them to teach EE competently (see Appendix C for more information). Resources and opportunities continue to be insufficient to adequately prepare educators to deliver effective EE programs.

Provide $1.2 million per biennium to state agencies for the adoption or adaptation, expansion and distribution of pre-kindergarten through 12th grade (PreK-12) EE curriculum related to their areas of interest.

No additional money has been provided to agencies for curriculum development or distribution. Some agencies have shifted resources as necessary to distribute curricula to the PreK-12 audience. One example is the Department of Natural Resources, that shifted funding within the Division of Waters to distribute the national Project WET (Water Education for Teachers) materials. Overall, requests for materials and resources to develop and deliver programs exceeds the resources of most state agencies. In addition, without designated EE funding, other more immediate or tangible environmental programs and services tend to overshadow efforts to deliver long-term education programs.

Provide $200,000 per biennium to establish and maintain a clearinghouse for EE.

In 1995, the LCMR appropriated $200,000 to OEA for the creation and establishment of an interactive directory of EE resources, which is called Seeking Environmental Education Knowledge (SEEK) *(http://www.seek.state.mn.us)*. Since the original, one-time appropriation, the Minnesota Office of Environmental Assistance (OEA) has provided ongoing funding for the project in the amount of $170,000

per biennium. SEEK currently has over 100 organizational contributors and receives an average of over 2,000 hits per day.

Provide seed money for the establishment of EE resource centers.

State EE resource centers have not been established, but many organizations and agencies throughout the state serve as unofficial EE resource centers by providing comprehensive EE resources. The development and increasing accessibility of electronic information, through resources such as SEEK, also has reduced some of the need for physical resource centers. However, this recommendation did surface as an identified need during the *GreenPrint* revision process.

Appropriate $660,000 to the DNR to be used by state parks for the development of PreK-12, off-school-site EE programs.

Based on the recommendation, the DNR requested funding in 1995 from the LCMR to develop field trip learning guides for state parks, which was not approved. Delivery of off-school-site EE programs remains a challenge not only for state parks, but for most EE centers. As addressed in the summary of the next couple of recommendations, more facilities are now available, getting students to them has become the biggest issue. Resources are severely lacking for transportation and the costs of delivering programs at off-school sites.

Provide $12 million in bonding to establish residential environmental education centers in portions of the state where they currently do not exist.

The Minnesota Legislature has provided significant funding for existing residential and day use EE centers in the past few years (see next recommendation). However, very little additional state funding has been set aside for the development of new residential EE centers in portions of the state where they do not currently exist, such as southwestern Minnesota or the Twin Cities metropolitan area. The issue remains a challenge for students in those areas, especially in communities that lack the resources to transport students to distant centers.

Upon the recommendation of the LCMR and in partnership with the city of Fergus Falls and the U.S. Fish and Wildlife Service, the Minnesota Legislature did provide $3 million dollars in 1994 to help support the building of the Prairie Wetlands Learning Center just outside Fergus Falls. Prairie Wetlands Learning Center is the first residential environmental center to be operated by the U.S. Fish and Wildlife Service in the nation, and created a residential learning experience in a new area of Minnesota.

- Provide $9.6 million in bonding to expand existing residential EE centers.

  In 1994, the Minnesota Legislature appropriated $7.5 million in bonding funds for the development and expansion of existing residential environmental learning centers, which was matched by a grant of $7.5 million from the Blandin Foundation and another $3 million from private sources. The funds were used to double the student capacity at five of Minnesota's residential environmental learning centers.

  In 1998, the GreenPrint Council, supported by the Blandin Foundation, and the EEAB worked to establish criteria and a process for prioritizing future EE center legislative bonding requests. The partners created a fund raising guide for EE centers that essentially laid out all the questions an EE center should be able to answer if it is to have long-term success. That guide was given to the appropriate legislative committees for their use during the legislative session.

- Develop and communicate a statewide environmental mission.
- Provide leadership in identifying state priority environmental issues.
- Develop guidelines for environmentally sound behaviors.

These three above-mentioned policy-focused recommendations were directed at the Minnesota legislature in the original *GreenPrint*. While not coordinated or specifically mandated by the Minnesota Legislature, government agencies and environmental organizations continue to guide actions and behaviors through education and environmental programs.

In 1996, the Governor's Office appointed 30 business, environmental and community leaders to the Minnesota Round Table on Sustainable Development. With support from the Minnesota Environmental Quality Board, they prepared a report titled, *Investing in Minnesota's Future: An Agenda for Sustaining our Quality of Life* (May 1998), which identified practical ways of achieving economic and community vitality while sustaining the quality of Minnesota's environment. The Round Table report identified five principles of sustainable development for Minnesota and a series of strategies and priorities to achieve the principles. The report and other environmental publications are available from Minnesota Planning at *http://www.mnplan.state.mn.us/pubs/pub_eqb.html* or 651-296-3985.

Despite these efforts, participants in the *GreenPrint* revision process made it clear that more leadership and communication to Minnesotans on priority environmental issues and actions is needed.

Statewide Environmental Education Outcomes and Strategies

A major focus of the *GreenPrint, Second Edition* revision process was to identify statewide environmental education (EE) priority outcomes and strategies for achieving Minnesota's EE goals. The Environmental Education Advisory Board (EEAB) and its member individuals, agencies and organizations plan to bring together the appropriate stakeholders in the upcoming months and years to make progress toward achieving these outcomes. Individual EE providers are encouraged to review the following priority outcomes to find areas where they are able to provide support. Assessment of progress on these outcomes could be addressed in a number of ways. Ideally, the establishment of a statewide environmental literacy test (Outcome #7) would provide a baseline to measure progress on all of the following outcomes over the next few years. While more qualitative in nature, progress toward the outcomes could also be measured by re-assessing stakeholders' perceptions.

The following is a summary of the priority statewide outcomes and strategies that were developed from the stakeholder revision process. Specific results from the stakeholder process and survey can be found in Appendix E.

OUTCOME ONE: Enhanced partnerships and coordination between EE providers.

Background

Through the EEAB, the Minnesota Association for Environmental Education, the annual Minnesota EE conference and other activities, several agencies and organizations have been working to improve coordination of state, regional and community EE activities. Participants in the *GreenPrint, Second Edition* revision process mentioned however, the need for agencies, schools and organizations to more actively pursue partnerships at the state, regional and local level to maximize EE efforts. It was also recommended that additional focus be made on coordination of EE efforts on a regional basis. Agencies and organizations that provide EE resources need to increase coordination of EE activities through state and regional meetings, electronic communication and regional staff.

Strategies

- ☐ Develop a network of EE leaders and organizations interested in coordinating EE for their community.
- ☒ Develop coordinated programs that target the *GreenPrint* audiences at the local level.
- ☐ State, regional and local agencies, and organizations should continue to build capacity and improve coordination and networking among EE providers through statewide and regional meetings to improve EE leadership and environmental literacy.
- ☐ State, regional and local agencies, and organizations should establish and maintain EE e-mail listservs.

- ☐ Regional EE resource pages should be developed on SEEK, Minnesota's interactive directory of EE resources.

OUTCOME TWO: Designated funding for EE at the local level.

Background

Designated funding for EE programs and activities was a high priority outcome identified throughout the *GreenPrint, Second Edition* revision process. The need for designated funding at the local community level was stressed for programs such as: community education campaigns on waste reduction, groundwater protection presentations to local service organizations, teacher training, and entry fees and busing for students to attend EE programming at environmental learning sites. A designated source of on-going funding for EE that would be provided to local units of government, school districts or community organizations would provide the necessary resources to accomplish the State Environmental Education Goals, Minn. Stat. §115A.073 (1998). With designated funding local EE networks and resource centers could be developed to facilitate partnerships to deliver coordinated programs at the community level and thereby, accomplish Outcome one.

Strategies

- ☐ State agencies, local units of government, and school districts should shift and designate a portion of existing education funds for EE.
- ☐ EE organizations and charitable foundations should target resources toward development of community-based EE programs.
- ☐ The Minnesota Legislature, through the Environment and Natural Resources Trust Fund or some other source, should designate ongoing funds for EE at the local or community level.
- ☐ Independent school districts should be given the authority to levy local tax dollars through community education for EE programming.

OUTCOME THREE: Focus on out-of-classroom EE programs for K-12 students.

Background

"Real world, hands-on" learning is a major philosophy of Minnesota's graduation standards. Many opportunities, in the form of environmental learning centers and natural areas, now exist for students to learn about the environment. However, the resources to get students to sites or train educators to develop or provide quality programs are severely lacking. Schools and educators need funding to maximize existing educational resources.

Strategies

- ☐ The Minnesota Legislature, local governments and the private sector should designate funding to support EE educator training, program delivery and transportation that increases student opportunities for out-of-classroom experiences.
- ☐ Schools, businesses and community organizations should partner to increase opportunities for students to participate in environmental learning center experiences.
- ☐ Develop community service learning programs to increase the use and quality of outdoor learning areas.

OUTCOME FOUR: More support for training of environmental educators.

Background

The survey of EE providers revealed that lack of time was the most significant barrier preventing the implementation of EE programs. EE is a formal part of the job for only 28 percent of respondents. Agencies and schools must recognize EE as an essential part of the State's education programs and support training and resources for staff to adequately deliver EE activities and increase environmental literacy.

Strategies

- ☐ Teacher preparation institutions should require or, at a minimum, offer EE training as part of teacher preparation programs.
- ☐ The Minnesota Legislature, state and local government agencies, and Minnesota schools should provide time and resources, such as stipends and paid substitutes, for educators to participate in EE training.
- ☐ The Minnesota Legislature and school administrations should address the issue of lack of time for teachers to implement EE programs, by providing resources to reduce workload for teachers delivering EE programs or hiring designated EE staff.
- ☐ Natural resource and EE professionals should coordinate with community schools to establish on-going relationships and provide assistance in the development of EE curriculum, community environmental health and monitoring, school environmental policy and school EE programs.
- ☐ Local community leaders and members should be trained to improve their ability to provide support for local EE programs within school, government and community groups.

OUTCOME FIVE: Better educator access to EE information and resources.

Background

During the *GreenPrint, Second Edition* revision process, it was recommended that greater effort needs to be made to educate individuals and organizations on EE definitions, the state goals and plan for EE, and the value of EE. This was deemed necessary to increase the standards, quality and consistency of EE programs throughout the state. Efforts are underway to develop a statewide Environmental Literacy Scope and Sequence (see Appendix C), but more work is needed.

With over 100 contributing organizations supporting SEEK, it has become a first stop for educators to obtain EE resources in Minnesota. The site receives over 2,000 hits per day. Despite this fact access to EE information and resources was still mentioned as a need in the *GreenPrint, Second Edition* revision process. The EE community should continue to work to increase awareness of SEEK as well as to increase the number of contributors and users.

Strategies:

- ☐ The Minnesota Environmental Education Advisory Board and its member agencies and organizations should develop and implement a statewide EE communication plan, which would include defining EE and its role in protecting Minnesota's environment.
- ☐ The Minnesota Environmental Education Advisory Board and its member agencies and organizations should train educators, decision-makers and Minnesota citizens on the *GreenPrint, Second Edition*, and the state goals for environmental education.

- ☐ EE providers should continue to be active in promoting SEEK.
- ☐ SEEK contributors should develop an organizational system to maintain current and valuable resources on SEEK.

OUTCOME SIX: Increased education regarding responsible environmental choices.

Background

Research continues to demonstrate that individuals are concerned about the environment but lack basic understanding of environmental issues.* Environmental education can provide the knowledge, skills and attitudes to help Minnesota citizens make choices that protect our environment.

Strategies

- ☐ State and local environmental agencies should increase their efforts to communicate to the public on responsible stewardship and conservation. They also should seek additional opportunities and partnerships to provide public education on accurate, topical, local and global issues, such as soil conservation, waste reduction, global warning, and ground water protection.
- ☐ Concise, accurate, environmental messages should be developed and tested for their effectiveness.
- ☐ Environmental educators should provide the public with balanced information and specific suggestions that can benefit the environment.

OUTCOME SEVEN: Implementation of EE assessment tools.

Background

Establishment of an EE scope and sequence and implementation of the EE components of Minnesota's Graduation Standards would guide EE providers in age-appropriate program development and provide the framework to establish baseline EE literacy and behavior standards in Minnesota. A summary of some of the limited assessments of EE done to date in Minnesota and nationally can be found in Appendix C.

Strategies

- ☐ The Environmental Education Advisory Board together with its member state agencies and organizations should develop and implement EE assessment tools, including a statewide environmental literacy test for Minnesota citizens and individual *GreenPrint, Second Edition* audiences.
- ☐ Once baseline environmental literacy standards have been established, on-going assessments are needed to measure progress toward the state goals for EE.
- ☐ Environmental education questions should be integrated into the state education basic skills tests as a baseline standard for measuring progress in K-12 EE programs.

**Report Assessing Environmental Education in the United States and the Implementation of the National Environmental Education Act of 1990*, prepared for Congress by the National Environmental Education Advisory Council, U.S. Environmental Protection Agency, Environmental Education Division, Washington, D.C., December 1996

Priority Audience Outcomes, Needs and Recommended Strategies

Planning for priority audiences

Targeted at Environmental Education Providers

The priority audience sections of the *Green Print, Second Edition* are designed for individuals and organizations that deliver or provide environmental education (EE) in Minnesota. For those individuals and organizations that are just beginning to develop and implement programs for a specific audience, the *GreenPrint, Second Edition* can provide invaluable resources in the form of strategies and partnership suggestions. Many organizations and individuals have successfully used the *GreenPrint* as a tool to identify partners and support requests to decision-makers and potential funders for their respective programs. EE providers are encouraged to use the *GreenPrint, Second Edition* as a guide as they determine how to most effectively deliver their programs. In addition, agencies, organizations and individuals should work in partnership to develop and deliver EE programs consistent with the recommended educational outcomes and strategies identified for the priority audiences.

EE programs should be designed for everyone. It is important to recognize diversity and address it in program planning. For this reason, a section on Inclusive Environmental Education proceeds the priority audience sections and provides some guidelines.

For those working to achieve progress toward the State Goals for Environmental Education, the audience sections provide recommended outcomes, needs and strategies for delivering EE to each priority audience.

How to use the priority audience section

The audience sections of the *GreenPrint, Second Edition* offer guidance and examples for those individuals or organizations that provide EE. There are four main segments of this section of the *GreenPrint, Second Edition*: audience, outcomes, needs and strategies.

Section example

Audience segment Each section begins with an audience segment. It describes who makes up this audience section. Remember that the sections are for EE providers of the various audiences and not necessarily for the audience members themselves.

PreK-12 teachers

This section is for individuals and organizations that deliver or provide environmental education to:

Educators currently teaching or preparing to teach in the formal, traditional and non-traditional education system from pre-kindergarten through twelfth grade.

Outcome segment Specifies outcomes that EE providers should aim for when working with this audience. Each outcome contains sample indicators that demonstrate or indicate progress toward the outcome.

Outcomes

PreK-12 teachers will:

1 Integrate EE throughout the preK-12 curriculum.

- Sample Indicator: PreK-12 teachers implement units that are interdisciplinary, conceptually and technically accurate, developmentally appropriate and integrated across the curriculum.

Needs segment Describes conditions to consider when educating the audience.

Needs

PreK-12 teachers need:

- The knowledge and skills to teach environmental education through experiences in and out of the classroom, including basic knowledge of natural and social systems and their interactions, appropriate use of technology, and best practices for teaching and learning.

The following 12 audiences were identified during the *GreenPrint, Second Edition* revision process as priority to receive environmental education:

- Business communities
- Citizen and youth groups
- Consumers
- Families
- Government officials and boards
- Higher education students
- Media
- Outdoor recreation resource users
- Pre-kindergarten through 12th grade students
- Pre-kindergarten through 12th teachers
- Producers/landowners
- Religious groups

Strategies segment Offers strategies for educators to use when working with the audience. These strategies are divided into three main categories: access to information, programs, and incentives. Under each category there are more specific tactics supported by actions that may be taken to strengthen the work toward the outcomes.

Strategies

Access to Information

Develop and improve access to information and resources that will improve the ability of PreK-12 teachers to provide EE to students.

Implementation Action

- Maintain and promote SEEK, (*www.seek.state.mn.us*) as Minnesota's central EE clearinghouse.

Programs

Provide EE training for all current or future educators in the PreK-12 system.

Implementation Actions

- Include EE in pre-service preparation programs for all PreK-12 teachers that are consistent with the state's EE goals and graduation standards.

Incentives

Provide incentives for current and future PreK-12 teachers to implement programs and activities that achieve the state goals for EE.

Implementation Action

- Provide planning time for teachers to implement/ integrate EE.

Inclusive environmental education

General guidelines for encouraging and including diversity in your audience

Environmental education (EE) programs should be designed for all individuals. In educating the varied audiences, it must be acknowledged that these audiences are a mix of diverse individuals, groups and communities. Members of an audience may vary in culture, place of residence, economics, age and ability. It is important to recognize this diversity and to plan for and welcome it in your audiences.

Considerations for involving diverse individuals, groups and communities:

- **Be open, flexible and willing to learn.**

  Accept that diversity awareness is only the first step to making EE inclusive for all Minnesotans. Awareness is not enough to bring about change; you must work to be inclusive.

  Talk to your diverse audiences and audience members, and be willing to adapt your EE programs to their needs.

  Research and focus on the roadblocks and barriers that inhibit an inclusive atmosphere, program or environment, and work to overcome them.

Develop a positive regard for all students. Audiences are comprised of diverse individuals, groups and communities. Design and modify your programs to address multiple learning styles, abilities and educational experiences. Look to programs that are successful. Adopt and adapt their successes into your programs.

Work to reach the diverse members of your audience.

Increase the time needed to develop your lesson plan to accommodate time for research, focused promotion and varied outreach. Time is an important factor in effective education; build it in.

When designing your EE lesson plan, decide who your target audience is, then research who your targeted audience includes. Know your audience and the members you may be excluding.

Use focus groups representing your audiences and contact other organizations that serve those audiences.

Deliver programs where your audience is located.

Market and promote your educational offerings through media and informational outlets used by the diverse communities you are targeting.

Provide access to resources.

People tend to learn in situations where they are comfortable and secure.

Keep the lines of communication open between you (staff and volunteers) and the people you are working to involve. Don't be afraid to ask questions, but be aware that not everyone responds well to direct questions; consider your audience, observe, and ask questions when appropriate.

Provide training and resources for staff and volunteers on actively involving diverse individuals, groups or communities.

Use community resources and resource people.

When possible, spend time in your audience's communities and involve yourself in their issues.

Plan for and implement non-traditional, alternative teaching methods that reach the targeted audience.

Recognize that EE is not limited to traditional school subjects. Include EE in situations conducive to diverse audiences.

The following five sub-sections offer suggestions for delivering EE to diverse individuals, groups and communities.

Culture

The cultural representation in Minnesota is extensive and diverse. Cultural groups should not be viewed as one large cultural community because they are not. Keep in mind that within cultural communities and groups there is a range of diversity.

Welcome the opportunities to adapt and improve your EE programs to best serve your audience.

Involve members of cultural groups in the planning, review and delivery of educational programs and opportunities for that cultural group. Use a group of individuals from your targeted audience to review your materials to ensure that they are culturally appropriate and not stereotypic.

View your environmental facts and objectives through many perspectives.

Offer new or adapted programs that consider a learning environment comfortable to the targeted group.

Be willing to accept responsibility for mistakes and resolve to improve your teaching skills.

Language may be a barrier and should be addressed before program design.

Make information readily available. For example, provide signage in specific languages in the different markets, grocery stores, community centers, schools, restaurants, and recreational sites.

Provide resources, such as brochures and flyers, in appropriate languages.

Work with diverse educational organizations or centers familiar to your targeted audience to integrate EE into their existing programs.

Market and communicate through a variety of media, especially established systems and key people and organizations who work with your targeted audience.

Provide interpreters and leaders from within a cultural group to help with language and other cultural issues.

Cultural norms must be taken into account.

Provide learning styles, cross-cultural communication, diversity, and sensitivity training for staff and volunteers.

Recognize the needs and contributions of different cultural groups, including cultural heritage, traditions, and values.

Acknowledge the norms of the cultural community such as gender, age, apparel, and accepted activities. Take them into consideration when planning your programs.

Learn and be respectful of religious holidays, service days, and other major community gatherings when scheduling your events.

Marketing or communicating EE programs is vital to welcoming diverse groups.

Develop and deliver accurate, non-stereotypic programs and materials for specific cultural groups as well as for the general public.

Integrate educational programs into cultural celebrations and events or other major events for cultural and ethnic communities.

Place of residence/geographic area

One cannot assume that all individuals in your audiences are from similar geographic areas or places of residence. They may be from a range of locations including urban neighborhoods, remote rural communities, single family units, and multi-family dwellings. Understanding the relationship between people and their built environment in urban areas is as important in EE as understanding the ecology of the natural environment.

Acknowledge that all environments are important and relevant.

Concentrate on the commonalties of the environments while educating on the differences.

When using examples and case studies, be sure to cite a variety of geographic locations so that all audience members may relate to them.

Research the environmental subjects most relevant to the targeted audience through pre-assessments, surveys, interviews or any method that will give you the necessary information. Direct your education to their concerns.

Urban and rural environmental issues need to be taught.

Recognize that those living and/or working in a city deem the urban and built environment as important as the natural environment.

Include urban environmental topics and issues in your EE programs.

Be sensitive to the knowledge that people may use their environment as their livelihood, not only as a place to reside.

Incorporating sustainability issues into your EE programs may help your audience members relate the learning to their own places of residence.

Make EE accessible.

Take into account that your audience members may not be comfortable in unfamiliar settings. Prepare them with logistics and necessary information before an event.

Consider the location of your program. Vary the locations to involve more diversity and choose sites that are accessible to people not familiar with the area.

Economic factors

One diversifying factor that needs to be addressed is economics. It cannot be denied that the economic concerns or conditions of your audience members may affect their involvement in EE programs. This is a sensitive issue. Work to involve all interested individuals, groups and communities.

Direct and indirect costs associated with your program may limit your audience makeup.

If there are supplemental funds to cover the expenses for those unable to pay, relate that information in a sensitive, responsible manner.

Consider transportation constraints that may affect members of your audience. How accessible is your program location to those without vehicles?

Provide the materials necessary for your EE programs. Do not ask your audience to bring them.

Offer appropriate incentives to encourage involvement.

If working with a community, establish support through sponsorships.

Make your EE programs relevant to the priorities of your audience. Research their priority concerns and build your program accordingly.

Integrate EE into other learning situations and opportunities.

Work with agencies, groups, and organizations that are already familiar to the audience members you are trying to reach.

Remember that access to information is empowering. Don't assume that everyone has equal access to resources. Help make resources available to all of your audience members.

Consider the time of day your EE programs are available. Is the schedule conducive to involving the audience you need to include?

Age

EE is not exclusively for K-12 students. Its audiences consist of individuals in age spanning pre-kindergarten toddlers to experienced seniors. To take advantage of this wealth of experiences, promote and direct your programs to the appropriate audience.

Vary your teaching styles according to the age of your audiences and their involvement.

Use age appropriate language, examples and facts in your programs. When working with youth, use appropriate learning levels.

Gear your programs to be participatory as learners expect to be active while learning.

Capitalize on the experience of your audience members.

Acknowledge that incentives for learning can vary greatly by age. Develop and adapt your program accordingly.

Appreciate the value of mentors and work to build connections of diverse age groups through mentoring networks.

Take into account that the largest number of volunteers are over the age of fifty. Take advantage of that interest and help them engage themselves in EE.

Varying ability

While working to include individuals and groups with varied abilities in your audience, remember to recognize the person first and the disability second by focusing on abilities rather than disabilities and on commonalties rather than differences.*

Proper planning and access to supporting resources will help you provide an inviting, effective learning environment.

Include social and cooperative goals that facilitate appreciation of differing abilities.

Make programs as participatory as possible for all individuals.

In marketing or promoting your EE program, clearly communicate available services, facilities, and your desire to accommodate needs.

Ensure accessibility for all members of your audience.

Be aware of resources in the community that can help you and your audience.

Incorporate adaptations such as materials, procedures/rules, skill sequences, environmental modifications, and lead-up activities.

Research appropriate behaviors and considerations for the particular disability.

Attitudes or behaviors can promote an atmosphere of acceptance and possibilities.

Focus on the individual's ability rather than the disability.

Keep in mind that people with disabilities are more similar than dissimilar.

Strive to appreciate and understand the individual's personality as well as the disabling condition.

Remember that everyone appreciates being listened and spoken to in a manner that is respectful, direct and clear.

Present opportunities for learning that correspond to the chronological age of the individual.

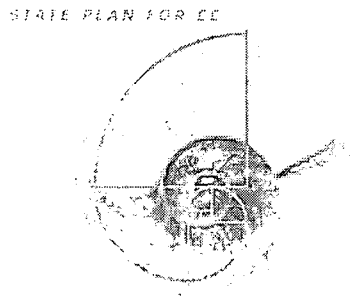
Always address the person first and the disability second. A more positive approach is to address the individual as a person with a disability rather than as a disabled person.

Set a good example because others in the group emulate the leader.

*The tips in the varying abilities section are taken from the Vinland Inclusion Project's guide, *Access to Opportunities (1995) Vinland Center, Loretto, MN.*

Business communities

This section is for individuals and organizations that deliver or provide environmental education to:
Leaders, decision-makers and employees in the business community.



Outcomes

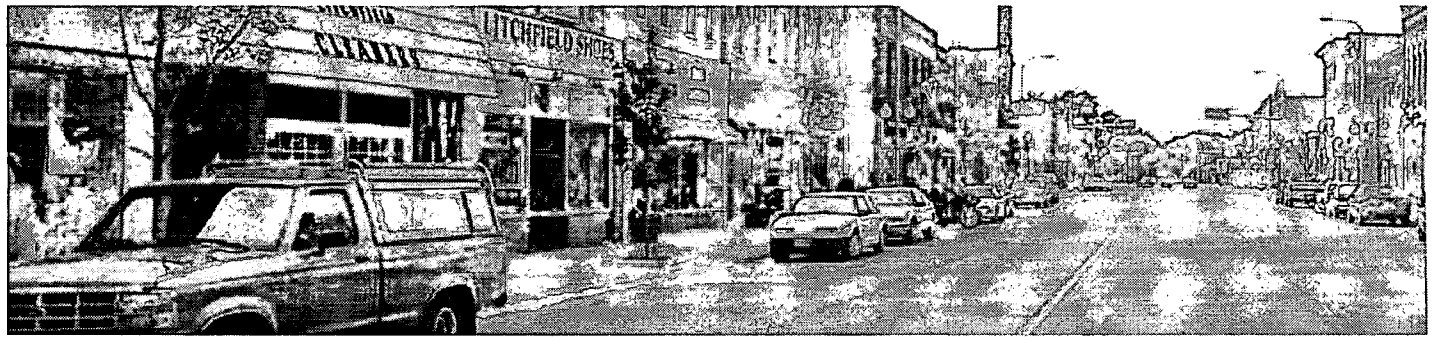
Business leaders, decision-makers and employees will:

1 Establish visions and missions for their companies that incorporate sustainable development concepts, including the goals of eliminating or reducing waste and emissions, using renewable energy, and creating resource-efficient transportation systems and options.
- Sample Indicator: Companies develop and publish corporate environmental ethic statements.
- Sample Indicator: Companies conduct environmental audits, develop goals and track progress.
- Sample Indicator: Implementation of resource conservation programs and alternative energy sources in company facilities and manufacturing processes.
- Sample Indicator: Businesses purchase, develop, use and market materials with environmentally preferable materials, such as those with recycled content or those with low toxicity.

2 Promote corporate responsibility and competitive advantage relative to the environment.
- Sample Indicator: Companies promote successful waste reduction activities on product labels and through advertising.

3 Reduce gross energy use, optimize efficiency, and reflect the true costs to the environment.
- Sample Indicator: Reduction in gross energy use per unit of measure.
- Sample Indicator: Establish market incentives that encourage alternative energy sources, environmentally efficient practices and product stewardship.

4 Know which actions and processes require regulatory permits and know the procedures for complying with permits.
- Sample Indicator: Increase in compliance with regulations.



5 Team with regulators, technical assistance providers, and environmental experts to protect the environment by developing solutions to pollution problems and helping businesses get below permitting thresholds.

- Sample Indicator: Reduction in number of permits needed.
- Sample Indicator: Growth in cleaner technologies, practices and products designed with the environment in mind.
- Sample Indicator: Growth in percent of resources provided to research and development of environmentally friendly processes and procedures.
- Sample indicator: Development of supply chain specifications that encourage suppliers to provide environmentally preferable materials and services.

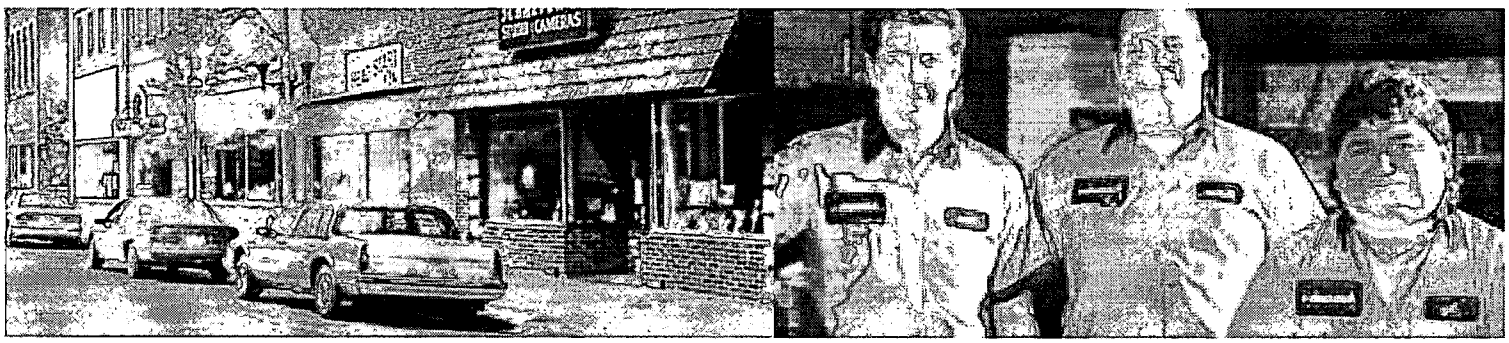
6 Actively participate and support local environmental education programs.

- Sample Indicator: Increase in number of local businesses and employees sponsoring, partnering or involved in local programs with an EE component.

Needs

Business communities need:

- ☐ The current system of economic indicators to reflect costs to the environment. Economic incentives and disincentives need to change to recognize the true environmental cost of production and to recognize what is good for the environment and the community at large is also profitable for business.
- ☐ Readily available information on the permitting process and alternatives to regulation.
- ☐ More knowledge about product life cycles and full-cost accounting.
- ☐ Opportunities to improve their environmental stewardship while strengthening their efficiency and profitability and then educate employees and customers about how their actions impact the environment.
- ☐ To help implement the concept of sustainability to make economic systems inherently compatible with healthy natural systems and communities.
- ☐ To increase emphasis on nonregulatory strategies to complement regulatory command-and-control system.
- ☐ Encouragement and recognition for increased collaboration in supporting EE.



Strategies

Access to Information

Improve access to information for businesses on EE resources and methodology.

Implementation Actions

- ☒ Provide businesses with information on life-cycle analysis of products and services and the impact of purchasing, processing and disposal decisions on the environment.
- ☐ Provide businesses information on changes in consumer purchasing practices and the use of environmentally benign products.
- ☒ Publicize environmental practices and policies to the business community that highlight economic benefits.
- ☐ Assist business and industry trade groups, associations and education institutions by providing information on EE resources, research and environmental affairs/education personnel to their members.
- ☐ Promote awareness of Minnesota's EE goals and plans.

Provide communities with increased access to information about the environmental rationale underlying the need for permits and regulations, the permitting process, and acceptable alternatives to regulations.

Implementation Actions

- ☐ Develop and communicate a statewide environmental mission, including the identification of state priority issues.
- ☐ Work with regulated parties to develop user-friendly guides to the regulatory process and alternatives to regulation.
- ☐ Incorporate easy-to-understand information on ecology and the environmental rationale underlying the need for regulation into the documents used in the regulatory process.

Programs

Provide EE programs for business leaders, owners, decision-makers, employees, consumers, and suppliers through formal business education and training programs.

Implementation Actions

- ☐ Develop EE programs and materials collaboratively with business, government agencies, environmental organizations, formal education and EE resource professionals. Integrate these programs in college and technical school programs and the Minnesota high school graduation standards.
- ☒ Assist businesses identifying opportunities to reduce regulated activities and emissions through pollution prevention and waste reduction techniques.
- ☒ Include EE programs in existing business seminars, conferences and forums on topics related to the identified EE outcomes.
- ☐ Establish and support sustainability/environmental studies as a core part of undergraduate and graduate business and management education programs.
- ☒ Support degree programs and continuing professional credits for training on environmental studies and sustainable development concepts and practices, such as converting waste to resource, reducing overall consumption and preserving natural resources.

- ☐ Support EE training opportunities for scientific and technical experts.
- ☐ Provide training to increase understanding and effectiveness of government staff and their ability to work proactively with individuals and businesses.

Incentives

Promote incentives for businesses to achieve environmental outcomes by means of collaboration and partnerships.

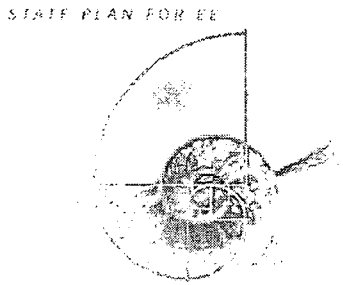
Implementation Actions

- ☐ Identify and promote cost-effective environmental services, products and practices that help businesses and consumers overcome economic barriers to acting more environmentally responsible.
- ☐ Reform tax policies, credits, loans and subsidies that encourage businesses to adopt sustainable practices and manufacture sustainable products.
- ☐ Promote the environmental, economic, and liability benefits of complying with environmental regulations.
- ☐ Identify services, products and processes that supplement and complement environmental regulations. Offer incentives for businesses to establish goals and implement strategies that result in the production of sustainable products.
- ☐ Establish or promote programs that reward environmentally responsible actions and EE programs.
- ☐ Encourage business participation in EE organizations.
- ☐ Develop financial assistance programs to encourage compliance with regulations and that encourage businesses to excel beyond compliance. Partner with other funding sources. Work with others to promote information and benefits. Get local government to use its access to special funds to assist with statewide efforts. (i.e., The state petro fund program reimburses about 80 percent of cleanup cost for leaking storage tanks if the tank is properly registered and the cleanup has been done correctly.)
- ☐ Work with regulated parties to help shape regulatory requirements. Give businesses credit, and use their experiences as part of shaping regulations whenever possible.

Citizen and youth groups

This section is for individuals and organizations that deliver or provide environmental education to:

Citizen and youth organization leaders and members.



Outcomes

Citizen and youth organization leaders and members will:

1 Include environmental topics and skills in their outreach programs that are consistent with Minnesota's graduation standards.

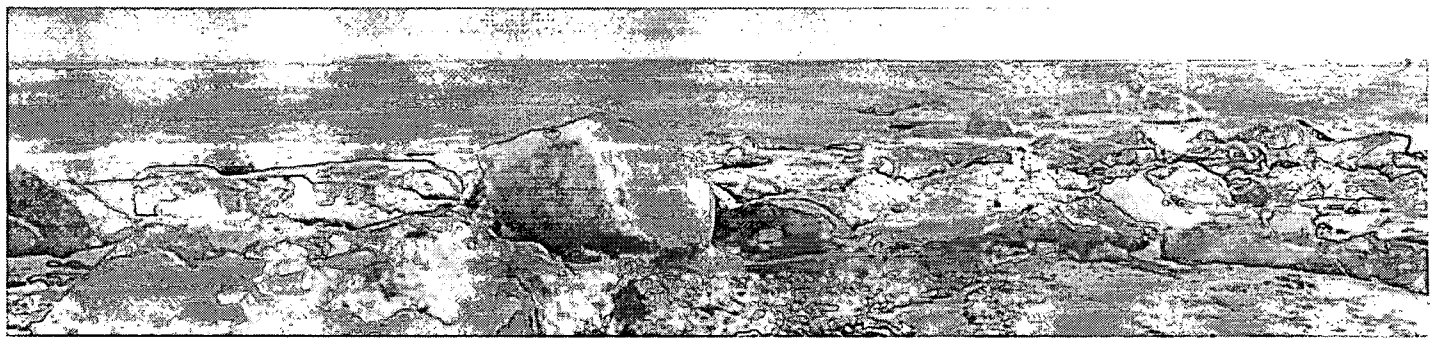
- Sample Indicator: An increase in environmental topics included in the agendas and programs of citizen and youth groups.
- Sample Indicator: An increase in citizen monitoring of community and natural resources.

2 Establish partnerships with elected officials, schools, community leaders and environmental agencies to organize and support coordinated, environmental, hands-on service projects.

- Sample Indicator: An increase in the number of work programs completed by citizen and youth groups that benefit the environment and the community.
- Sample Indicator: A greater number of local activities and projects are accomplished through partnerships versus individual group efforts.

3 Practice, publicize and recognize actions that sustain or enhance the environment.

- Sample Indicator: An increase in publicity and awards highlighting environmentally sound practices by citizen and youth groups.



4 Develop and support training for community and organization leaders to increase their capacity to integrate EE into their organizational programs.

- Sample Indicator: Communities and organizations have established, effective EE training and leadership development programs.

5 Understand that protection of the environment through sustainable development has ecological, economic and social components.

- Sample Indicator: Organizational programs will have a multi-disciplinary focus and include issues such as an ethical understanding of humanity's role within the natural world, food production and distribution, and the impact of social concerns on environmental protection.
- Sample Indicator: Organizational programs, mission, policies and actions are balanced by sound ecology, economics and social justice.

6 Develop critical thinking skills and an understanding of the science behind alternative environmental actions to make positive environmental choices.

- Sample Indicator: Articulated viewpoints based on current, valid research and information are demonstrated in organizational projects and activities.

Needs

Citizen and youth groups need:

- ☐ Knowledge and skills to be able to integrate specific environmental issues into their programs and activities.
- ☐ To understand the connection between environmental service opportunities and the health of the community, citizenship, and personal responsibility and accomplishment.
- ☐ Leadership training, including how to make connections, increase motivation and work with different learning styles.
- ☐ Help developing partnerships and collaborations to maximize organizational resources.
- ☐ Access to balanced EE materials that include different social, economic, political and environmental points of view; to organizations that provide EE programs and resources; and to local services, programs and funds.
- ☐ Resources to carry out projects, including funding and volunteers.

Strategies

Access to Information

Establish easily identifiable, readily accessible sources of information.

Implementation Actions

- ☐ Make information available and identify resources on environmental topics.
- ☐ Develop, train and promote the use of multi-media, including the Internet, e-mail, TV, radio, newspaper, and other technologies to provide information on environmental topics and resources.
- ☒ Make culturally-sensitive and audience-appropriate information easily accessible.
- ☒ Promote the availability of SEEK (*www.seek.state.mn.us*) as Minnesota's central EE clearinghouse for information on speakers bureaus, other clearinghouses or databases, directories, print, and audio/visual materials and programs.
- ☐ Develop access to information at a regional level through SEEK and highlight regional organizations that have become well-established sources of information and education materials.
- ☐ Encourage organizations to participate in the identification and distribution of information about state priority environmental issues.

Programs

Develop and facilitate the delivery or implementation of programs on environmental issues, educational methodology and current best practices, problem solving and participation in the democratic process.

Implementation Actions

- ☒ Develop and implement outreach programs that promote a vision of sustainable development and an understanding of the multiple uses of natural resources.
- ☒ Facilitate, develop and support programs that link agencies and organizations in partnership with citizen and youth groups to implement EE initiatives on local, regional and global environmental issues.
- ☒ Provide regional EE opportunities and resources, specifically staff and funding, to support programming needs of local and regional educators.
- ☒ Encourage participation in conflict resolution and mediation processes to address controversial environmental issues.
- ☒ Train the trainers who work with citizen and youth groups on leadership development, membership motivation and programs that allow opposing values and viewpoints to be expressed.
- ☐ Identify, promote and model environmentally sound practices for other organizations.
- ☐ Create and identify demonstration areas for environmentally sustainable practices.
- ☐ Establish environmental youth service and citizen monitoring programs.

- ☐ Use citizen and youth group conventions and meetings for education on environmental issues.
- ☒ Include EE activities as part of community celebrations.

Incentives

Provide incentives for citizen and youth groups to continue or increase environmental awareness and activities.

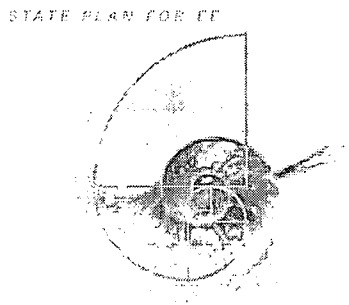
Implementation Actions

- ☒ Develop programs for citizen and youth groups that fulfill the requirements of Minnesota's graduation standards.
- ☒ Publicize environmental activities and success stories of citizen and youth groups.
- ☐ Establish and promote state award and recognition programs that reward citizen and youth groups for activities that benefit the environment.
- ☐ Provide trips, grants, certificates, scholarships or other awards that can be used to benefit the recipient's local environment.
- ☐ Provide matching funds and grants to citizen and youth groups for EE activities, such as program development and transportation.
- ☐ Provide opportunities, such as scholarships and reduced rates, to encourage participation by youth and citizen groups in statewide EE associations, workshops and conferences.
- ☒ Establish a mentoring program that will create on-going relationships between environmental and EE professionals and youth.

Consumers

This section is for individuals and organizations that deliver or provide environmental education to:

The general public purchasing goods and services, including homeowners and renters.



Outcomes

Consumers will adopt a sustainable lifestyle that reflects an understanding that individual actions have social, economic and environmental implications, which will result in:

1 Increased use of products, transportation modes and energy sources developed using environmentally sustainable practices.
- Sample Indicator: Increase in availability of environmentally sustainable products and services.

2 Increased energy conservation activities.
- Sample Indicator: Measurable decrease in energy consumption.

3 Product prices that reflect true environmental cost.
- Sample Indicator: People understand the cost and subsidy of the items they buy and use.

4 Incorporation of the resource management hierarchy (reduce, reuse, and recycle) to all consumer buying choices.
- Sample Indicator: Reduction in products consumed and wastes generated: increase in composting, recycling, and purchase of recycled products and products with less packaging.

5 Housing and commercial developments that incorporate environmental and sustainability practices, including transportation, energy, water and land use.

- Sample Indicator: Increased development of cluster housing and eco-industrial parks and renovation of existing buildings.
- Sample Indicator: A growth in the sales of energy efficient housing products.
- Sample Indicator: Increased use of efficient and effective transportation modes that minimize the impact on air, water and land.

Needs

Consumers need:

- ☒ Basic information on the environmental consequences of their actions on their personal and community health, including the impacts of the purchase, consumption and disposal of transportation, housing, food and entertainment products and services.
- ☐ Incentives (i.e., financial, convenience) to make environmentally sound purchasing and disposal decisions (i.e., transportation, food, housing, gardening and landscaping, health).
- ☒ Information about and access to products and services that have less of an impact on the environment and natural resources.

Strategies

Access to Information

Increase opportunities for consumers to have easy access to information regarding the environmental impacts of products, services and practices.

Implementation Actions

- ☒ Educate the media on environmental issues to increase their ability to deliver accurate environmental information to consumers.
- ☒ Use cultural celebrations and large events, such as "Earth Day" and sporting events, to provide EE information.
- ☒ Identify baseline data consumers need to make environmentally sound purchasing decisions.
- ☐ Promote a vision of sustainable development and pollution prevention.
- ☐ Encourage manufacturers and retailers to provide EE information at the point of purchase, such as on store shelves, at malls, in bill mailings, and on products.

Programs

Develop and deliver programs that help consumers understand environmental issues and the impact of their lifestyles on their community and the environment.

Implementation Actions

- ☒ Train retailers to be environmental educators about products, services and practices, including point of sale information.
- ☒ Provide EE programs to consumers through local youth and civic groups, local newspapers, community education programs, religious organizations, adult basic education and English as a second language classes.
- ☐ Provide programs that explain the true life-cycle cost, including disposal, of products, services and practices.
- ☐ Encourage students to educate adults and other youth by linking with the state graduation standards and by promoting youth service activities that include environmental programs.
- ☐ Educate consumers how to research products, services, and practices and how to use that research to make choices and decisions.
- ☒ Develop and define criteria and standards that promote practices that protect the environment, such as alternative transit options, and make the information available through programs located in shopping areas.

Incentives

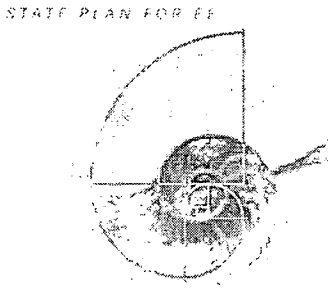
Provide incentives for producers to promote and consumers to purchase products and services that are least harmful to the environment.

Implementation Actions

- ■ Build partnerships between business and government that promote environmentally sound products, services and practices (i.e., buying recycled products, using zero phosphorous fertilizer).
- ■ Establish award programs that recognize environmentally friendly products, services and practices.
- ■ Require environmental information on regulated products or products requiring special disposal.

Families

This section is for individuals and organizations
that deliver or provide environmental education to:
Individuals in a household who identify themselves as a family unit.



Outcomes

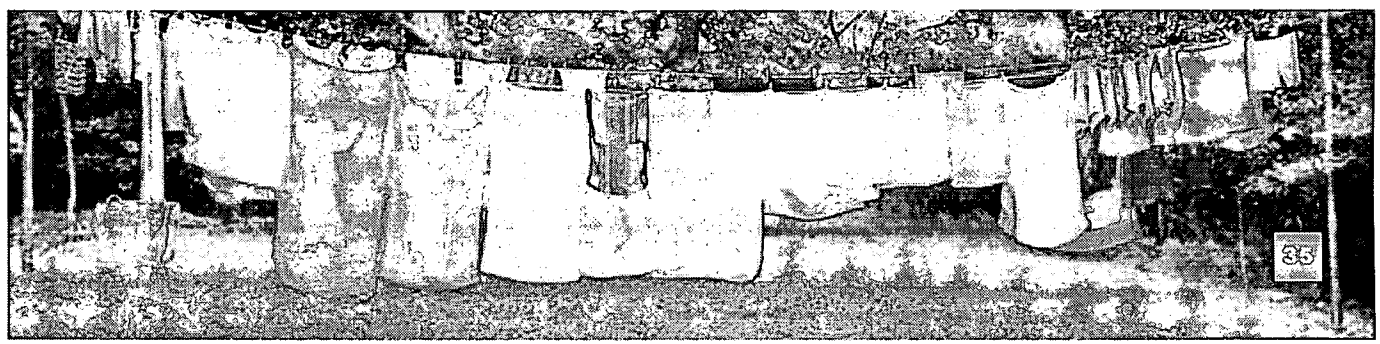
Families will:

1 Understand that social, economic, and ecological dimensions impact the environment.
- Sample Indicator: Increased environmental literacy, including an understanding of the link between ecology, economic sustainability, and social concerns.

2 Evaluate the impact and demonstrate model environmental behaviors related to individual and family activities and the environment.
- Sample Indicator: Families discuss and choose low impact alternatives to housing choices, transportation, lawn and yard care, recreational pursuits, household waste, and other family actions.

3 Take part in environmental activities in their local community.
- Sample Indicator: A growth in participation in community boards, committees, forums and events.

4 Seek out information to make good environmental choices and to promote learning about the environment in a fun and rewarding way.
- Sample Indicator: Increased number of families participating in non-formal environmental learning experiences.
- Sample Indicator: Family members who are students consider everyday environmental challenges in their studies and discuss the issues within the family setting.



Needs

Families need:

- ☒ Access to information and education programs that increase their knowledge and understanding of the impact that family decisions can have on the environment.
- ☒ Increased awareness of educational programming available in the local community.
- ☒ A basic understanding of the ecosystem they live in and how their actions impact the integrity of that ecosystem.

Strategies

Access to Information

Provide easy to understand, valuable sources of environmental information.

Implementation Actions

- ☐ Design information pieces that communicate basic ecological concepts.
- ☒ Use local newspapers or household mailings to provide timely and accurate information to families on simple steps they can take to protect the environment.
- ☐ Design interactive EE exhibits at public events and venues.

Programs

Develop and deliver programs that provide families with first-hand experiences in environmental issues and activities.

Implementation Actions

- ☒ Design programs that encourage families to participate in environmental monitoring and improvement projects in their local community.
- ☐ Provide regional EE opportunities and resources that support the efforts of environmental educators.
- ☐ Support school programs that include involvement of other household and community members.
- ☐ Design and encourage recreation and leisure time activities that increase an understanding and appreciation of the natural world.

Incentives

Provide incentives for families to increase their knowledge and participation in environmental activities.

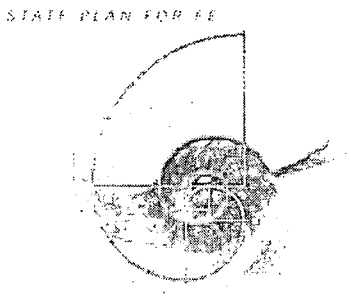
Implementation Actions

- ☒ Promote positive environmental activities and recognize success stories of individuals and households.
- ☒ Provide information and programs that highlight the social, financial and environmental benefits of protecting the environment.
- ☐ Implement programs that reward households that act to benefit the local environment.

Government officials and boards

This section is for individuals and organizations that deliver or provide environmental education to:

Elected and appointed government officials and boards responsible for making policy decisions.



Outcomes

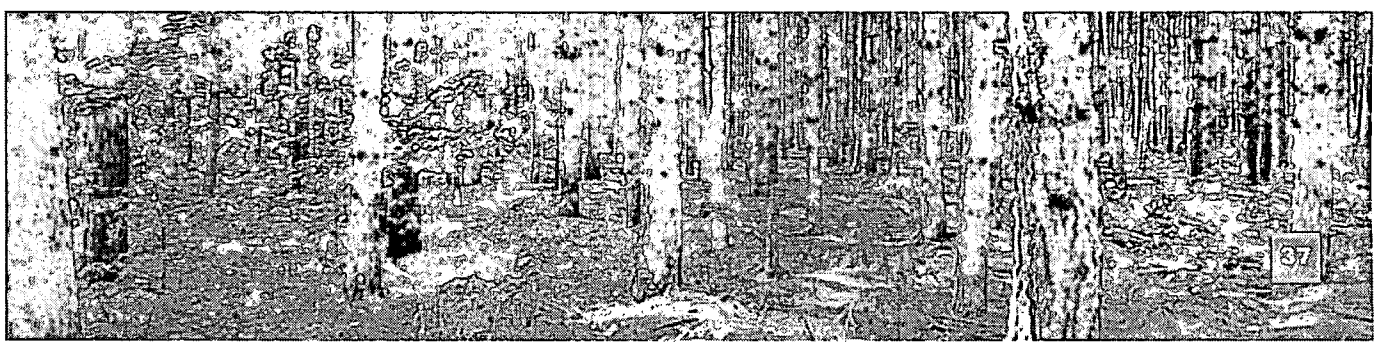
Government officials and boards will:

1 Work with other government units and stakeholders to address regional environmental issues that transcend political boundaries.

- Sample Indicator: Increased governmental partnerships addressing environmental issues.

2 Understand their legal authority and responsibilities to ensure sustainable ordinances, policies and decisions.

- Sample Indicator: The development of policies and implementation actions that reflect environmental laws and rules.
- Sample Indicator: An increase in county environmental programs, such as feed lot plans.



3 Seek to balance individual rights with the public good.
- Sample Indicator: Public opinion polls find public good and individual rights are balanced with regards to environmental issues.

4 Act as resource managers and role models for the community and reflect environmental values in decision making.
- Sample Indicator: Development of and adherence to environmental policy statements and plans.

5 Evaluate policies and actions using sustainability principles by integrating economic, ecological, social, cultural, and scenic/recreational values.
- Sample Indicator: Adoption of policies, plans, and laws that demonstrate sustainable development principles.

6 Be aware and understand the interrelationship of basic ecosystems.
- Sample Indicator: Development of policies and implementation programs in a manner that reflect an understanding of ecosystems.

7 Inform and educate constituents about local and global environmental issues (i.e., importance of stewardship, global warming, waste reduction) through public participation, events, newsletters, etc.
- Sample Indicator: Inclusion of educational programs in plans responding to environmental issues.
- Sample Indicator: Greater citizen participation in local, statewide and global environmental planning efforts.

8 Recognize the impact of environmental factors on human health.
- Sample Indicator: Priority is given to human health concerns when evaluating environmental factors in the decision-making process.

Needs

Government officials and boards need:

- ☐ A basic understanding of the environment, ecological systems, and sustainability.
- ☐ To understand the environmental issues, concerns and responsibilities of their offices.
- ☐ Current, accurate, readily accessible environmental information that can be easily understood, including models of programs that work.
- ☐ Incentives to adopt and promote sound environmental behaviors and policies, such as awards, media support, information on the full cost of products, and long-term impact study data.
- ☐ To use their legal authority to make sustainable ordinances, policies and decisions.
- ☐ To show leadership and foresight on environmental issues.

Strategies

Access to Information

Provide government officials and staff increased access to information necessary to develop an understanding of environmental issues and sustainable development.

Implementation Actions

- ☐ Identify environmental policy information needed by government officials. Include information on the economic and social value of local ecosystems and natural areas.

- Work with local government associations and environmental organizations to develop coordinated EE information and training to avoid duplication of efforts and build communication networks.
- Develop and disseminate easy-to-use educational information on state priority issues that can be adapted for local use.
- Identify an EE coordinator in governmental units to serve as liaison to state and local EE networks.
- Identify resources serving each county where state, federal and local environmental information and individuals can be accessed.
- Present environmental sessions and exhibits at local government conferences.
- Develop materials that translate technical information into easy-to-understand language tailored to meet the needs of government officials.
- Use current technologies and telecommunications to ensure efficient and timely access to information and to raise awareness of state and local environmental issues.
- Market the *GreenPrint, Second Edition* to local government officials.
- Identify and provide local governments with models of environmentally responsible actions.
- Develop programs which permit students and citizens to study local environmental issues and conditions and to report back to policy makers (i.e., water quality monitoring).

Programs

Develop an understanding by elected and appointed government officials about the relationship between environmental issues and the policy responsibilities of their offices.

Implementation Actions

- Identify major statewide environmental issues to develop better coordination and focus of government agencies.
- Form agency, business and citizen partnerships to address local environmental issues.
- Develop programs that build the capacity of resource professionals and enhances their ability to build positive relationships with their audience.
- Encourage creative and simple methods for constructive public participation in local environmental decisions.
- Encourage local government associations to adopt EE as a priority for their members and to provide opportunities for this education at their annual conferences and other training programs.
- Develop on-going training programs for elected and appointed government officials, including review of the state goals for EE and the *GreenPrint, Second Edition* outcomes.
- Use existing mechanisms, such as the planning process, comprehensive plans and county water plans, as vehicles to deliver EE to government officials.
- Establish citizen advisory groups to work with government officials on the development and implementation of EE programs.

☐ Provide opportunities for training on instructional methods for government staff.

Incentives

Provide incentives for government officials to model environmentally responsible behaviors.

Implementation Actions

☐ Provide financial incentives for local governments to adopt environmentally responsible behaviors, such as funds for consultant expertise or cost-sharing efforts.

☐ Provide model ordinances, plans and policies that demonstrate environmental, social and economic benefits to government units. Provide grants or other resources to implement them.

▨ Establish and promote an awards program to recognize government officials and boards that develop exemplary or model environmentally responsible plans, policies, ordinances, programs and activities.

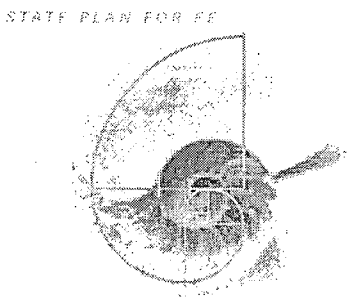
▨ Establish recognition for government EE programs.

☐ Withhold state and federal funds for unacceptable, environmentally damaging programs or policies.

Higher education students

This section is for individuals and organizations that deliver or provide environmental education to:

Students in institutions of higher education, post-secondary.



Outcomes

Students will:

1 In undergraduate degree programs, demonstrate an understanding of ecological principles, the potential complementary nature of multiple uses of the environment, and be able to analyze and evaluate environmental issues.

- ☐ Sample Indicator: Students will be able to identify environmental concerns that help define positions on issues, whether environmental, social or political.

2 Have the knowledge and skills necessary, within their chosen career fields, to minimize actions harmful to the environment and maximize actions helpful to the environment.

- ☐ Sample Indicator: An increased number of work sites implement sound environmental practices.
- ☐ Sample Indicator: Students' environmental knowledge is considered when they are selected for internships and permanent positions.

3 Have the opportunity to attend higher education institutions that are models for sound environmental behaviors, such as environmentally responsible purchasing, energy conservation and waste reduction.

Sample Indicator: An increased number of Minnesota's institutions of higher education perform internal audits of their environmental practices and adopt environmentally sound practices.

Needs

Higher education students need:

- ☐ To be exposed to EE consistent with the state EE goals. These programs should be related to their field of study.
- ☐ To experience higher education institutions as models of environmental programs and practices.
- ☐ Higher education institutions to relate EE to real world issues and provide information to educators to assist them in teaching the economic, social and scientific aspects of environmental issues.

Strategies

Access to Information

Instructors and administrators of higher education institutions need increased access to EE and information resources.

Implementation Actions

- ▨ Identify the kinds of environmental information needed by instructors and administrators at higher education institutions.
- ▨ Identify and provide institutions with successful undergraduate course models on environmental issues, sound environmental practices and EE programs.
- ▨ Use SEEK, (*www.seek.state.mn.us*) Minnesota's interactive directory of EE resources, as a resource for EE information and materials, including resources and contacts at institutions that have implemented sustainable practices.

Programs

Include an EE component in all higher education programs.

Implementation Actions

- ▨ Encourage the development and help design plans to provide EE to all students at Minnesota's schools of higher education.
- ▨ Provide higher education faculty expanded opportunities for education about environmental issues, scientific and technical knowledge, and methods to integrate EE in courses and programs of study.
- ▨ Provide resources to define EE content and concepts for all programs of study.

- ☒ Provide students with training and involve students in research and intern programs that equip them to operate in regulated environments and to be environmental specialists for government and business.
- ☐ Provide scientific and technical experts with opportunities for training on instructional methods and skills.

Provide programs that assist higher education institutions to become models of sound environmental management. Areas covered could include environmentally responsible purchasing, energy conservation and waste reduction.

Implementation Actions

- ☒ Encourage and assist institutions to conduct environmental audits.
- ☒ Encourage involvement of students, faculty, staff and physical plant personnel in projects that implement environmental practices at higher education institutions.
- ☒ Modify purchasing policies and practices to reflect sustainable development principles.

Incentives

Provide incentives that encourage Minnesota's higher education institutions to become leaders in EE.

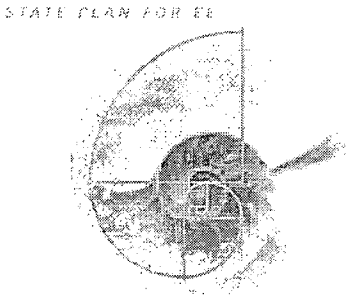
Implementation Actions

- ☒ Identify and work to remove state rules and regulations that serve as barriers to instituting sound environmental practices at higher education institutions (procurement rules, etc.).
- ☒ Publically recognize the contributions of higher education institution students and staff to EE.
- ☐ Provide additional resources to faculty to work on interdisciplinary environmental courses and to do field work.

Media

This section is for individuals and organizations that deliver or provide environmental education to:

Providers of mass communication such as print, radio, television and Internet.



Outcomes

The media will:

1 Raise awareness and concern about environmental issues and topics by developing effective relationships with EE providers.

- Sample Indicator: Local radio, television stations, newspapers and the Internet highlight balanced, accurate environmental news stories on a regular basis.

2 Promote awareness of Minnesota's EE goals and efforts.

- Sample Indicator: Increased partnerships between media outlets and EE practitioners that result in media coverage about Minnesota's rich EE history and current efforts.

3 Provide opportunities for public participation and partnerships in addressing local environmental decisions, activities and practices.

- Sample Indicator: "Town hall" style public meetings on environmental issues and topics are coordinated and presented as a result of partnerships between public agencies and media outlets.

4 Recognize cultural and ethnic traditions and practices that address environmental issues.

- Sample Indicator: In-depth coverage of in international ethnic and cultural issues associated with the environment to help Minnesota citizens understand the diversity and challenges to environmental issues.

Needs

The media needs:

- Access to balanced and fair information to accurately report on the environmental consequences of individual and community actions.
- Relationships with credible and trustworthy sources of information.
- To develop an understanding of the importance of covering environmental issues.
- To consider and/or integrate the environment in reports or stories.

Strategies

Access to Information

Provide the media with resources that result in increased reporting of fair and accurate environmental information.

Implementation Actions

- EE organizations should provide the media with information on EE activities and events, including useful resources such as SEEK (*www.seek.state. mn.us*), Minnesota's interactive directory of EE resources.
- EE organizations should provide their local media with information on community environmental resources and issues.
- Programs should be developed for the media that provide information on the importance of coverage of environmental issues.

Programs

Programs should train educators on how to work with the media.

Implementation Actions

- Provide programs that supply educators with the tools necessary to work effectively with the media.
- Develop partnerships with public relations and communication firms to improve EE outreach to the media.
- Conduct regional workshops for EE providers on working with the media.

Provide programs that train the media on environmental issues.

Implementation Actions

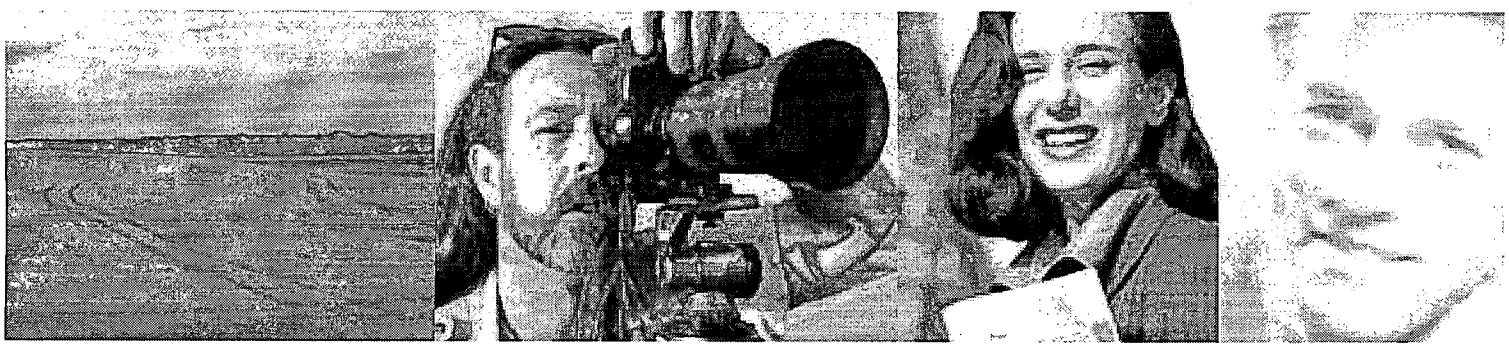
- Become familiar with the local media outlets.
- Develop relationships with local media and design a process to provide on-going EE information to the local media.

Incentives

Provide incentives for the media that support the media's efforts to cover environmental issues.

Implementation Actions

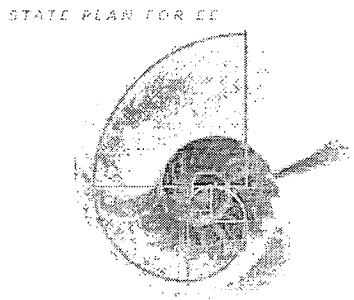
- Promote the connection between environmental issues and the overall community health.
- Provide the media with evidence that supports the interest of the public in environmental issues.
- As the only educational resource for many people, stress the responsibility of the media to report balanced, accurate information on environmental issues.
- Develop programs that recognize and reward exceptional media coverage of community environmental issues and events.



Outdoor recreation resource users

This section is for individuals and organizations that deliver or provide environmental education to:

Individuals and groups that use the environment for recreation.



Outcomes

Outdoor recreation resource users will:

1 As individuals and groups, evaluate the impact of their activities on the environment.

- Sample Indicator: Individual user groups develop guidelines for sound environmental behaviors when using Minnesota's resources.

2 Make sound environmental choices.

- Sample Indicator: Recreational activity is appropriate for the location and consistent with designated land use.

3 Demonstrate model environmental behaviors related to recreational use activities.

- Sample Indicator: Documented evidence of reduced negative and increased positive impacts of users' activities on the environment.

4 Understand how multiple groups using the same resources affect the environment and other resource users.

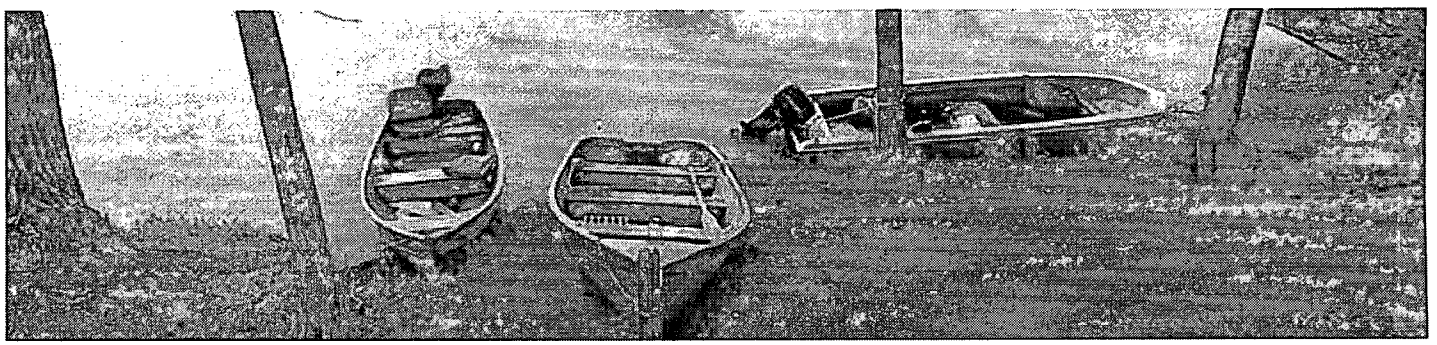
- Sample Indicator: Preservation of the usability of the resources by all user groups.

5 Respect the opinions and rights of all individuals and groups to use Minnesota's natural resources.

- Sample Indicator: Reduction in conflict among resource user groups.

6 Play a role as an environmental educator for others, including parents, teachers and members relative to their outdoor recreational activities.

- Sample Indicator: Increase in number of outdoor recreation programs with environmental components incorporated into PreK-12 education, community education and organizational programs.



Needs

Outdoor Recreation resource users need:

- ☑ Incentives to act in an environmentally responsible manner.
- ☐ Access to information and education resources that increase resource user's understanding of environmental concepts and the impact of outdoor recreational activities on the environment.
- ☑ Increased access to close by, outdoor, recreational centers by removing economic, physical and cultural barriers.
- ☑ Training to minimize the impact of recreational use on the environment.

Strategies

Access to Information

Provide outdoor recreation users increased access to information and the resources necessary to understand the environmental impact of recreational activities.

Implementation Actions

- ☑ Work with outdoor recreation organizations and government agencies to support and promote the SEEK Web site (*www.seek.state.mn.us*) as a centralized place for environmental education information.
- ☑ Provide on-site EE information at trailheads, parks, boat ramps, community centers, campgrounds and places issuing permits.
- ☐ Outdoor recreation equipment manufacturers and retailers should provide information about sound environmental behaviors at the point of purchase of recreational products.
- ☐ Develop and use video, the Internet and other technologies to provide easy access to EE information for outdoor recreation resource users.
- ☐ Develop partnerships to optimize delivery of environmental information at public shows and events, such as sports shows and county fairs.

Programs

Develop and deliver programs that will help outdoor recreation users understand the impact of their activities on the environment and the relationship of their activities to other resource users.

Implementation Actions

- ☐ Establish partnerships among user associations and government agencies to develop resource use guidelines that are

protective of the environment such as a code of ethics or the U.S. Forest Service program, "Leave No Trace."

- Develop and deliver experientially-based, EE programs to PreK-12 students, youth organizations and community education programs that include exposure to environmentally sound recreational uses of natural resources.
- Create training sessions for user group leaders to help them facilitate EE into their organizations.
- Include an EE component in organization programs related to rules, regulations, and laws governing recreational use of natural resources.
- Support participation in programs such as "Adopt-a-trail" and "Adopt-a-river" that encourage environmental stewardship.

Incentives

Provide incentives for outdoor recreation users and user groups to act in an environmentally responsible manner.

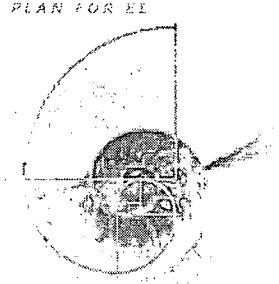
Implementation Actions

- Provide funding through grants, donations and scholarships for individuals and groups that participate in environmental activities or that make significant stewardship efforts.
- Provide refunds and discounts on licenses and registrations, special access privileges or participation in research projects or test products to those recreation users/groups that demonstrate environmental stewardship in their resource use.
- Develop programs that stress the links between responsible environmental behavior and the long-term sustainability of the resource.
- Publicize environmentally beneficial activities of outdoor recreation user groups through local media outlets and outdoor recreation retailers.
- Institute recognition programs for individual outdoor recreation users who participate in EE programs.
- Implement a statewide environmental stewardship award for user groups that establish and carry out model practices and policies.

PreK-12 students

This section is for individuals and organizations that deliver or provide environmental education to:

Students in the formal, traditional and non-traditional, education system from pre-kindergarten through twelfth grade.



Outcomes

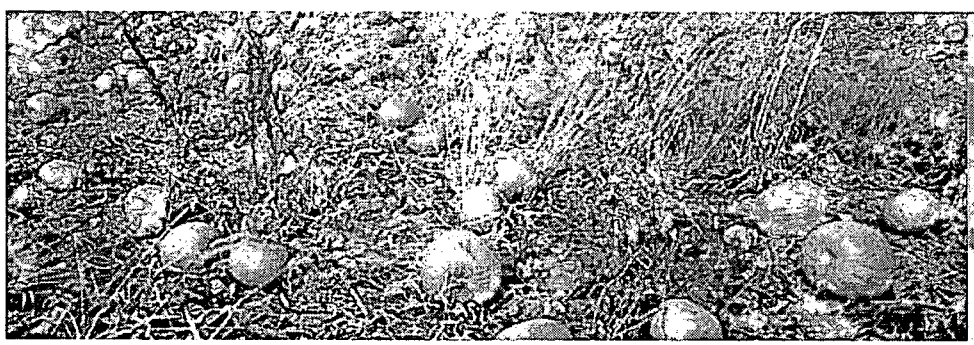
By the time they graduate, PreK-12 students will:

1 Be able to ask questions, speculate and hypothesize about the world around them, seek information and develop answers to their questions.

- Sample Indicator: Students interpret and synthesize information on environmental issues and are able to develop and communicate explanations.

2 Understand the processes, systems and interactions of systems that comprise the environment, including both natural and human systems and influences.

- Sample Indicator: Students articulate through demonstrations, projects, testing and/or case studies how human and natural systems affect and are effected by a local issue or human impacts.



3 Be able to define, research, evaluate and act on environmental issues.

- Sample Indicator: Students develop, implement and assess an action plan designed to promote a specific solution for an environmental issue.

4 Be able to draw conclusions about what should be done to ensure environmental quality and act on those conclusions.

- Sample Indicator: More students are involved in individual and group efforts in their homes, schools, communities and elsewhere based on their environmental knowledge.

Needs

Pre K-12 students need:

- Policies and system support for environment-based programs provided by school administrators and boards; the Minnesota Department of Children, Families & Learning; and other state government agencies, parents and local communities.
- Resources that give students and their teachers access to a variety of learning sites on the school campus and beyond, including transportation, entry fees, education materials, equipment and teacher preparation time.
- Easy access to current and accurate materials, resources and resource people within their school or community.
- On-going funding for PreK-12 EE programs, local implementation and staff development.
- Evaluation programs that assess the effectiveness of PreK-12 EE programs to develop environmentally literate students.

Strategies

Access to Information

Develop and improve access to information and resources that will improve the ability of students to become environmentally literate.

Implementation Action

- Develop information and education programs for parents and school administrators that outlines data on the success of school programs that have used the environment as an integrating context (EIC) (see Appendix C for more information on EIC) for learning.
- Develop stories for the media that demonstrate the value of programs that develop environmental literacy as well as encourage students, parents and business members to become involved and support youth EE programs.
- Continue to develop and use SEEK, (*www.seek.state.mn.us*) Minnesota's interactive directory of EE resources.
- Provide materials to district and school administrators to assist them implement EE in their schools. Participate in annual conferences of school board members, superintendents and principals.
- Increase student participation in regional and local EE conferences and networks.
- Identify and implement a network of regional, community or school-based EE teams consisting of local resource professionals, educators, students and community members that coordinate and deliver environment-based learning to the schools.

☐ Provide resources for schools to add environmental issues and activities to their school Web site.

Programs

Provide access to a variety of EE experiences in and out of the classroom.

Implementation Actions

☑ Assist schools with the development of courses or units that integrate the environment into Minnesota's graduation standards (see Appendix C).

☐ Develop intergenerational EE programs and projects using community members.

☐ Establish EE specialists within each school or district to coordinate EE resources and the integration of EE throughout the curriculum.

☐ Encourage state, regional and local environmental agency professionals assist in the delivery of EE programs to schools in local communities.

▩ Deliver programs that provide students with hands-on experience with local environmental issues.

☐ Provide schools the resources, including access, programs and facilities to provide out-of-classroom EE experiences at all grade levels.

▩ Encourage all school districts to adopt out-of-classroom EE programs that expose students to multiple sites including school/neighborhood, community, and statewide.

☐ Use the Minnesota Scope and Sequence benchmarks for environmental literacy to develop clear, measurable goals and testable outcomes for PreK-12 EE.

▩ Assist schools in using local environmental and resource centers, such as school campuses, school forests, state parks, nature centers, waste processing facilities and power plants as environment educational sites.

▩ Assist schools in curriculum adaptation and planning processes that integrate out-of-classroom studies into schools' education goals.

Provide programs that assist PreK-12 institutions to become models of sound environmental practices, through programs that promote environmentally responsible purchasing, energy conservation and waste reduction.

Implementation Actions

▩ Encourage and assist institutions to conduct environmental audits of institutional practices.

☑ Encourage the involvement of students and physical operation personnel in projects that implement environmental practices at PreK-12 education institutions.

PreK-12 students

Incentives

Provide incentives to school administrators, school board members, community members, businesses, teachers and students that encourage them to implement programs and activities that achieve the state goals for EE.

Implementation Actions

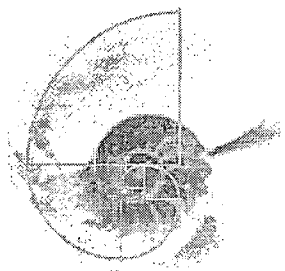
☑ Training that targets economic incentives that result in sound environmental school policies and operations, such as pollution prevention, energy conservation and recycling.

- Provide grant money to districts for EE programs including curriculum development, transportation costs, training and material purchase and rental.
- Develop a highly publicized awards program that recognizes exemplary ways that school districts have integrated EE into curricular programs and school policies and operations.
- Include environmental components in every K-12 graduation standard.
- Promote and monitor school district efforts to achieve the goals and requirements of the graduation standards related to environmental literacy.

PreK-12 teachers

This section is for individuals and organizations that deliver or provide environmental education to:

Educators currently teaching or preparing to teach in the formal, traditional and non-traditional, education system from pre-kindergarten through twelfth grade.



Outcomes

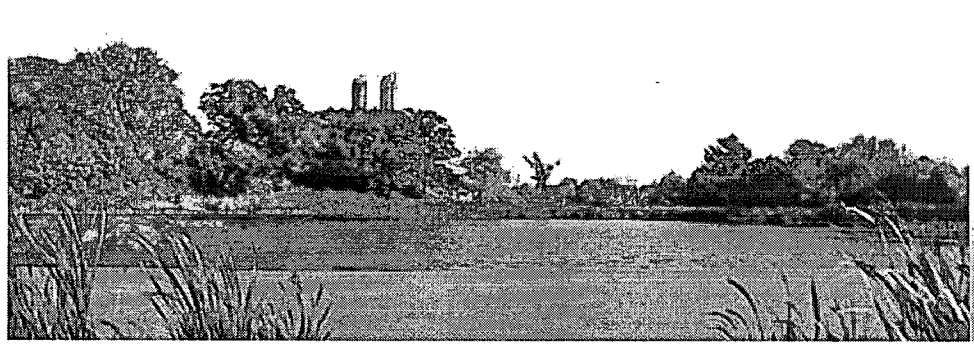
PreK-12 teachers will:

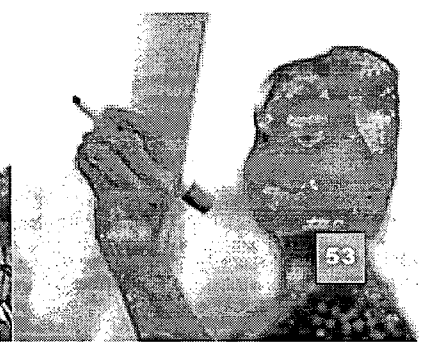
1 Demonstrate an understanding of ecological principles and environmental stewardship and have the ability to incorporate EE content and activities into curriculum across the disciplines by the time they complete their teacher education program.

- Sample Indicator: PreK-12 teachers successfully develop or adapt curricula to include principles of natural and social systems.
- Sample Indicator: Team teaching and partnering to increase environmental education.

2 Have the resources necessary to integrate EE throughout the preK-12 curriculum.

- Sample Indicator: PreK-12 teachers implement units that are interdisciplinary, conceptually and technically accurate, developmentally appropriate, and integrated across the curriculum.





Needs

PreK-12 teachers need:

- ▩ The knowledge and skills to teach EE through experiences in and out of the classroom, including a basic knowledge of natural and social systems and their interactions, appropriate use of technology, and best practices for teaching and learning.
- ▩ The ability to handle controversy in the classroom equitably, address a variety of learning and teaching styles, and use the environment as an integrating context for learning.
- ☐ Access to current and accurate materials, resources, and resource people within their school or community.
- ▩ Strategies to secure on-going funding for local implementation and professional development.
- ▩ Professional standards or a certification process for environmental educators.

Strategies

Access to Information

Develop and improve access to information and resources that will improve the ability of PreK-12 teachers to provide EE to students.

Implementation Action

- ▩ Identify and implement a network of regional EE resource people to collaborate with teachers to develop, gain access to, and insure quality environmental literacy programs.
- ▩ Maintain and promote SEEK *(www.seek.state.mn.us)* as Minnesota's central EE clearinghouse.

Programs

Provide EE training for all future educators in the PreK-12 system.

Implementation Actions

- ▩ Include EE components that are consistent with Minnesota's EE goals (see Introduction) and graduation standards (see Appendix C) in pre-service preparation programs for all PreK-12 teachers.
- ☐ Work with higher education institutions to develop their active support for the inclusion of EE as a requirement for PreK-12 licensure.*
- ☐ Provide a mechanism for higher education institutions to develop and evaluate the environmental component, including natural and social systems and their interactions and the ability to plan for and use the environment as an integrating context (see Appendix C), of their pre-service programs.

Include EE in professional development programs for current PreK-12 teachers.

Implementation Actions

- ☐ Coordinate with environmental educators at government and non-government organizations, local PreK-12 schools, and EE centers to insure that the design and delivery of professional development meets Minnesota's graduation standards.
- ▩ Establish an EE team in each district comprised of school board members, teachers, students, media specialists, community representatives, and EE providers, to develop EE curriculum that meets the graduation standards for EE and

provides the resources for teachers to implement said curriculum.

- ☐ Collaborate with the Minnesota Department of Children, Families & Learning and its delivery system - including Minnesota Educational Effectiveness Program (MEEP), Best Practice Networks, graduation standard technicians, regional higher education institutions - to assist schools/districts to develop curricula that uses the environment as an integrating context.
- ☐ Provide educators with the skills and tools necessary to integrate technology into the development of environmental literacy.
- ▨ Provide the resources, especially funding and time-off, for teachers to participate in professional development on natural and social systems and their interactions, environmentally based skills and attitudes, and uses of the environment as an integrating context for learning.
- ☐ Provide in-depth and on-going professional development for educators on natural and social systems and their interactions, community-based environmental issues and research-based best practice methods for teaching and learning.
- ☐ Identify and adapt model EE programs for on-going professional development.
- ☐ Provide coordinated training to PreK-12 teachers using national, state and local programs.

Incentives

Provide incentives for current and future PreK-12 teachers to implement programs and activities that achieve the state goals for EE.

Implementation Actions

- ▨ Develop an EE certification program that is recognized within the education community.
- ▨ Provide funding for professional development opportunities.
- ▨ Provide planning time for teachers to implement/infuse EE.
- ▨ Establish a program that recognizes teachers who have implemented exceptional EE programs.

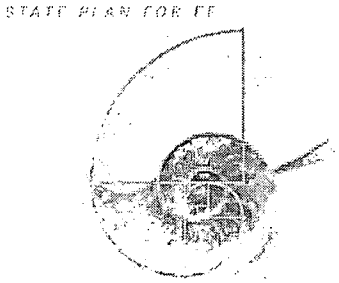
PreK-12 teachers

*Teacher licensure revision has recently been completed and approved. Education majors will graduate under the new rule beginning with those starting their program in 2001.

Producers and landowners

This section is for individuals and organizations that deliver or provide environmental education to:

Those responsible for managing private or public land for the purpose of providing food, fiber, forest products or recreation.



Outcomes

Producers/landowners will:

1 Institute management practices that optimize production and harvest in an environmentally sustainable manner, maintain a continuous and diverse supply of timber and agricultural products, and still provide a livable wage.

- Sample Indicator: Forest and agricultural lands are managed using integrated resource management principles and are profitable.
- Sample Indicator: Increased adoption of best management practices plans for preventing or reducing the amount of pollution.
- Sample Indicator: Reduction in soil erosion per acre of cropland.

2 Understand the interrelationship as well as the multiple use of resources.

- Sample Indicator: Identification and use of practices that benefit the management of two or more natural resources.
- Sample Indicator: Increased partnerships focusing on complementary use of production land resources.

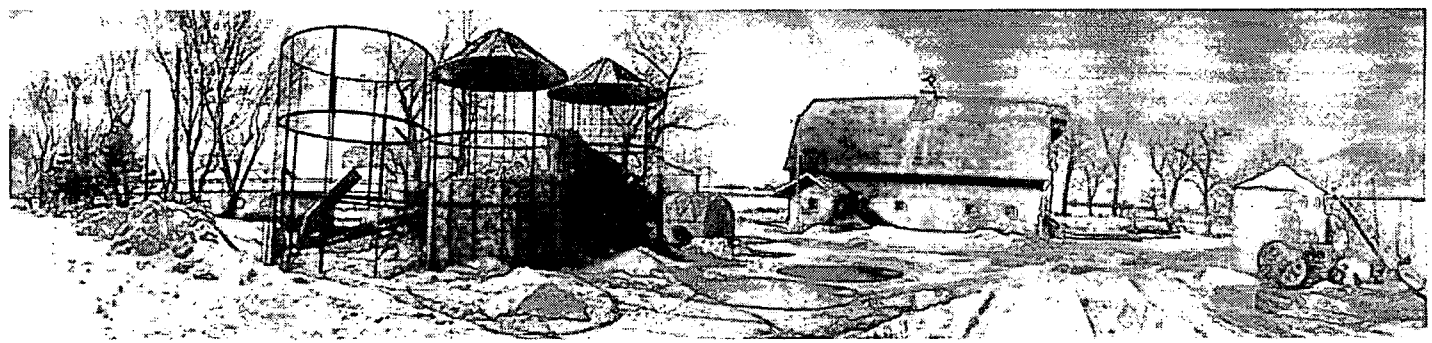
3 Provide environmental information and education to peers, consumers, students, media, citizen and youth groups, and environmental groups.

- Sample Indicator: Increased partnerships between producers/landowners and other deliverers of EE.
- Sample Indicator: Producer/landowners that use sustainable practices present and share their information at meetings, seminars, conferences and other educational venues.

4 Understand environmental regulatory processes and the rationale for regulations and land management.

- Sample Indicator: Decrease in non-compliance with regulations.

5 Make decisions in the forestry and agricultural product industries that demonstrate an understanding of the economic benefits of producing environmentally responsible products.



- Sample Indicator: Increased number of companies promote and implement environmentally responsible practices and products.

Needs

Producers and landowners need:

- A basic understanding of the ecosystem they manage, as well as regional environmental goals and global trends that effect Minnesota's environment.
- A means to exchange information and gain peer support for the transition to diverse, environmental and economically sustainable farming practices.
- Increased public awareness of the interrelationship of economic and environmental impacts of producers/landowners' management practices.

Strategies

Access to Information

Provide producers/landowners increased access to information about sound environmental practices and regulations.

Implementation Actions

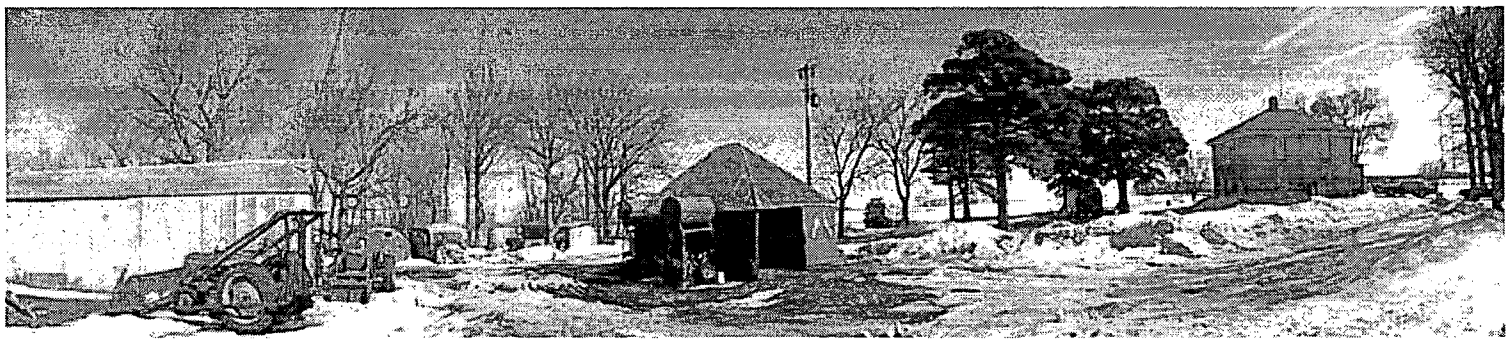
- Provide efficient means of obtaining information through new technology (i.e., Internet sites where producers can ask questions and get answers at their convenience).
- Maximize the ability of existing information networks, such as local meetings in agricultural communities, to exchange ideas on current and future changes in management practices and technologies related to the environment.
- Provide information on available funding sources to implement conservation practices.
- Provide techniques and materials to educate agricultural and forest owners, managers and employees on good environmental management practices.
- Use environmental tools, such as environmental impact statements, as well as financial and technical assistance as an opportunity to educate practitioners.

Programs

Provide education programs to current and future producers/landowners about ecosystems, best management practices and regulations.

Implementation Actions

- Expand the opportunities for EE programs. Areas of focus might include regulations, species regeneration, ecosystems,



wildlife habitat, aesthetics, soil erosion, water quality, best management practices and harvest practices. Use examples that show the difference between sustainable versus traditional agriculture and forestry practices.

- ☐ Feature model producers in programs, develop demonstration sites and facilitate peer training.
- ☐ Provide individualized education to landowners to help them be viable both economically and environmentally.
- ☐ Provide programs that create a greater understanding of environmental regulatory processes.

Involve producers/landowners in the development and delivery of educational programs that raise public awareness of the concept of multiple use as it pertains to the environment.

Implementation Actions

- ☐ Develop and deliver PreK-12 educational programs designed to raise awareness of producer/landowner management practices, including support for on-site visits and school-based experiences.
- ☐ Provide opportunities for educators to gain a basic understanding of farm and forestry management as well as issues facing producers/landowners.
- ☐ Provide training in education methodology for agriculture and natural resources staff responsible for educational outreach programs.
- ☐ Provide increased opportunities for educational experiences at agricultural and forest sites.
- ☐ Raise consumer awareness of the production practices associated with agriculture and forestry products. Support programs that bring the consumers to the farm or forest.

Incentives

Provide incentives for producers/landowners to manage resources in an environmentally responsible manner.

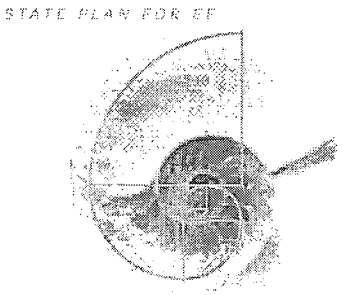
Implementation Actions

- ☐ Provide on-going financial incentives, such as tax benefits and payments for conservation activities.
- ☐ Recognize and support new ideas and technologies, especially those that create value-added options.
- ☐ Recognize producers/landowners who demonstrate responsible stewardship through an awards program and media coverage.
- ☐ Provide continuing support for conservation programs, such as conservation credit initiatives.
- ☐ Provide information on incentive programs available to landowners to cost-share new ideas, stewardship activities, and technologies for all aspects of forestry and agricultural practices.

Religious groups

This section is for individuals and organizations that deliver or provide environmental education to:

Faith communities.



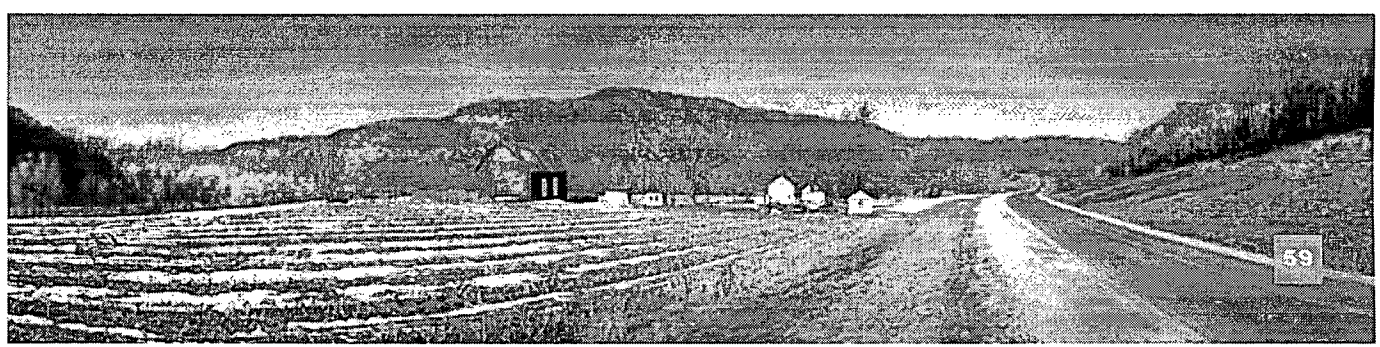
Outcomes

Religious groups will:

1 Explain the basis for environmental ethics and justice in their faith tradition.
- ☐ Sample Indicator: Members can articulate the basis for environmental ethics in their faith tradition.

2 Include environmental concerns in the mission, policies and outreach programs of the organization.
- ☐ Sample Indicator: Religious environmental concern groups discuss and take action on specific environmental issues.
- ☐ Sample Indicator: Faith communities audit and evaluate their buildings and practices.
- ☐ Sample Indicator: Individuals and faith communities take part in coalitions working on environmental actions.

3 Develop and implement an EE strategy at the local faith community level, including religious education programs.
- ☐ Sample Indicator: Written strategies adopted and plans implemented at the local level. EE is incorporated into the community of faith's education program.



4 Create community atmosphere and provide information that encourages individual lifestyles that lead to responsible environmental actions.
- Sample Indicator: Leaders in the community know how and where to gather pertinent environmental information and distribute it to members.
- Sample Indicator: Individuals of the faith community are acknowledged for their environmental behaviors and similar behavior by others is encouraged.

5 Develop EE training programs for religious leaders and clergy.
- Sample Indicator: Effective EE programs are implemented by religious leaders and clergy.

Needs

Religious groups need:

- To define and develop their role in environmental stewardship from a faith perspective.
- A network of individuals and organizations that can assist in understanding and developing religious organizations' EE programs and needs.
- Access to EE resources, including information and funding opportunities to implement environmental actions as a religious institution and as individual members.

Strategies

Access to Information

Make information and resources readily available.

Implementation Actions

- Promote SEEK, (*www.seek.state.mn.us*) Minnesota's interactive directory of EE resources, to the Minnesota Council of Churches and other faith communities as the centralized clearinghouse for EE information and resources.
- Encourage organizations providing EE information and resources to target religious communities and provide those resources on SEEK.
- Identify resources and facilities available within faith communities.
- Draw on the environmental expertise of the faith community membership and the community-at-large.
- Establish environmental task forces or teams to provide information to those making decisions about environmental actions.
- Improve networking among and within faith communities to share information and education resources, including support for interfaith environmental organizations.
- Encourage integration of EE classes at existing religious programs, such as religious camps and religious retreat centers.

Programs

Facilitate planning and partnerships that result in effective EE programs for faith communities.

Implementation Actions

- ☐ Government and religious organizations work to increase discussions on the environment within existing conferences or develop conferences and workshops on the environment. These sessions should discuss common themes between various cultural and religious traditions to create change of attitude and behavior and encourage active roles by local congregations.
- ☐ Facilitate the integration of sustainability components into building and grounds maintenance, remodeling, and construction.
- ☐ Integrate EE programs for religious leadership/clergy, including religious or seminary training.
- ☐ Provide programs that review religious traditions; interpreting and relating these traditions to environmental issues of the 21st century.
- ☐ Provide parochial schools with current EE resources.
- ☐ Provide programs that give specific examples of what individuals and communities can do to change their impact on the environment (i.e., plant trees, buy less, properly manage household hazardous waste, encourage membership in community-supported agriculture, bus everyone to church once a year, etc.).

Incentives

Provide incentives that encourage faith communities to develop their own plans for environmental education and action.

Implementation Actions

- ☐ Educate leadership and members on the religious doctrine that supports stewardship. Provide specific things people can do that can be understood and implemented.
- ☐ Offer quality education and informative programs that inspire individuals and communities to act.
- ☐ Provide financial incentives and develop partnerships for EE efforts, such as offering scholarships for staff and members to attend environmental workshops.
- ☐ Organizations and foundations that provide funding for EE should expand opportunities for grants to include religious organizations.
- ☐ Reward and publicize accomplishments and model religious EE programs and environmental practices.

Appendix A: What is Environmental Education

Guiding principles

The foundations of a current definition for environmental education began in 1975 at an international EE workshop in Belgrade, Yugoslavia, where a global framework for EE called the Belgrade Charter was proposed. Two years after the Belgrade Workshop, another intergovernmental conference on EE was held in Tbilisi, Georgia, which built upon the Belgrade Charter. In 1983, the North American Association for Environmental Education (NAAEE) further developed the Belgrade Charter and the Tbilisi proceedings to develop a definition and a set of guiding principles for EE. The following statements are drawn from the "1985 Position Paper of the NAAEE Board of Directors" and have been the guiding force for NAAEE's EE activities:

EE is a process that promotes the analysis and understanding of environmental issues as the basis for effective education, problem-solving, policy-making, and management. The purpose of EE is to foster the education of skilled individuals able to understand environmental problems and possessing the expertise to devise effective solutions to them. In the broader context, EE's purpose is to assist in the development of a citizenry conscious of the scope and complexity of current and emerging environmental problems and supportive of solutions and policies that are ecologically sound.

NAAEE maintains the following guiding principles and believes that EE should:

- ☐ Consider the environment in its totality — natural and built — biological and physical phenomena and their interrelations with social, economic, political, technological, cultural, historical, moral, and aesthetic aspects.
- ☐ Integrate knowledge from the disciplines across the natural sciences, social sciences, and humanities.
- ☐ Examine the scope and complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills and the ability to synthesize data from many fields.
- ☐ Develop awareness and understanding of global problems, issues, and interdependence —helping people to think globally and act locally.
- ☐ Consider both short- and long-term futures on matters of local, national, regional, and international importance.
- ☐ Relate environmental knowledge, problem solving, values, and sensitivity at every level.
- ☐ Emphasize the role of values, morality, and ethics in shaping attitudes and actions affecting the environment.
- ☐ Stress the need for active citizen participation in solving environmental problems and preventing new ones.
- ☐ Enable learners to play a role in planning their learning experiences and providing an opportunity for making decisions and accepting their consequences.
- ☐ Be a life-long process — It should begin at preschool level; continue throughout formal elementary, secondary and post secondary levels; and utilize non-formal modes for all age and education levels.

Appendix B: Partnership Opportunities

Potential allies for environmental education

The following individuals, agencies and organizations may provide valuable support to EE efforts in your organization or community. We hope this list provides ideas and inspiration for potential partners or participants in your EE programs.

Due to the frequent changes in addresses, phone numbers, e-mail addresses and web sites, the following list is a starting point to build collaborative efforts in EE in Minnesota. Contacts for many of the organizations listed below can be found on the SEEK Web site — *http://www. seek.state.mn.us*. Others can be found by using search tools, such as Yahoo! (*http://www.yahoo.com*), Alta Vista (*http://www.altavista.com*), the phone book white and blue pages and other resources found in your community library.*

*While attempts were made to be as inclusive as possible, this list is not comprehensive and does not indicate an endorsement of any of the organizations listed. Based on "Using Government Resources for Water Resources education," Charlotte Shover, Dakota County Environmental Education program and input collected during the *GreenPrint, Second Edition* revision process.

Local government

- County and city government
  - Consolidated Farm Services Agency (U.S. Department of Agriculture)
  - County Natural Resources Conservation Service or Districts (U.S. Department of Agriculture)
  - County Soil and Water Conservation District
    - -Soil and Water Stewardship Week
  - Forestry Departments
  - Local Historical Societies
  - Lake/River/Watershed Districts, Commissions and Boards
  - Natural Resource or Environmental Commissions
  - Park and Recreation Boards/Commissions/Departments
  - Parks, Museums, Zoos, Nature and Environmental Learning Centers
  - Planning and Zoning Offices and Commissions/Boards
  - Public Libraries
  - Public Health Department
  - Public Works Department
  - Solid Waste and Recycling Commissions/Boards
  - Solid Waste, Household Hazardous Waste or Environmental Services Departments
  - University of Minnesota County Extension Service
  - Water and Wastewater Treatment Departments
  - Water Planners
- Local government associations
  - Association of Minnesota Counties
  - League of Minnesota Cities
  - Minnesota Association of Soil and Water Conservation Districts
  - Minnesota Association of Townships
  - Minnesota Association of Watershed Districts
  - Minnesota School Boards Association
- Schools
  - After school programs
    - -Latchkey, extended day programs
    - -Charter schools
    - -Educational Cooperative Service Units
  - Environmental magnet schools
  - Home schools
  - Licensed home day care and day care centers
  - Parent Teacher Organizations
  - Public and private schools
  - Service learning organizations
  - Americorps
  - Corporation for National Service
  - Vistal Commission on Service Learning
- School staff/contacts
  - Alternative learning programs
  - Athletic Director
  - Building Principals
  - Community education/school outreach programs
  - Director of Business Services or Operations
  - Director of Communications
  - Director of Curriculum
  - Director of Purchasing
  - Discipline Department Chairs
  - Education Assistants/Hall Monitors/Secretaries/Receptionists
  - Engineers/Custodians/Janitors
  - Graduation Standards Facilitators/Coordinators
  - Media Specialists/Librarians
  - School Board Members
  - School Counselors
  - Service Learning Coordinator
  - Superintendent

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- Student organizations and clubs
  - Athletic clubs
  - Business leadership clubs
  - Environmental clubs
  - Envirothon
  - Foreign language clubs
  - Future Farmers of America
  - Future Homemakers of America/HERO
  - Knowledge or Quiz Bowl
  - Local school education foundations
  - National Honor Society
  - Science Fair
  - Sportsman's or outdoor clubs
  - Student achievement and recognition clubs
  - Student government

State Government

- North Star (*http://www.state.mn.us/govtoffice/*) — directory of Minnesota Government Information and Services
- Bridges (*http://search.state.mn.us/bridges/*) — Minnesota's Gateway to State Agency Environmental Information
- Attorney General's Office
- Board of Water and Soil Resources
- Bureau of Mediation Services
  Office of Dispute Resolution
- Department of Agriculture
- Department of Children, Families and Learning
  - Best Practices Network Educators
  - Minnesota Education Effectiveness Program
  - Regional Education Service Cooperatives
  - SciMathMN
- Department of Health
  - Public health nurses/offices
- Department of Human Services
- Department of Natural Resources – Regional offices throughout Minnesota
  - Environmental service programs
  - Grants
  - Information Center
  - Natural Resources curricula and educational materials
  - Outdoor skills programs
- Department of Planning
  - Environmental Quality Board
    –Minnesota Sustainable Development Initiative
- Department of Public Service/Department of Commerce
  - Energy Information Center
- Department of Trade and Economic Development
- Department of Transportation
- Government Training Service
- Minnesota Senate and House of Representatives
  - Education committees
  - Environment and agriculture committees
  - Finance committees
  - Information offices
  - Legislative Commission on Minnesota Resources
  - Natural resource committees
- Office of Environmental Assistance
  - Education Clearinghouse
  - Grants
  - Minnesota Environmental Education Advisory Board
  - Sustainable Communities Network
- Office of Tourism
- Pollution Control Agency
  - Regional offices in Brainerd, Detroit Lakes, Duluth, Marshall, Rochester, St. Paul
- Public Utilities Commission

Regional government

- Regional park systems and boards
- Inter state/province boards and commissions
- Joint powers boards
  - Minnesota River Basin
  - Mississippi Headwaters Board
  - Solid Waste Management Coordinating Board
- Metropolitan Council
  - Metropolitan Parks and Open Space Commission
  - Environmental Services
- Metropolitan Mosquito Control District
- Regional development commissions
- Regional Transit Board
- Tribal governments
  - Conservation groups
  - Natural resource programs
  - Indian Schools
- Watershed Management Organizations

Federal government

- Department of Agriculture
  - Natural Resource Conservation Service, offices in each county
  - U.S. Forest Service
    –Chippewa National Forest
    –Superior National Forest
    –State and Private Forestry Office, St. Paul
- Department of the Interior
  - U.S. Fish and Wildlife Service
    –National Wildlife Refuges, Waterfowl Production Areas and Field Offices
    –Prairie Wetlands Learning Center
  - National Park Service
    –Cooperative Park Studies Unit
    –Grand Portage National Monument
    –Mississippi National River and Recreation Area
    –Pipestone National Monument

- -St. Croix National Scenic Riverway
- -Voyagers National Park

- Environmental Protection Agency
  - Office of Environmental Education, Washington, D.C.
  - Region V Offices, Chicago
- Military
  - Reserve Officer Training Corps
  - National Guard Reserves
  - U.S. Army Corps of Engineers

Business

- Agriculture
  - Center for Integrated Natural Resources and Agricultural Management
  - Commodity organizations
  - Community supported agriculture businesses
  - Corporate agriculture
  - Farm media
  - Farm organizations and cooperatives
  - Farm Services Agency
  - Future Farmers of America
  - Individual farmers
  - Minnesota Agricultural Education Leadership Council
  - Sustainable agriculture groups
- Environmental businesses, industries and consultants
  - Alliance for Sustainability
  - The Natural Step
  - Minnesota Environmental Initiative
- Forest product industry
  - Forest landowners
- Labor, trade, and professional business organizations
  - Businesses for Social Responsibility
  - Central Minnesota Environmental Council, St. Cloud
  - Chamber of Commerce – state and local
    - -Minnesota Waste Wise
  - Education Minnesota
  - Engineering organizations/societies
  - Health Organizations and trade associations
    - -American Lung Association
    - -American Medical Association
  - Minnesota Business Partnership
  - Minnesota Geographical Alliance, Macalester College
  - Minnesota Science Teachers Association
  - State and local bar associations, environmental sections
- Local tourist associations
- Manufacturers and distributors of recreational products
- Public utilities and power companies (energy audits and conservation programs)
  - Minnesota Power
  - NSP
- Resort owners
- Retailers
- Small business development centers
- Waste businesses and organizations
  - America Recycles Day event coordinators
  - Association of Recycling Managers
  - Browning Ferris Industries, Inc.
  - Minnesota Waste Haulers Association
  - National Recycling Coalition
  - Recycling Association of Minnesota
  - Solid Waste Association of North America
  - Waste Management, Inc.

Community and civic organizations

- Arts Councils and Societies
- Charitable foundations and trusts
  - The Blandin Foundation
  - Minnesota Environmental Fund
  - The Pew Foundation
    - -State Environmental Education Roundtable
- Civic organizations
  - Elks
  - Jaycees
  - Kiwanis
  - Knights of Columbus
  - League of Women Voters
  - Legionnaires
  - Lions
  - Masons
  - Optimists
  - Rotary
  - Ruritan
  - Toastmasters
  - Veterans Clubs
  - Volunteer Fire Departments
- Community action groups
  - Block clubs
  - Community garden clubs
  - Lake and watershed-based associations
  - Neighborhood and property owner associations
- Consumer groups
- Cultural and ethnic groups
- Family organizations
- Historical societies
- Retired persons/senior citizens associations
- Volunteer groups/organizations
- Youth groups
  - 4-H
  - Athletic clubs/teams
  - Boy/Girl Scouts of America
  - Boys and girls clubs
  - Camp Fire Boys and Girls
  - Hobby groups/clubs – e.g. sailing, fishing, stamp collecting, chess, etc.
  - Junior Achievement
  - YMCA/YWCA

Environment and conservation organizations

- 1,000 Friends of Minnesota
- Amercican Lung Association of Minnesota
- American Youth Hostels - Minnesota Council
- Citizens for a Better Environment
- Clean Water Fund
- Clean Up our River Environment
- Coon Rapids Regional Energy/Education Demonstration Project
- Ducks Unlimited
- Eco Education
- Freshwater Foundation
- Friends of Boundary Waters Wilderness Area
- Friends of Minnesota Valley
- Friends of the Mississippi River
- Full Circle Institute
- Green Corps (University Campuses)
- Humane Society
- Institute for Local Self-Reliance
- Izaak Walton League
- Kids, Education, Environment and You
- Kids for Saving Earth Worldwide
- Land Stewardship Project
- Local fishing, conservation and sportsman's clubs
- Local lake associations
- Minnesota 4-Wheel Drive Association
- Minnesota and National Parks and Recreation Association
- Minnesota Association of Resource Conservation and Development
- Minnesota Bowhunters, Inc.
- Minnesota Canoe Association
- Minnesota Coalition Of Bicyclists
- Minnesota Conservation Federation (National Wildlife Federation)
- Minnesota Deer Hunters Association
- Minnesota Environmental Partnership
- Minnesota Environmental Science Foundation, Inc.
- Minnesota Foundation for Responsible Animal Care
- Minnesota Speleological Survey
- Minnesota State Horticultural Society, Minnesota Green
- Minnesota Land Trust
- Minnesota Motorized Trails Coalition
- Minnesota Mycological Club
- Minnesota Native Plant Society
- Minnesota Orienteering Club
- Minnesota Project
- Minnesota Public Interest Group
- Minnesota Recreational Trail Users Association
- Minnesota Renewable Energy Society
- Minnesota Ski Council
- Minnesota Trail Riders Association
- Minnesota Trappers Association
- Minnesota United Snowmobilers Association
- Minnesota Waterfowl Association
- Muskies, Incorporated
- National Audubon Society
- National Wild Turkey Federation
- Nature Conservancy
- Pheasants Forever
- Rivers Council of Minnesota
- River Watch
- Ruffed Grouse Society
- School Nature Area Project
- Sierra Club
- Tread Lightly!
- Tree Trust
- Trees for Tomorrow
- Trout Unlimited
- Urban Ecology Coalition
- Wilderness Inquiry
- Wildlife Forever
- Women In The Wilderness
- Woodswomen
- World Wildlife Fund

Environmental education centers

- Camps
- Day use/nature centers
- Residential centers
- Science centers
- Museums
  - Science Museum of Minnesota
  - Minnesota Children's Museum
- Zoos and aquariums
  - Como Park Zoo and Conservatory
  - Duluth Zoo
  - Great Lakes Aquarium
  - Minnesota Zoo and Discovery Bay
  - Underwater Adventures

Environmental education professional associations and organizations

- Institute for Conservation Leadership
- Minnesota Association for Environmental Education
- Minnesota Naturalists' Association
- National Association for Interpretation
- National Environmental Education Advancement Project
- National Environmental Education and Training Foundation
- North American Association for Environmental Education

Higher education

- Carleton College, Northfield
- Concordia College, Moorhead
- Concordia University, St. Paul
  - Dept. of Life Sciences
- Hamline University, St. Paul
  - Center for Global Environmental Education
- Macalester College, St. Paul
- Minnesota (and ND, SD, WI, IA) State Colleges and Universities - *http://www.mnscu.edu/ home.html*
  - Bemidji State University
    - –Center for Environmental Studies
    - –Dept. of Professional Education
  - St. Cloud State
  - Minnesota State, Mankato
  - Vermillion College, Ely
  - Winona State
  - St Olaf College, Northfield
  - Environmental Studies Dept.
  - St. Thomas University, St. Paul
  - University of Minnesota
    - –Agricultural Experiment Stations
    - –Agricultural Stabilization and Conservation Service
    - –Bell Museum of Natural History
    - –Center for Environmental Learning and Leadership
    - –Center for Integrated Natural Resources and Agricultural Management
    - –College of Natural Resources
    - –Division of Recreation, Park and Leisure Studies
  - Duluth Campus
    - –Health, Physical Education and Recreation
  - Extension Service
    - –4-H
    - –Master Gardeners
  - Minnesota Geological Survey
  - Minnesota Institute for Sustainable Agriculture
  - Morris Campus
    - –Division of Education
  - Natural Resources Research Institute
  - School of Agriculture

Media

- Cable television stations
- Christian radio stations
- Community newspapers
- Local radio and television stations
- Public radio and television stations

Religious organizations

- Center for Earth Spirituality and Rural Ministry, Mankato
- Denominational judicatories
- Individual congregations and faith communities
- Minneapolis Area Council of Churches
- Minneapolis Ecumenical Alliance of Congregations
- Minnesota (and National) Council of Churches
- Minnesota Catholic Conference
- Minnesota Earth Sabbath Team
- Minnesota Interfaith Ecology Coalition
- North American Coalition of Christianity and Ecology
- Religious colleges and religious orders
- Religious retreat centers and camps
- Seminary Consortium
- St. Paul Area Council of Churches
- St. Paul Ecumenical Alliance of Congregations

Appendix C: Local and National EE Programs and Activities

The following information and resources give some indication of the challenges and successes of EE efforts in Minnesota and around the country. Please contact the organizations listed for more in-depth information on specific programs.

Local EE programs and activities

Environmental Literacy Scope and Sequence Project

For the last two years, a group of 40 plus Minnesota environmental educators have been creating a sequence of concepts that would lead to an environmental literacy scope. The Environmental Literacy Scope and Sequence is at the point that it can be brought to the rest of the EE community for their comment and use. The Department of Children, Families and Learning is building this scope and sequence into its work with model schools using environment as an integrating context.

An Environmental Literacy Scope and Sequence is useful to environmental educators in a variety of ways:

- Using it, teachers can articulate their curricula, from pre-kindergarten to 12th grade, so that later learning builds on earlier works toward environmental literacy.
- Any environmental educator can use the scope and sequence as an assessment tool for determining where individuals are on the path to environmental literacy, no matter the level, adults included.
- Environmental educators who provide programs for PreK-12 students can use the sequence of concepts to help build a program that is appropriate for the grade levels involved in the program. Program providers can articulate between themselves and their school clientele, or themselves, and other EE programs.
- The Minnesota Office of Environmental Assistance has provided a grant to fund Minnesota Environmental Literacy Scope and Sequence workshops for environmental educators, formal and non-formal. These workshops will provide a clearer understanding of the scope and sequence and how to use it. For more information about EE scope and sequence or if you are interested in attending a workshop, phone Mike Naylon at 218-947-4759, or e-mail at *naylon@uslink.net.*

The Legislative Commission on Minnesota Resources — The Environment and Natural Resources Trust Fund

In 1998, Minnesota voters approved a constitutional amendment extending for another 25 years the allocation of a percentage of lottery proceeds to the Environment and Natural Resources Trust Fund. The Trust Fund, which was originally established by constitutional amendment in 1988, receives 40 percent of the Minnesota Lottery profits. The Legislative Commission on Minnesota Resources (LCMR), made up of state representatives and senators, reviews two-year proposals and makes funding recommendations biannually to the legislature for their approval. Many EE projects have been funded over the past ten years, including statewide projects, such as SEEK and the Teacher Preparation Project. LCMR can be contacted at 651-296-2406 or their Web site at *http://www.commissions.leg.state.mn.us/lcmr/lcmr.htm.*

The Minnesota Association for Environmental Education (MAEE)

The mission of the Minnesota Association of Environmental Education (MAEE) is to promote a responsible citizenry through environmental education and action. MAEE began in 1992 with the goal of building bridges between professionals: teachers, environmental educators, government agencies, state legislators, private and/or non-profit groups, business and industry, and others concerned with the quality of life in Minnesota. In its short history, MAEE has been an action-based organization. MAEE is a non-profit, professional volunteer organization and is a state affiliate of NAAEE. MAEE can

be contacted by phone at 952-858-0734, web site at *http://naaee.org/maee/* or via e-mail: *maee@uswestmail.net.*

Minnesota Environmental Education Advisory Board (EEAB)

The Minnesota Environmental Education Advisory Board (EEAB) was created by the 1990 Environmental Education Act to promote environmental literacy for all Minnesota citizens. It developed the original *GreenPrint for Minnesota* and consists of representatives from state environmental and education agencies and citizen members appointed to two-year terms. The Minnesota Office of Environmental Assistance hosts the EEAB and can be reached by calling 651-296-3417 or 1-800-657-3843. Information on the EEAB is also available on SEEK at *http://www.seek.state.mn.us.*

Minnesota Environmental Education Teacher Preparation Project (TPP)

The Minnesota Environmental Education Teacher Preparation Project (TPP) was a cooperative effort among ten higher education institutions to develop and implement a coordinated statewide EE program for classroom teachers and students enrolled in teacher education programs. The project aimed to help teachers address the Minnesota graduation standards, as well as meet the goals outlined in the *GreenPrint for Minnesota: State Plan for Environmental Education* by providing teachers with training in both the content and delivery of EE for use across curriculum areas. The TPP was an attempt to bring together the education departments of higher education institutions with teachers and other EE deliverers to plan an in-depth course that would give teachers who want to teach EE the background to do so competently.

TPP included ten universities that taught a total of 16 courses with a total enrollment of 346 teachers over the summers of 1996 and 1997. Over one-third of the teacher preparation institutions in Minnesota participated in this project and continue to include EE in their course offerings. The project also set a precedent for bringing together the Legislature, Department of Children, Families and Learning, institutions of higher learning, and practicing educators from the formal and non-formal sectors to address EE reform in Minnesota.

As recommended by the Legislative Commission on Minnesota Resources (LCMR), the Minnesota Legislature funded this project for the period between 1995 and 1998. For more information about the Minnesota Environmental Education Teacher Preparation Project contact the Education Clearinghouse at the Minnesota Office of Environmental Assistance at 651-215-0232 or 800-877-6300 or via e-mail at *clearinghouse@moea.state.mn.us.*

The Minnesota Graduation Standards and Electronic Curriculum Repository (MECR)

The newly implemented Minnesota Graduation Standards contain many areas where EE can be integrated into the standards. Listed below are the High, Primary, Intermediate and Middle level standards in which there is direct reference to connections to the environment, or some of the concepts taught are identical to those in environmental literacy definitions:

- Inquiry (Learning Area 5)
  - High Standards
    - History of Science
    - Research and Create a Business Plan
    - New Product Development
  - Scientific Applications (Learning Area 6)
  - High Standards
    - Concepts in Biology
    - Concepts in Chemistry
    - Earth and Space Systems
    - Concepts in Physics
    - Environmental Systems
  - Primary
    - Direct Science Experience
  - Intermediate
    - Living and Non-Living Systems
  - Middle
    - Living Systems
  - People and Cultures (Learning Area 7)
  - High Standards
    - Human Geography
  - Primary
    - Family, School and Community
  - Intermediate
    - Geography and Citizenship
  - Middle
    - Geography and Culture
  - Decision Making (Learning Area 8)
  - Middle
    - Personal Health
  - Resource Management (Learning Area 9)
  - High Standards
    - Economic Systems
    - Natural and Managed Systems
    - Personal and Family Resource Management
    - Business Management
    - Technical Systems
  - Middle
    - Informed Consumerism

The Minnesota Electronic Curriculum Repository (MECR) is a quality-controlled database of curriculum materials that support the implementation of the Minnesota Graduation Standards. The MECR was created to support and assist educators as they implement Minnesota's Graduation Standards. Currently users can view, print, copy and paste MECR materials. The Minnesota Department of Children, Families and Learning (DCFL) is developing a system that will allow users to edit packages, tasks and activities to meet their local needs. The MECR will continue to grow as it collects and adds assessments, activities and resources from around the state. Contact the MECR database through the DCFL web site at *http://children.state.mn.us* or by phone at 651-582-8200.

RELCs in Minnesota — Wilder Study

A recent study by Wilder Research Center titled, "Residential Environmental Learning Centers (RELCs) in Minnesota: An Assessment of Current Programs and Future Prospects" (Owen and Zierman, 1997), found that during 1995, RELCs served approximately 30,500 individuals. If all recently proposed RELC facility building and expansion plans are carried out, Minnesota RELCs could serve 123,814 students each year. Nearly two-thirds (64 percent) of all respondents surveyed report that at least one group within their school has participated in an overnight environmental learning experience. Some regional differences that were found include teachers in the northeast and metro area of Minnesota are most likely to use the existing RELCs, suburban area teachers are twice as likely as urban area teachers to take students to a full service RELC program, and metro area teachers were least likely to use district funds to finance overnight experiences. For a copy of the report, contact Marilee Lockwood at 218-855-5010 or *marilee.lockwood@dnr.state.mn.us*.

SEEK (Sharing Environmental Education Knowledge) Web site

SEEK, Minnesota's interactive directory of EE resources (*http://www.seek.state.mn.us*), was originally funded by a legislative appropriation in 1995 through the Environment and Natural Resources Trust Fund. The Minnesota Office of Environmental Assistance has continued support for the project, which currently includes over 100 contributing organizations. The Web site includes information on over 10,000 resources and receives over 2,000 hits per day. Questions regarding SEEK should be directed to Mike Kennedy, OEA, 218-529-6258.

State Education and Environment Roundtable (SEER) — Using the Environment as an Integrating Context (EIC)

State Education and Environment Roundtable (SEER) is a cooperative endeavor of 12 states' education agencies and is sponsored by Pew Charitable Trusts. The staff conducts research into the effectiveness of environmental education and curriculum programs, organizes Roundtable seminars to facilitate cooperation and sharing among the states, and provides technical support to education agencies. Visit SEER's Web site at *http://www.seer.org* or contact Minnesota's representative, Kathleen Lundgren, Department of Children, Families and Learning, at 651-582-8815 or via e-mail at *kathleen.lundgren@state.mn.us*.

Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning (Lieberman and Hoody, 1998), a recent study of 40 schools around the country, found that schools using the environment as an integrating context (EIC) showed a significant increase in student achievement. Staff and students from the schools studied around the country (including Dowling Elementary School, Minneapolis; Central Middle School, East Grand Forks; and Little Falls High School, Little Falls) reported additional positive effects, including increases in critical thinking skills, enthusiasm for learning and standardized test scores. Copies of the report, *Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning*, are available for $13 each from Science Wizards, 16486 Bernardo Center Dr, Ste 328, San Diego, CA 92128, phone: 619-676-0272.

EIC is defined as education that employs natural and built environments as the context for learning and within that framework. EIC crosses traditional disciplinary boundaries, relies on team teaching, provides hands-on learning experiences, offers cooperative learning opportunities, and adapts to the needs of individual students through learner-centered methods. EIC has received support nationally from the Pew Foundation's State Education and Environment Roundtable and Project Learning Tree and locally by the Blandin Foundation and the Minnesota Department of Children, Families and Learning (DCFL). Several EIC workshops with Minnesota schools and teachers have been held in 1999, with more planned for the future. Contact Kathleen Lundgren, DCFL, for more information on

Minnesota's EIC efforts, at 651-582-8815 or via e-mail at *kathleen.lundgren@state.mn.us*.

Third International Mathematics and Science Study (TIMSS)

The Third International Mathematics and Science Study (TIMSS), which is one of the most recent (1996) and comprehensive international studies of student achievement, included comparisons of students from Minnesota along with students from 46 countries. These results show that compared to other countries and states, Minnesota is doing a good job educating its students on environmental issues. The data may provide a good baseline for further measurement of progress toward creating an environmentally literate citizenry in Minnesota.

Specific results from TIMMS found Minnesota students performed above average in all science content areas at both grades seven and eight. In fact, at grade eight no other country had significantly higher percent correct scores than Minnesota in Earth Science and Life Science, and only Singapore scored higher in the Environmental issues and the Nature of Science area. At grade seven, Minnesota outperformed most countries in Life Science and Environmental issues and the Nature of Science. No countries had higher scores than Minnesota in Earth Science. Compared to the rest of the United States., Minnesota also scored higher in these areas. (*Science Achievement in Minnesota in the Middle School Years*, Voelkl and Mazzeo, 1997) Information and copies of the TIMMS reports are available from SciMathMN, 1500 Hwy 36 W, Roseville, MN 55113-4266, phone: 651-582-8852, e-mail: *scimathmn@state.k12.mn.us*.

National EE programs and activities

The Environmental Education and Training Partnership (EETAP)

EETAP is a national project designed to increase the number of education professionals trained in EE. It is a consortium of organizations working together in a coordinated manner to implement the project's EE and training objectives. Its program is divided into three areas: basic educator training, access to quality resources, and capacity building. Visit their Web site at *http://www.eetap.org* or contact them at 202-884-8912 or via e-mail at *mkaspar@aed.org*

National Environmental Education Advancement Project (NEEAP)

NEEAP's purpose is to support and promote the development and continuation of comprehensive EE programs at the state and local level through state EE capacity building. It is an EETAP member and host of annual Leadership Clinics for state representatives. Visit their Web site at *http://www.uwsp.edu/cnr/neeap/* or contact them at 715-346-4748 or via e-mail at *neeap@uwsp.edu*.

The National EE and Training Foundation (NEETF)/Roper Studies

NEETF collaborates with Roper Starch Worldwide to do an annual survey, "The National Report Card on Environmental Knowledge, Attitudes and Behaviors: Annual Survey of Adult Americans." The surveys gather data on Americans' views on the environment. In 1997 the annual survey found most American adults got a failing grade on basic environmental knowledge. In 1998, the survey focused on environmental myths. The reports are available from NEETF at their Web site at *http://www.neetf.org*, via phone at 202-833-2933 or via e-mail at *neetf@neetf.org*.

North American Association for Environmental Education (NAAEE)

NAAEE is a network of professionals and students working in the field of EE throughout North America and in over 55 countries around the world. Visit NAAEE's Web site at *http://www.naaee.org* or call them at 202-884-8912.

U.S. Environmental Protection Agency's (EPA's) Office of Environmental Education

The National Environmental Education Act of 1990 requires EPA to provide national leadership to increase environmental literacy. The Office's mission is to advance and support education efforts that develop an environmentally conscious and responsible public and inspire personal responsibility in caring for the environment. Their Web site is located at *http://www.epa.gov/enviroed/*

U.S. Environmental Protection Agency (EPA) Region 5

EPA Region 5 offers support for EE through grants, and training through organizational partnerships in Minnesota, Illinois, Indiana, Michigan, Ohio, and Wisconsin. Contact is Suzanne Saric at 800-621-8431 or 312-353-3209 or e-mail at *saric.suzanne@epa.gov*. Their Web site is located at *http://www.epa.gov/region5/enved/*.

Appendix D: Minnesota's Environmental Education History.

Historical highlights: Environmental education in Minnesota

(A state of Minnesota perspective)

The foundation for environmental education (EE) was laid in Minnesota and nationally long before the term was popularized in the 1960s. Its precursors include many organizations and movements formed decades ago to promote nature study, conservation education and outdoor education. Following is a narrative overview of the history of EE in Minnesota and a chronological list of important events.*

Overview

EE emerged along with widespread concerns about environmental quality raised in 1969 to 1970. The federal government initiated programs that generated some state responses (e.g., monies for the development of state EE plans).

- The U.S. Department of Health Education and Welfare gave Golden Valley School District 275A a major grant to establish an environmental science center to develop curriculum, design outdoor classrooms and provide teacher in-service training (1967). The center later became a non-profit corporation, the Minnesota Environmental Sciences Foundation, Inc. (1969).
- The Minnesota Legislature authorized the Minnesota Department of Natural Resources (DNR) and the Department of Education to create jointly EE curriculum resources. A position was funded in each agency to facilitate this (1969).
- The Minnesota Legislature created the Environmental Conservation Library (ECOL), which was housed in the Minneapolis Public Library (1971). The collection included curriculum and ECOL provided a number of EE services to schools. Funding for ECOL declined in the 1980s and ended in 1993.

In Minnesota, the first EE legislation created the Minnesota Environmental Education Council and authorized it to develop a state plan. That plan, which was published in 1971, called for a system of 13 regional volunteer councils to promote EE in both formal and non-formal settings.

- Governor Wendell Anderson's executive order established the Minnesota Environmental Education Council and a $440,000 grant from U.S. HEW funded a study that resulted in a state plan for EE (1971).
- The first state plan was published after a year of meetings and public discussion. The plan proposed program delivery via a regional system of volunteers and a few paid staff (1972).
- The Minnesota Legislature created and funded the regional structure (13 regions) proposed in the state plan. The program was attached to the Department of Education and was to serve people of all ages in formal and non-formal education settings (1973).

* Compiled by: Bob Bystrom, Pam Landers, Jeff Ledermann, Robert Olson
Available from Minnesota Office of Environmental Assistance, 520 Lafayette Rd N, 2nd Fl, St. Paul, MN 55155-4100, 651-296-3417, 1-800-657-3843, 8/17/99

In the 1970s and early 1980s, the Minnesota Environmental Education Board (MEEB) and its regional councils, the environmental learning centers, Minnesota naturalists and a few others worked quietly to promote environmental awareness. Institutional support for these efforts was limited and fluctuated constantly. Still, these early efforts paid off, building a critical mass of understanding.

During the mid 1980s, there was an explosion of EE effort in private, non-profit and governmental sectors. Hundreds of organizations and agencies became active in EE but with few common goals and little coordination.

- The Minnesota Legislature formed the Energy Agency in 1974.
- The Minnesota Environmental Education Council and its staff (four coordinators and a director) was transferred from the Department of Education to the State Planning Agency (1976). The council was renamed the Minnesota Environmental Education Board (MEEB) in 1976.
- MEEB and the Department of Education sponsored a curriculum planning project providing small grants and free consulting to 30 school districts wishing to plan and implement EE programs (1975 - 78).
- The DNR shifted its emphasis from EE to "outdoor education" and hunter education (1977).
- The Energy Agency and the Department of Education collaborated in the development of energy education materials. Funding came mostly from federal sources (1977-80).
- MEEB was transferred from the State Planning Agency to the DNR (1978).
- Project Learning Tree (PLT), a supplementary EE curriculum subsidized by the American Forest Institute, was introduced by the Department of Education. MEEB provided most statewide distribution (1978).
- The Minnesota Association for Environmental and Outdoor Education (MAEOE) was established as a statewide forum for environmental/ outdoor education professionals (1980). The association dissolved a few years later.
- The Minnesota Legislature authorized the non-game wildlife check off. Public comment favored using some of the funds for education (1980).
- The Minnesota Legislature required the DNR, Minnesota Pollution Control Agency (PCA) and Department of Health to study and report on the status of acid rain in Minnesota. MEEB was required to provide a program of public education on the subject, but no funds were allocated (1980).
- MEEB's budget was cut 50 percent (1981).
- The Waste Management Board was established to site a hazardous waste disposal facility (1981).
- The Governor's Council on Rural Development funded a soil conservation curriculum for elementary students known as Ag-Stravaganza (1983).
- The DNR's non-game wildlife program introduced Project WILD, a supplementary EE curriculum featuring wildlife themes, with support from MEEB and the Department of Education (1984).
- The State Board of Education revised its Elementary Education Rule and included an EE requirement (1984).
- The Waste Management Board formed a Waste Education Roundtable to advise the state about waste education needs (1985).
- EE became a priority of the Environmental Quality Board (EQB) and was reinforced by participants in EQB's Environmental Congress (1986).
- The Waste Management Board, Pollution Control Agency and MEEB prepared and circulated learning materials about household hazardous waste (1987).
- The Waste Management Board established a Waste Education Coalition and developed a Waste Education Clearinghouse and waste education materials for grades K-6 (1987).
- Voters approved a constitutional amendment permitting creation of an Environment and Natural Resources Trust Fund (1988).
- The Minnesota Legislature reduced funding for MEEB by 73 percent and transferred the program to the State Planning Agency (1989).
- The Minnesota Legislature abolished MEEB and established an Office of Environmental Education and an Environmental Education Advisory Board in the State Planning Agency (1990).

In the late 1980s and early 1990s, the Legislative Commission on Minnesota Resources (LCMR) struggled to prioritize an ever growing number of education-related proposals. In 1990, the commission convinced the Legislature to fund development of a new state plan for EE. The old EE act was amended eliminating MEEB and its regional councils and creating a new Environmental Education Advisory Board (EEAB).

Using the input of the 1,500 or so people who contributed, the new board produced *A GreenPrint for Minnesota: State Plan For Environmental Education*, which laid out EE policy and goals, and identified strategies by which these might be achieved, relying on the continuing activity of everyone involved in EE. Since then a lot of work has gone into building an infrastructure that will support and guide implementation of the plan.

At the same time the new state plan was being developed, the *Addendum to the GreenPrint: A Guide to Integrating Environmental Education* was created by eight school districts to help teachers integrate EE into the curriculum. This, too, was funded by the Legislature as recommended by the LCMR.

In 1991, the EE consultant's position in the Department of Education was eliminated. In 1993, the Legislature repealed most of the mandates for schools including the mandate for EE, eliminated the Office of Environmental Education and repealed most of the Environmental Education Act. Since 1991, the Department of Education (now the Department of Children, Families and Learning) has been working on the development of new graduation requirements.

- The Minnesota Legislature requested that the EE community be gathered to begin the process of developing a state plan for EE. The meeting was held October 27-28, 1990 in Bloomington. It was billed as the 1990 EE Conference and attracted over 300 environmental educators from around the state. It was co-sponsored by Minnesota State Planning Agency, Office of Environmental Education, Minnesota Environmental Quality Board and the Minnesota Department of Education.
- Minnesota hosted the 1991 North American Association for EE Conference, "The Head of the Pack in '91," Sept. 27 - Oct. 2, 1991 in St. Paul.
- The Minnesota Legislature allocated money for several EE projects from the Environment and Natural Resources Trust Fund including the development of a new state plan for EE and a study of the state's day use and residential environmental learning centers (1991).
- In the wake of the continuing changes at the state level, several EE professionals gathered at the state EE conference, held near Brainerd in November 1992, to form the Minnesota Association for Environmental Education, a non-profit professional organization. (1992)
- The Minnesota Legislature abolished the State Planning Agency and transferred the Office of Environmental Education and the Environmental education Advisory Board to the Department of Education (1992).
- The Office of Environmental Education and its advisory board published *A GreenPrint for Minnesota, A State Plan for Environmental Education* (1993).
- The Minnesota Association for Environmental Education (MAEE) hosted its first statewide EE conference in October 1993 on the St. Paul campus of the University of Minnesota (1993).

As a result of recommendations in the *GreenPrint*, the LCMR, the Legislature, foundations and other organizations implemented many other EE programs.

- The Minnesota Legislature approved $7.5 million in bonds for capital improvements at several environmental learning centers. That amount was matched by the Blandin Foundation (1994).
- St. Olaf College launched the School Nature Program (SNAP) with support from the Blandin Foundation (1994).
- The Blandin Foundation funded the GreenPrint Council to coordinate and strengthen the work of Minnesota's environmental learning centers (1994).
- The MAEE and EEAB began a partnership to host an annual Minnesota EE conference, with the state taking the lead role in producing the 1994 EE Conference, November 18-19 in Alexandria. Two hundred seventy-six people registered for the conference (1994).
- Work began to integrate EE into the state's emerging "graduation standards" (1995).
- With significant coordination and assistance from the Southeast Minnesota EE Committee, MAEE and EEAB hosted the 1995 Midwest EE Conference in Rochester, October 12-15 (1995).
- The Teacher Preparation Project was established with the assistance of ten University partners to develop a coordinated set of EE in-service courses and pre-service teacher education programs in EE. LCMR recommended the funding, and the Minnesota Office of Environmental Assistance (OEA) and the EEAB administered the appropriation (1995).

- The 1996, the annual Minnesota environmental education conference was co-sponsored by the OEA, EEAB, and MAEE. Titled "Environmental Issues '96: Inform Yourself, Educate Others," the conference drew 120 participants to Minneapolis on June 17 after being canceled in March due to a snowstorm (1996).
- The Legislature officially transferred the EEAB and the remaining, accompanying EE legislation to the OEA, which had been hosting the EEAB since 1995 (1996).
- SEEK (Sharing Environmental Education Knowledge), a computer-based EE resource center, is launched. SEEK directs Minnesota citizens to EE resources throughout the state, provides a calendar of events, a method for all EE providers to collaborate, and a forum for discussion (1996).
- MAEE, OEA and EEAB host the 8th annual state EE conference, May 17-19, 1997, on Lake Superior, in Duluth. Over 200 people attend workshops, presentations and field trips. The conference included an update on Minnesota's deformed frogs (1997).
- MAEE, OEA and EEAB host the 9th Annual State EE Conference, June 19-20, 1998, on the campus of St. John's University, Collegeville. The keynote speaker was Bill Hammond, Florida Educator. Attendance was again approximately 200 people and several people attended a pre-conference workshop hosted by SNAP (1998).
- EEAB and OEA lead mid-point revision and assessment of the *GreenPrint* (1998-99).
- Voters approved a constitutional amendment extending for another 25 years the allocation of a percentage of lottery proceeds to the Environment and Natural Resources Trust Fund (1998).
- Over 300 people participate in the 1999 Midwest EE Conference and annual state EE conference in Stillwater, August 5-8, which was hosted and coordinated by MAEE. Highlights included a Minnesota Biome play put on by first and second graders from the Tri-District Community Cultures and Environmental Science School and keynotes by Winona LaDuke, Paul Douglas and Ted Mondale (1999).

Appendix E: Environmental Education Focus Group and Survey Results

GreenPrint assessment and revision focus group results

Members of the Minnesota Environmental Education Advisory Board (EEAB) and staff from the Minnesota Office of Environmental Assistance (OEA), along with support from the Minnesota Association for Environmental Education (MAEE), conducted focus groups in the fall of 1998 to collect input from environmental education (EE) providers and others interested in attending one of the seven regional *GreenPrint* assessment and revision workshops throughout the state. A major part of the workshop agenda consisted of focus group discussions on what is currently needed to accomplish the state EE goals and specific audience review of the original *GreenPrint* audience outcomes, needs and strategies.

Seven regional meetings were held as follows:

- October 8, 1998, French Village, Concordia Language Camps, Bemidji
- December 1, 1998, Eagle's Nest Coffeehouse, Wabasha
- November 4, 1998, College of St. Scholastica, Duluth
- November 9, 1998, Prairie Wetlands Environmental Learning Center, Fergus Falls
- November 18, 1998, Redwood Falls High School, Redwood Falls
- November 24, 1998, Minnesota Office of Environmental Assistance, St. Paul
- December 2, 1998, Minnesota Office of Environmental Assistance, St. Paul

In addition to the regional workshops, OEA staff, EEAB members and MAEE board members conducted small focus groups with EE stakeholders with whom they either represented or were affiliated. The audience-based focus groups, which included most of the original *GreenPrint* audiences, and regional workshops resulted in the collection of input from 445 different stakeholders. The following is a summary of the 17 focus group-identified EE outcomes and their respective, cumulative numerical value based on priority voting by each focus group:

- On-going/stable/additional program funding — 127
- Out-of-classroom support — 119
- Market/implement the state plan/EE — 103
- Local/community/regional coordination — 94
- Teacher training/certification — 92
- General education support — 89
- Evaluation/assessment of programs and environmental literacy — 79
- Go beyond outdoor education, to sustainability/energy/health/economy — 77
- Coordination/cooperation/partnerships/ networking — 75
- Integration with graduation standards — 72
- School mandates/resources for EE — 60
- Go beyond K-12 — 51
- Identifiable EE leadership — 47
- Promote environmental practices — 28
- Urban/minority/diversity issues — 25
- Better access to information/resources — 19
- Awards/recognition/promote models — 13

1999 Environmental Education Survey Summary

In the spring of 1999, the OEA contracted with The Research Edge for a survey of EE providers. The primary function of this survey was to assess whether the views and strategies brought forward during the *GreenPrint* assessment and revision focus group meetings regarding statewide EE outcomes and strategies were representative of the broader population of EE providers. To that end, the survey asked questions regarding the relative importance of:

- EE topics.
- EE strategies.
- Barriers to EE.

In addition, the survey asked respondents their opinions on the most important EE audiences to address, and how familiar they were with the *GreenPrint*. They also were asked questions regarding their role in EE, including:

- Occupational category.
- Whether EE was a formal or informal part of their job.
- Their primary EE audiences.
- The frequency of use of different EE delivery methods.
- The county where they work.

A random sample of 1,000 was drawn from a population of 8,000 known EE providers from the OEA's customer lists. Thirty-five of the surveys were undeliverable. Of those that were deliverable, 455 were returned, for a response rate of 47 percent.

Results

Characteristics of respondents

Table 1 illustrates the occupational categories of the respondents. They work primarily in the public sector. About 60 percent are teachers; 20 percent are local, regional, or state government employees. Slightly more than half works in the Twin Cities metropolitan area. Because so many of the respondents were teachers or school administrators, the overall results of the survey will be more representative of their opinions than of the other groups.

Table 1: Respondents by Occupation

OCCUPATION	NO. OF RESPONDENTS
School teacher/administrator	255
Professor	14
For-profit business employee	20
City/county employee	31
Extension service employee	5
Regional/state employee	58
Non-profit organization employee	29
Other	38
No answer	5

Most of the respondents (55 percent) handle EE as an informal part of their job; only 28 percent have it as a formal responsibility. About 16 percent of those surveyed indicated that EE was not a part of their job; 20 percent didn't provide an answer to the question.

Respondents could pick up to three main EE audiences to whom they deliver their services. The categories of audiences corresponded, in part, to the categories of audiences identified in the *GreenPrint*. In keeping with the large percentage of respondents who said they were teachers, the largest EE audience selected was PreK-12 students (selected by 55%). Audiences selected by more than 10 percent of the respondents included teachers (32%), citizen and youth groups (15%), government officials and boards (14%), and event and site visitors (11%).

With respect to how they deliver EE services, the most frequently used methods appear to be:

- Distribution of written materials.
- Informal classes and presentations.
- Formal classes.

Less common methods included computers and the mass media. (Table 2)

Table 2. Current Methods of Delivering EE

METHOD	FREQUENCY OF USE				
	NOT AT ALL	SELDOM	SOMETIMES	OFTEN	NO ANSWER
Formal Class	13.2%	13.6%	28.6%	24.6%	20.0%
Informal Class/Presentation	5.7%	9.2%	42.6%	23.5%	18.9%
One-on-One Education	16.3%	20.4%	23.3%	16.5%	23.5%
Distribution of Written Ed. Materials	6.8%	12.1%	37.4%	23.3%	20.4%
Mass Media	23.5%	25.1%	21.1%	5.3%	25.1%
Computer	25.1%	22.2%	22.9%	6.8%	23.1%
Other	.7%	.7%	2.9%	4.0%	91.9%

Slightly less than half of the respondents were "somewhat familiar" with the *GreenPrint*. An additional 10 percent were "very familiar" with it. Many (43 percent) were not familiar at all with the document.

Priority EE topics

The survey asked respondents to indicate how important a variety of EE topics were in developing a more environmentally literate citizenry in Minnesota. Most respondents felt all of the issues deserved at least an "important" rating. However, EE concerning pollution, natural resource education, sustainability, and health issues were selected by at least half the respondents as "very important." (Table 3). When non-teachers alone were considered, three of the same four topics (natural resource education, pollution, and sustainability) received ratings of "very important" by more than half the respondents. (Table 4)

Table 3: Importance of EE Topics, Overall Results (% of respondents)

TOPIC	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Natural Res. Ed.	1.3%	5.5%	25.5%	67.0%	.2%	.4%
Pollution	7%	5.9%	22.4%	70.5%	.2%	.2%
Sustainability	2.0%	9.7%	35.2%	49.9%	2.4%	.9%
Energy Issues	1.5%	9.2%	43.1%	44.6%	.4%	1.1%
Health Issues	.3%	9.7%	35.6%	52.3%	.4%	.7%
Economic Issues	1.1%	14.5%	48.8%	34.1%	1.1%	.4%
Basic Science	1.5%	11.9%	38.5%	46.2%	1.1%	.9%
Other		.2%	1.3%	10.1%	.2%	88.1%

Table 4: Importance of EE Topics, Results for Non-teachers Only (% of Respondents)

TOPIC	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Natural Res. Ed.	2.0%	9.5%	22.0%	66.0%	.5%	
Pollution	1.0%	11.0%	23.5%	64.0%	.5%	
Sustainability	4.0%	11.0%	23.5%	60.0%	.5%	1.0%
Energy Issues	3.0%	14.0%	42.5%	38.0%	.5%	2.0%
Health Issues	2.5%	17.5%	41.0%	38.0%	.5%	.5%
Economic Issues	1.0%	16.0%	49.0%	32.0%	1.5%	.5%
Basic Science	3.5%	17.5%	39.5%	38.5%	.5%	.5%
Other		.5%	2.0%	17.0%	.5%	80.0%

Priority EE strategies

When asked their opinion about EE strategies, respondents identified "promote responsible environmental behavior" as a key action. (Table 5) Other actions that received a high number of marks as "very important" include:

- Securing additional funding for EE.
- Training support for environmental educators.

When ratings of "important" are considered in conjunction with ratings of "very important," a second tier of strategies emerges, including:

- Better coordination among EE providers.
- Developing partnerships between EE providers.
- Promoting model EE programs.
- Educator access to information and resources.
- Statewide EE definitions, policies, and mission.
- Out-of-classroom EE programs for K-12.

The priorities for non-teachers appear to be very similar to those for the entire group of respondents. (Table 6)

Table 5: Importance of EE Strategies, Overall Results

STRATEGY	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Integrate with Grad. Standards	14.9%	17.6%	29.5%	34.7%	2.6%	.7%
Mandate in K-12 Schools	14.5%	19.8%	29.7%	32.5%	2.4%	1.1%
Better Coordination Between EE Providers	2.4%	14.1%	40.0%	38.7%	3.7%	1.1%
Develop Partnerships Between EE Providers	3.3%	14.5%	42.9%	34.7%	4.0%	.7%
Statewide EE Definitions, Policies, Mission	5.5%	18.7%	37.4%	34.7%	2.9%	.9%
Implement EE Assessment Tools	8.6%	30.3%	41.8%	13.6%	4.0%	1.8%
Establish EE Professional Standards	9.5%	32.7%	37.1%	16.0%	3.5%	1.1%
Support Training for Env. Educators	2.6%	7.9%	42.4%	44.6%	1.5%	.9%
Promote Model EE Programs	5.3%	13.6%	48.8%	29.9%	1.5%	.9%
Add'l Funding for EE	4.4%	14.1%	31.6%	45.5%	3.3%	1.1%
Target Diverse Audiences	8.1%	18.0%	41.5%	27.7%	3.3%	1.3%
Clear State EE Leadership	7.3%	21.5%	38.7%	26.6%	4.2%	1.8%
Promote Responsible Env. Behavior	.7%	5.9%	26.8%	63.5%	2.0%	1.1%
Out-of-Classroom EE Programs for K-12	3.3%	19.3%	32.7%	40.9%	2.9%	.9%
Educator Access to Info and Resources	1.5%	9.9%	44.4%	41.8%	1.3%	1.1%
Other			.4%	4.6%	.2%	94.7%

Table 6. Importance of EE Strategies, Non-teachers Only

STRATEGY	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Integrate with Grad. Standards	13.0%	15.0%	29.0%	40.5%	1.5%	1.0%
Mandate in K-12 Schools	11.5%	17.5%	27.0%	41.0%	2.5%	.5%
Better Coordination between EE Providers	2.5%	11.0%	36.5%	46.0%	2.5%	1.5%
Develop Partnerships between EE Providers	3.5%	11.5%	38.0%	43.0%	3.0%	1.0%
Statewide EE Definitions, Policies, Mission	7.5%	18.0%	34.0%	37.0%	2.5%	1.0%
Implement EE Assessment Tools	9.0%	27.5%	40.0%	17.5%	4.0%	2.0%
Establish EE Professional Standards	9.0%	33.5%	36.0%	18.0%	3.0%	.5%
Support Training for Env. Educators	3.5%	8.0%	42.0%	44.0%	2.0%	.5%
Promote Model EE Programs	5.0%	16.5%	50.0%	26.5%	1.5%	.5%
Add'l Funding for EE	5.0%	19.0%	25.5%	46.5%	3.5%	.5%
Target Diverse Audiences	9.5%	15.5%	35.5%	36.5%	2.5%	.5%
Clear State EE Leadership	9.5%	19.5%	35.0%	31.5%	3.0%	1.5%
Promote Responsible Env. Behavior	1.0%	9.0%	24.5%	62.0%	2.5%	1.0%
Out-of-Classroom for K-12 EE Programs	6.0%	19.5%	33.0%	36.5%	3.5%	1.5%
Educator Access to Info and Resources	2.0%	10.5%	43.5%	40.5%	2.5%	1.0%
Other				7.5%		92.5%

Priority audiences

Respondents identified teachers and PreK-12 students as the most important audiences, with 60 percent indicating that the former was "very important" and 59 percent the latter. Other audiences that received ratings as "very important" by at least half of the respondents were as follows: consumers, citizen and youth groups, outdoor recreation users, government officials and boards, regulated businesses and industries, and producers/landowners. (Table 7) Overall, the broad group of respondents tended to rank all audiences higher than the subgroup of non-teachers, but the relative importance of the audiences was similar. (Table 8)

Table 7: Importance Ratings of Audiences, Overall Results

AUDIENCE	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Consumers	1.5%	8.8%	35.6%	53.0%	.2%	.9%
Senior Citizens	8.1%	43.3%	37.1%	9.5%	.7%	1.3%
Citizen and youth groups	1.3%	8.1%	31.6%	57.8%	.2%	.9%
Religious groups	15.2%	40.4%	29.7%	11.2%	2.2%	1.3%
Event and site visitors	3.1%	20.0%	43.5%	31.6%	.2%	1.5%
Outdoor recreations users-	1.5%	9.9%	36.9%	50.5%	.2%	.9%
PreK-12 students	5.1%	9.7%	24.8%	59.3%	.2%	.9%
Higher ed. Students	3.7%	14.1%	39.1%	41.8%	.2%	1.1%
Teachers	1.8%	6.6%	30.5%	60.0%	.2%	.9%
Govt. officials and boards	2.2%	9.0%	28.6%	58.7%	.7%	.9%
Business community	2.6%	10.1%	31.2%	54.1%	.7%	1.3%
Regulated business/ industry	2.9%	10.3%	28.1%	55.6%	2.2%	.9%
Producers/ Landowners	1.8%	7.5%	32.3%	56.9%	.9%	.7%
Media (TV, radio, newspaper)	2.4%	9.5%	28.1%	58.7%	.4%	.9%

Table 8: Importance Ratings of Audiences, Non-teachers Only

AUDIENCE	NOT IMPORTANT	SOMEWHAT IMPORTANT	IMPORTANT	VERY IMPORTANT	NO OPINION	NO ANSWER
Consumers	2.5%	11.5%	35.0%	50.0%	.5%	.5%
Senior Citizens	11.0%	47.5%	31.0%	8.0%	1.0%	1.5%
Citizen and youth groups	2.0%	12.5%	32.5%	51.5%	.5%	1.0%
Religious groups	20.0%	37.0%	25.0%	14.5%	2.5%	1.0%
Event and site visitors	5.5%	24.0%	43.5%	24.5%	.5%	2.0%
Outdoor recreations users	3.0%	15.5%	44.5%	36.0%	.5%	.5%
PreK-12 students	7.5%	13.0%	19.0%	59.0%	.5%	1.0%
Higher ed. Students	6.5%	16.5%	35.0%	41.0%	.5%	.5%
Teachers	3.0%	9.0%	26.5%	60.0%	.5%	1.0%
Govt. officials and boards	3.5%	12.0%	32.0%	51.0%	1.0%	.5%
Business community	4.0%	11.0%	31.5%	51.5%	1.0%	1.0%
Regulated business/ industry	5.5%	12.0%	32.0%	48.5%	1.5%	.5%
Producers/ Landowners	3.0%	11.0%	37.0%	47.5%	1.0%	.5%
Media (TV, radio, newspaper)	4.0%	13.5%	29.5%	51.5%	1.0%	.5%

Barriers to EE implementation

The most significant barrier to EE was "time available in the curriculum" followed by "inadequate funding." Preparation time, educator training, and inadequate staffing also were concerns. Unavailability of technology was much less of a barrier for most respondents. (Table 9)

The non-teachers tended to view barriers as much less formidable than the group as a whole. Despite this, the barriers they identified as the most important (time in the curriculum and inadequate funding) are the same as those identified by the broader group. (Table 10)

With respect to EE topics, respondents felt the most important topics to stress were pollution, natural resource education, and sustainability. To a less extent health issues were also perceived as important.

The strategy receiving the most frequent votes as "very important" was "promoting responsible environmental behavior." The respondents also preferred strategies that would:

- Secure additional EE funding.
- Provide more opportunities for educator training.
- Promote coordination and partnerships among providers.
- Establish and promote model EE programs.
- Provide better educator access to information and resources.
- Develop statewide EE definitions, policies, and mission.
- Provide out-of-classroom EE programs for K-12.

Although teachers and preK-12 students were ranked the most important audiences, others were felt to be very important as well. They include citizen and youth groups, government officials and boards, regulated businesses and industries, and producers/landowners. Time, funding, and staffing appear to be the most important barriers to EE.

Conclusion

Teachers dominate the group of EE providers in the OEA's mailing list; therefore, the overall findings of the survey are dominated by teacher opinions. Nevertheless, when non-teacher opinions are explored separately, in most instances they are in alignment with the teacher opinions (although the relative strength of the importance of the opinions may vary somewhat).

Table 9: Importance of Barriers to EE Implementation, Overall Results

BARRIER	NOT A BARRIER	SOMEWHAT OF A BARRIER	SIGNIFICANT BARRIER	VERY SIGNIFICANT BARRIER	NO OPINION	NO ANSWER
Unavailability of Technology	28.1%	48.1%	13.6%	4.8%	3.1%	2.2%
Inadequate Staffing Levels	8.6%	28.1%	34.3%	24.2%	4.4%	.4%
Support for Gen. Ed. Initiatives	12.1%	29.0%	25.9%	27.9%	4.0%	1.1%
Inadequate Funding	5.5%	19.1%	29.9%	41.1%	2.4%	2.0%
Prep Time	6.4%	26.2%	28.4%	35.6%	2.9%	.7%
Educator Training	3.5%	25.5%	37.4%	30.5%	2.6%	.4%
Time Available in Curriculum	3.7%	16.3%	27.9%	48.1%	3.3%	.7%

Table 10: Importance of Barriers to EE Implementation, Non-teachers Only

BARRIER	NOT A BARRIER	SOMEWHAT OF A BARRIER	SIGNIFICANT BARRIER	VERY SIGNIFICANT BARRIER	NO OPINION	NO ANSWER
Unavailability of Technology	37.0%	45.0%	7.5%	4.5%	4.0%	2.0%
Inadequate Staffing Levels	9.5%	30.5%	31.0%	22.5%	6.0%	.5%
Support for Gen. Ed. Initiatives	17.5%	36.0%	25.5%	14.0%	6.0%	1.0%
Inadequate Funding	9.5%	21.5%	31.5%	31.5%	4.0%	2.0%
Prep Time	11.0%	35.0%	30.0%	17.0%	6.0%	1.0%
Educator Training	5.0%	31.5%	37.0%	21.0%	5.0%	.5%
Time Available in Curriculum	7.0%	20.0%	32.0%	34.5%	6.0%	.5%

Appendix F: Environmental Education Acronyms*

Acronym	Definition
BWSR	Minnesota Board of Water and Soil Resources
CELL	Center of Environmental Learning and Leadership at the University of Minnesota
CGEE	Center for Global Environmental Education at Hamline University
DCFL, CFL	Minnesota Department of Children, Families, and Learning
DNR	Minnesota Department of Natural Resources
DOA	Minnesota Department of Agriculture
EEAB	Minnesota Environmental Education Advisory Board
EEC	Environmental Education Consortium, coordinated by Ramsey County Parks
EE Link	National environmental education resource Web site
ELC/EEC	Environmental Learning Center/Environmental Education Center
EM	Education Minnesota, formerly Minnesota Education Association
EQB	Minnesota Environmental Quality Board, hosted by Minnesota Department of Planning
FCI	Full Circle Institute, formerly known as Global Action Plan
GLOBE	Global Learning and Observations to Benefit the Environment, national curriculum
IWC	International Wolf Center
LCMR	Legislative Commission on Minnesota Resources
LEP	Leopold Education Project
MAEE	Minnesota Association for Environmental Education
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MEI	Minnesota Environmental Initiative
MEND	Minnesota Environmental Network for Diversity
MES	University of Minnesota Extension Service
MIEC	Minnesota Interfaith Ecology Coalition
MNA	Minnesota Naturalists Association
MnDOT	Minnesota Department of Transportation
MnSCU	Minnesota State Colleges and Universities
MnSTA	Minnesota Science Teachers Association
MnTAP	Minnesota Technical Assistance Program, program of the OEA located at the University of Minnesota
MPCA	Minnesota Pollution Control Agency
NAAEE	North American Association for Environmental Education
NAI	National Association for Interpretation
NCEET	National Consortium for Environmental Education Training
NEEAP	National Environmental Education Advancement Project
NEETF	National Environmental Education and Training Foundation
OEA	Minnesota Office of Environmental Assistance
Project WET	Project WET (Water Education for Teachers) supported by the DNR
RELC	Residential Environmental Learning Center SEEK Sharing Environmental Education Knowledge
SES	School of Environmental Studies affiliated with the Minnesota Zoological Gardens
SNAP	School Nature Area Program
U.S. EPA	United States Environmental Protection Agency
U.S. FWS	United States Fish and Wildlife Service

*While attempts were made to be as inclusive as possible, this list is not comprehensive and does not indicate an endorsement of any of the organizations listed.

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