Environmental Education: 
*Building Constituencies*

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This paper is a product of the Environmental Education Program (a joint program between the Education and Environment Families) managed by Lakshmanan Ariasingam, under the overall supervision of Robert Goodland, Lauritz Holm-Nielsen and Tony Whitten.
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Foreword

This paper captures what is being done with regard to environmental education today, what the Bank’s record is, and what challenges environmental education faces. The recommendations to promote environmental education are apposite and pragmatic. Their implementation will greatly help our Task Managers, who requested such a paper, as well as our clients, the environment and the Bank.

We are delighted that the Environmental Education Program, as a result of close cooperation between two families in the Bank has accomplished much since its inception on February 6, 1997.

Maris O’Rourke
Director of Education
Head, Education Sector Board
Preface

Since the UN Conference in Stockholm in 1972, environmental education has been viewed as a vital lever to promote sustainable development. The 1992 UN Earth Summit held in Rio reiterated the importance of environmental education by emphasizing it in Agenda 21.

However, despite numerous attempts by many well wishers in the Bank, environmental education did not receive the attention it deserves among educators nor environmentalists. The joint Environmental Education program that officially began on February 6, 1997 with the cooperation of the Education and Environment Families seeks to rectify this oversight.

You will find the attached paper useful when seeking to design environmental education components in both education and environment projects. Also, you will find here the nature and goals of the Bank’s Environmental Education Program.

We thank the governments of Norway and Sweden for funding the program. We also thank the Boards of Education and Environment for their support. Finally, we extend a warm appreciation to Dr. Yolanda Kakabadse, President of IUCN for her advice and encouragement.

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The Environmental Education program began officially on February 6, 1997.
Executive Summary

This paper addresses environmental education, one of the three priorities of the UN’s Agenda 21 (Chapter 36) which calls for environmental education, awareness and training, all of which are required to build environmental constituencies in support of policies and actions for sustainable development. Education is the most common word after government in UN’s Agenda 21. The importance of Environmental Education was recognized during successive UN conferences held in Stockholm 1972, Belgrade 1975, Tibilisi 1977 and Rio 1992. UNEP and UNESCO have done considerable amount of work in environmental education.

Section A outlines the historical and conceptual background to environmental education together with trends and current debates. The message is that international organizations recognize the vital importance of environmental education, so now rhetoric needs to progress into action. It is recommended that the “infusion” method be used in approaching environmental curricula, where the environmental implications of all relevant subjects are discussed.

Section B outlines the World Bank’s experience in environmental education through a Bank-wide review of the education portfolio. The review was undertaken in response to a request to do so from the UN Commission on Sustainable Development. The conclusion is that the Bank has very little experience in environmental education and that Bank actions in environmental education have hitherto been ad hoc.

Section C briefly describes and contrasts environmental awareness and training. This chapter mentions a few Bank and external examples to provide the reader with background on the range of activities in this area. Here too, the conclusion is that Bank activities in these areas are very limited.

Section D draws on external and internal experience and identifies challenges to environmental education, especially at the primary and secondary levels. The Bank seeks to deal with curriculum changes but Task Managers admit that they do not make a priority of ensuring high quality of the ensuing texts.

Section E outlines recommendations for promoting environmental education, and to a lesser extent awareness and training within the Bank and through its projects. It is recognized that working through the Bank program on Environmental Education hitherto un-funded by the Bank, is the best course of action. Steps towards the improvement of environmental education is included together with steps for designing environmental curricula and teacher training.

The education and environment portfolios of the World Bank averaging US$2 billion and US$1.5 billion respectively in recent years is a very real and effective means through which environmental education can be promoted.
A. INTRODUCTION

Background to Environmental Education

1. The joint UNESCO/UNEP 1987 Conference defined environmental education as “A permanent process in which individuals and the community gain awareness of their environment and acquire knowledge, values, skills, experiences, and also the determination which will enable them to act -- individually and collectively -- to solve present and future environmental problems.”

2. Human decisions are at the core of most actions affecting the environment, thus environmental education is critical in the effort to increase the environmental sustainability of human activities. Environmental education should motivate and facilitate changes in the behavior of individuals who have a direct impact on the use of natural resources, by impacting their decision making. It should also create the conditions necessary for increased public pressure on governments to manage natural resources wisely, with greater transparency, accountability and participation. Environmental education targets individuals of all ages and walks of life, and is focused on practical approaches to immediate problems of environmental management that individuals, or entities face or which they (individually or collectively) influence.

United Nations Conference on Environment and Development

3. According to Agenda 21, Chapter 36 (Promoting Education, Public Awareness and Training) agreed at the UNCED (1992), effective, environmental and development education “should deal with the dynamics of both the physical/biological and socio-economic environment, and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication.”

4. The global change in attitudes towards the environment, highlighted at various conferences and initiatives, importantly at the UNCED conference, requires new perceptions and actions in the area of environmental education. There was broad agreement that information, awareness-raising and social mobilization related to conservation, restoration and management of natural resources should be integrated into the broad process of environmental education. The lack of active Bank involvement in environmental education supports the concern of many that education has become the “forgotten priority of Rio.”
Reasons for the Inclusion of Environmental Education in Schools

5. Education needs to be rethought for important reasons above and beyond those of cost effectiveness and job market preparation. The goals of environmental education relate to the very survival of humankind. Orr, (1993) emphasizes that "The generation now being educated will have to do what we, the present generation, have been unable or unwilling to do: stabilize a world population ... stabilize and then reduce the emission of greenhouse gases, ... protect biological diversity, ... reverse the destruction of forests... and conserve soils. Those who follow us must learn how to use energy and materials with great efficiency. They must learn how to utilize solar energy in all its forms. They must rebuild the economy in order to eliminate waste and pollution. They must learn how to manage renewable resources for the long term. They must begin the great work of repairing, as much as possible, the damage done to the earth in the past two hundred years of industrialization. And they must do all of this while addressing worsening social and racial inequalities. No generation has ever faced a more daunting agenda."

6. Environmental education is also about belonging to, and caring for the environment of which we humans are a part. Proponents of environmental education need to present students with real life environmental problems to which students propose solutions, and against which they may take action. Environmental education could achieve this by incorporating experiences into education.

7. Already OECD countries (OECD, 1995) are engaged in identifying guiding principles for environmental education. OECD recognizes that students must use this knowledge to solve current problems and adapt to our environment. In other words, OECD stresses that thinking must relate to practice and action. A country’s population can be expected to behave in environmentally sound ways only if they understand fundamental scientific concepts related to the environment (Thulstrup, forthcoming).

Trends in Environmental Education

8. Environmental education used to be the purview of ecologists and environmentalists and for a long time it was treated as a highly specialized subject. With increasing public awareness of environmental degradation, educators began to discuss environmental issues in the classroom. At the outset, these interventions by teachers were aimed at general environmental awareness. Today, an ever growing number of educators consider the inclusion of environmental education as part of a good education.

9. The changing methods of teaching science have helped environmental educators. Science teaching is moving from lecture-oriented sessions where students are passive learners to hands-on science classes where students are active participatory learners. Science teaching is also moving from deductivist science (e.g. dissections of dead animals) to observationist studies (e.g. observations of living animals).
Approaches to Teaching and Learning

10. Environmental education is now considered very important in many countries for all students, and is aimed at:
   - developing scientific and technological literacy;
   - encouraging students to actively search for environmentally-sound solutions; and
   - providing experience in environmental decision making.

To enable the development of these skills, environmental teaching should focus on the three areas of:
   - fundamental scientific knowledge to understand ecology or environmental basics;
   - application of such knowledge to understand public policy issues; and
   - specific environmental knowledge to provide solutions to environmental problems (World Bank, 1993).

In addition to a theoretical background, students are encouraged to have practical experience through:
   - laboratory experiments,
   - field visits,
   - data gathering and analysis,
   - evaluation of information,
   - communication methods,
   - problem-solving and
   - decision making.

11. It has been proven by many science educators that scientific principles and theories can be learned well through the use of modest equipment in simple surroundings (World Bank, 1993). This can be achieved in urban settings to rain forests. It has been shown that the most appropriate approach to teaching focuses on the students' own environment. This is especially the case at the primary level (Baez et al, 1987; Ware, 1992).

The Primary and Secondary School Debate over Environmental Education

12. Proponents of environmental education argue that students at the primary and secondary levels need facts, examples and case studies, to make them aware of modern environmental issues, and that certain practices have detrimental impacts on the environment. In addition, students should be encouraged to develop a sense of wonder at the natural world, which requires that a direct experience of nature be made an integral part of the curricula.

13. There are two approaches to environmental education in the classroom:
   - the 'infusion' method which is interdisciplinary in approach and has no specific course or subject on environmental education, and
   - the 'block' method which uses a distinct environmental course, treated as a separate subject with blocked class time.
14. Critics of environmental education argue that at the primary and secondary levels, curricula are already over-loaded irrespective of whether the infusion or block method of teaching is used to incorporate environmental education. Proponents agree that separate subjects may not always be appropriate at these levels, but there is a clear need for the integration of environmental issues in the classroom because there appears to be a global consensus that nothing is more important than paving the way to a sustainable future. They feel that this integration is possible and need not overload the curriculum. Indeed the trend has already started: in The Gambia and Namibia for example, where environmental curricula are well established, both methods are being developed at the primary and secondary levels (GreenCOM, 1996b).

15. Common to all the approaches is the need for a source of sound information on ecology and environment in the local language. This is exemplified by books in the “Ecology of Indonesia” series begun by the Bank in 1982. These can then be used to produce simpler books on national and local environmental issues that school children and their teachers can use. Provision of teacher training in environmental education should go hand in hand with the production of such books to improve the learning that takes place in classes. This is critical because new scientific information takes approximately 13 years to enter the formal education curricula. (GreenCOM, 1996a). Therefore, teachers need innovative ways to discuss current environmental problems in the classroom. Specialized environmental studies teachers are not recommended, as they may be marginalized in the school faculty and considered as political or partisan in their approach (Plater, 1996). Instead teachers of many subjects are able to learn to include environmental topics in their teaching materials.

Box 1. Two Non-Bank examples of environmental education in formal schooling

**Jordan** provides a good example of environmental curriculum intervention. The Royal Society for Conservation of Nature together with NGOs and teachers collaborated to produce a secondary school curriculum on water conservation which emphasized hands-on experiments and conservation activities for students and parents. An evaluation of this program after three months of implementation showed increases in knowledge and individual water conservation behavior.

Another innovative idea has taken root in the **Philippines** where the Protected Area and Wildlife Bureau (PAWB) train their staff to help them communicate environmental messages. For six days trainees received formal training consisting of short lectures, group discussions and role-playing, and the development of locally tailored materials and creative activities. Thereafter, the trainees visit schools and communities (initially under PAWB supervision) for about 2 hours/visit and engage about 70 children from grades 4-6.

*Source: IUCN*

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1 This exceptional series is a widely acknowledged world leader of its kind.
Box 2. Environmental education intervention designed by the Bank

- World Bank’s “WorLD” program is an Internet connection between a school in an industrialized country and developing country initiated by World Bank President in 1996.

- Brazil: Pilot Program to Conserve the Rain Forest is historic for being the first of its kind in an environmental education project, with a major NGO component, and focus on adult education.

- China: Fourth Basic Education includes science and environmental education as well as innovative environment-friendly technologies like photo-voltaic energy.

- Sri Lanka: Second General Education Project has an environmental education component using the infusion method of teaching.

Source: World Bank

B. ENVIRONMENTAL EDUCATION IN THE BANK’S EDUCATION PORTFOLIO

16. The following overview of the education portfolio undertaken in response to a request from the UN Commission on Sustainable Development reveals that the Bank has little experience in environmental education in terms of teacher training or curricula. The review shows that only two-thirds of “Education Sector” Task Managers mentioned environment in their project preparation documents, and the largest number of these did so in terms of the environmental impacts of school construction. As yet, there is no strategy for environmental education in the education portfolio of the Bank.

17. The Bank’s lending priority in education is primary education. However, as some countries, especially in Latin America and East-Asia, approach universal primary education, the education portfolio for these areas may shift to secondary education. This and the educational goals announced by the President of the World Bank at the Beijing Conference for Women in 1995, giving priority to girls, presents another opportunity. Studies have shown that educating women has the greatest impact on development and holds the best hope for changing the attitudes and behavior of families, society and nations.

2 Details in Abedin. Environmental Education Aspects in Education Projects (forthcoming)
An Overview of Lending and Priorities

18. Since 1963 the Bank has lent US$23.2 billion for 560 education projects in 112 countries. About 10% of Bank lending now goes towards education; up from 4% a decade ago. World Bank lending for education now averages more than $2 billion a year, and the Bank currently has 202 education projects under implementation in 88 countries.

19. From 1990 to 1995 the priority was lending in the primary education sector (World Bank, 1996). The Bank has steadily increased the share of lending to primary education from 4% in 1964-69 to 43% in 1994-96. Lending for Primary Education is followed by lending in the Higher Education sector. General Secondary, Vocational, Teacher Training and Vocational Secondary follow closely. The ten largest borrowers for education from FY91-95 are in descending order Mexico, India, Brazil, Indonesia, China, Pakistan, Korea, Argentina, Côte D’Ivoire, and the Philippines.

Environmental Aspects in Education Projects

20. Staff Appraisal Reports of those education projects approved by the Board in FY94, FY95 and FY96 (total 60) and Public Information Documents of upcoming projects were examined (total 51). A breakdown of the projects by Region is listed in Table 1.

Table 1. Bank-wide Education Projects by Regions (FY94-96)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Projects Approved 94-96</th>
<th>Number of Projects Under Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAP</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>SAS</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>ECA</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>MENA</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>AFR</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>LAC</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>51</td>
</tr>
</tbody>
</table>

The categories of projects under implementation and in preparation are listed in Table 2.

21. An analysis of these categories shows that the basic, primary and general education projects continue to have high priority in the education lending hierarchy. There is emphasis on reconstruction and development of schools in Eastern Europe and in conflict-torn African and Eastern European countries.

22. In Latin America and East Asia lending for secondary education can now increase as these regions have made good progress towards achieving universal primary education. This will open further opportunities for environmental education because educators seem
to be more comfortable with including environmental education at the secondary level than they are at the primary level, where basic skills must take priority.

Table 2: Categories of Education Projects under Implementation and in Preparation

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>EAP</th>
<th>SAS</th>
<th>ECA</th>
<th>MENA</th>
<th>AFR</th>
<th>LAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Education</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Junior Secondary</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Primary Education</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>General Education</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Vocational/Technical/Skills</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Higher Education</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Capacity Building/Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity Building/Sector Reform</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Quality Improvement</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Teacher Training</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Micro and Small Enterprise Training</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Female Literacy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Book Reading and Development</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Non Formal/Literacy</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Emergency Education</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Reform Innovation</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Health and Education</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Private Sector Development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Environmental Education</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Student Loan</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

23. The education portfolio review revealed a wide variation in sensitivity to the environment, from no mention of environment, to multiple references to it. In 21 of the 60 Staff Appraisal Reports (SARs) (35%) there was no mention of environmental aspects at all. Mention of environmental aspects rose from 65% in the SARs to about 98% in the PIDs because Task Managers are now required to complete an "Environmental Aspects" box in all PIDs. However, this has not yet led to a concomitant increase in environmental education awareness and training.
Table 3: Number of Major Comments related To Environment in projects under implementation and under preparation

<table>
<thead>
<tr>
<th>Comments from SARs</th>
<th>EAP</th>
<th>SAS</th>
<th>ECA</th>
<th>MENA</th>
<th>AFR</th>
<th>LAC</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts of Construction /Civil works</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>11</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Water Supply and Sanitation in Hygiene</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Environmental Awareness/public campaign for</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>conservation, protection of environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancement of textbooks to include environmental studies</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Sensitivity to local environment</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Education related to Population Growth-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>reduction of environmental damage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Capacity Building</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Teacher Training supporting environmental studies</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Landscaping to prevent soil erosion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Environmental Assessment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

24. Where environmental aspects were mentioned, Task Managers seemed to concentrate on environmental impacts of the construction of school buildings and related facilities. Several projects also referred to sanitation and water supply facilities in schools, which is an important element in targeting female enrollment and reducing the risk of disease. There was limited concern with enhancing environmental awareness through developing stronger science and environmental curricula and content.

3 Projects where Task Managers stated that there were no environment concerns are not included.
25. There are many and varied opportunities for the inclusion of environmental education in most of the projects, and using students to monitor the environment could also satisfy some of the monitoring indicators listed in the SARs. Motivating students to mobilize communities in clean-up campaigns, waste management, composting and greening are proving to be educational, low cost and beneficial.

C. ENVIRONMENTAL AWARENESS AND TRAINING

26. Environmental awareness is understood here to mean environmental knowledge for civil society, children, parents, village leaders and government officials. Environmental training here means institution capacity building, especially in government ministries. The internal World Bank meeting to review an earlier draft of the paper held on August 12, 1997 suggested that it should emphasize environmental education. However, in view of the broad overlap between environmental education, environmental awareness and environmental training, the latter two are discussed here.

Awareness

27. People need to be made aware that they have the creativity and commitment to stabilize, sustain, and improve their environment. A range of strategies are required to:

- recognize how the environment works;
- understand how society depends on environment for all its raw materials and assimilate all its waste;
- recognize belief systems that are environment friendly;
- modify beliefs;
- facilitate more positive attitudes;
- and encourage practices and actions that benefit the environment.

28. Interventions reach people through organized systems other than schools, such as:

- extension systems;
- unions;
- literacy programs; and
- associations of youth, women, farmers, or policy makers.

People are also reached outside of organized groups through the media and entertainment. Society can also be reached through workshops for specific groups like journalists, TV and radio personnel, civic leaders and community leaders as has been done in Bahia, Brazil. The Brazilian media are well developed, with about 317 registered newspapers and numerous magazines. Brazil's National Environment Action Plan, supported by the Bank, is extensive and comprehensive, yet remains largely unknown outside the circle of concerned professionals and so could not enjoy the support of the people. In the state of

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4 Unless otherwise stated examples in this section are non World Bank.
Bahia an initiative called “Program of Environmental Education through the Press” has begun which consists of the following three components:

- a community component designed to provide information for the public at large;
- pedagogical information aimed at teachers; and
- an evaluation component to measure the program’s effectiveness.

In El Salvador a national newspaper, *El Gunaquin*, covers environmental issues for children through graphics and articles. An NGO conducted survey showed that 62% of the teachers surveyed used this supplement in their classrooms.

Training media specialists could be a sound investment because of their cost-effectiveness and broad dissemination capacity. The West African Newsmedia Center, for example has built local capacity and has integrated the environment into print and broadcast media. In Sudan, the state-run High Council for Environment and Natural Resources published a book entitled “Green Awareness” to mobilize official and popular resources towards environmental issues. In India, the Supreme Court has directed the national television network to cover environmental-related programs for at least seven minutes a day. Radio Nepal regularly broadcasts weekly programs on the environment. World Bank’s EDI has conducted media training throughout Southern Africa, Central America and South Asia.

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**Box 3. West African Newsmedia and Development Center (WANAD)**

West African Newsmedia and Development Center (WANAD), a regional NGO based in Cotonou, Benin aims to improve the competence of the media in West Africa through editorial, technical and management training, provision of equipment and technical assistance. The editorial training program focuses on building the skills of reporters in development issues, with specialized modules on environment, health, population, agriculture and rural development, economy and finance, women in development, etc. Although treated as a special module, the environment is given primary attention in all WANAD seminars because of its interrelationship with other issues. The training is structured to include classroom lectures by experts, field trips to development projects and institutions (including travel to neighboring countries), and practical, editorial writing exercises followed by daily discussions. Since its inception in 1984, over 1,200 media personnel have participated in over 50 regional and 30 national editorial, technical and management training programs. It organizes training seminars on behalf of national and international development agencies and institutions, including the World Bank’s EDI, WHO Regional Office for Africa, UNESCO, UNDP, the European Union, the Ministry of Culture and Communication, Benin, the News Agency of Nigeria, and Vanguard, a private newspaper in Lagos, Nigeria.

*Source: WANAD Centre, Cotonou, Benin in Chee, N. (forthcoming).*

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More details on environmental education in the Africa region can be found in Chee (forthcoming) *Environmental Education in Sub Saharan Africa.*

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5 More details on environmental education in the Africa region can be found in Chee (forthcoming) *Environmental Education in Sub Saharan Africa.*
30. Cooperation between the public, NGOs and the media is crucial in bringing about sustainable change. Learning and development institutions and community and professional organizations provide great potential for integrating the environment into the mainstream.

31. One of the significant benefits of awareness programs is that they involve segments of the population who have not been served by formal schooling. The communication gap between experts and the lay public can only be bridged by a concerted effort of communication. Some environmental programs involve and target various groups, such as women. In Egypt, for example, the Ministry of Public Works and Water Resources engaged women in the program to clean-up and maintenance of canals. The women's observations that trash was thrown into the canals because of inadequate garbage disposal led the municipality to design new canals with adequate garbage disposal sites.

32. National environmental planning processes also provide the opportunity to build a national consensus on environmental priorities. This is a powerful opportunity to assess the priorities for environmental education. Periodic reviews of NEAPs should promote environmental education, awareness and training. The NEAP process itself raises environmental awareness. Participation not only includes decision-makers, environmental professionals and policymakers, but also students and communities thus raising awareness of the need to act locally and nationally in environmental matters.

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Box 4. Examples of Environmental Awareness and Training Programs

Bank-supported activities:
- **Asia**: World Bank's Metropolitan Environmental Improvement Program uses communication strategies aimed at educating civil society to improve environmental conditions in highly populated and polluted urban centers.
- **Indonesia**: public education programs in sanitation and water issues promote better habits in disposing of garbage and maintaining a clean and healthy environment.
- **Eritrea**: Preparation of the National Environmental Management Plan included many consultations with various decision-makers, as well as inputs from students and schools in a special youth conference held on the environment.

Non-Bank supported activities:
- **Zimbabwe**: CAMPFIRE (Communal Areas Management Program for Indigenous Resources) is a rural development and environmental education program aimed at conserving and managing wildlife, forestry, water and grazing.
- **Costa Rica**: training local naturalist guides for ecotourism.
- **Dominica**: conservation education programs for communities and students through films and slides, and for the public through radio to protect threatened species of parrots.
Training 6

33. Environmentally-literate decision makers in strong institutions are needed first to manage prudently their national environment, as well as second to mitigate practices that damage the environment. The development process is enhanced when environmental components are integrated into the whole. In many countries more emphasis must be placed on training officials, policy-makers, and practitioners working in the environment sector and in other sectors with direct impacts on the environment. An initial review of 28 “environmental” institutional development projects (1990-97) Bank-wide, showed that twelve newer projects included training and awareness components. Seven of them included more targeted awareness and information campaigns. Most of these components are directly linked to the implementation and maintenance of the specific project. These initiatives need to be part of a broader framework for environmental training and awareness if they are to result in sustainability and behavior change. The Bank is currently supporting an environmental training component for the mining sector in Ghana and Burkina Faso. The component aims to build necessary manpower skills, know-how and organizational capacity in public agencies related to the mining sector, with the purpose of fulfilling their regulatory, monitoring and promotional roles.

34. Environmental training involves ministries, districts, municipalities, local institutions, universities with programs abroad (preferably South-to-South) and on-the-job training through short intensive courses. University-based Environmental Study Centers or specific environmental management programs run by universities can be established, and this has been done, with Bank support, in many cities in Indonesia. Most environmental training components in projects are initiated through the environmental portfolio. There is a need to incorporate relevant environmental concerns into other Bank operations through awareness and training.

35. Training for practitioners in the private sector and in-house environmental units should also be encouraged. Sixteen out of the 28 Bank-wide projects reviewed, cited support for establishing environmental units to provide technical support as well as to serve as the training and outreach function. In Quito, Ecuador Corporación OIKOS targets private companies to change production and manufacturing techniques. The goal of the organization is to show Ecuadorian companies by way of scientific, technological and business expertise, that incorporating environmental considerations increases productivity and profits and at the same time avoids or reduces environmental degradation and wastes. Raising environmental awareness through communication campaigns and training workshops related to the work with owners, managers and workers is an essential part of their work.

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6 EDI has conducted substantial and effective environmental training and environmental outreach programs for several years, and are expected to be strong partners in the Bank's Environmental Education Program.
36. Training provided through extension services, NGO field officers, community development, church organizations and training of trainers contributes to building institutional capacity. Environmental training of agricultural extension workers can be effective in that they reach people in rural areas. Rural families depend on extension workers for information and advice on rural development and agriculture. However, extension workers need pre-service or in-service training so they can adequately address environmental issues in their outreach programs.

37. Building the capacity to train environmental scientists, engineers, planners, economists and managers is an important focus of national environmental strategies. One of the important lessons learned in facilitating environmentally sustainable development is the need for the Bank, international agencies and donors to increase support for capacity building for environmental management. The introduction of national environmental planning strategies and their implementation have resulted in the creation of new environmental jobs and technical competencies. However, in most cases, there is no clear assessment of this demand for new jobs, nor how the needs will be met at the national level, nor the implications in terms of formal training. Support for environmental education at all levels of formal education would contribute to filling the potential job market gaps.

38. However, while many of these plans generally express strong interest in environmental education and communication across sectors, countries have barely translated this language into actual programs or budget appropriations (GreenCOM, 1996b). Environmental awareness and training must be integrated with environmentally positive technologies and practices and with appropriate policies.

D. CHALLENGES FOR ENVIRONMENTAL EDUCATION

39. The reported constraints to including environmental education at primary and secondary levels are:
   - Due to a lack of understanding environmental education is often considered a non-priority subject;
   - Insufficient teacher training in environmental issues and problem solving methods is a key constraint to the improvement of environmental education;
   - Disparity between the contents of environmental education in schools and actual environmental conditions;
   - Existing curricula follow traditional teaching methods;
   - Overload of primary and secondary curricula;
   - Environmental materials often not adapted to specific local conditions;
   - Incorporation of environmental issues throughout the education system is not systematic;
   - Practical experiences in environmental education are often neglected;
   - Limited in-country resources, people and time to modify curricula and textbooks;
   - Lack of coordination and cooperation at all levels.
40. In the past, environmental education has often been stressed for the sake of nature conservation. Only in recent years has environmental education been seen by international organizations as important to sustainable development. Some of the perceived impediments to environmental education projects are:

- Inadequate analysis of priority environmental problems and appropriate delivery systems;
- Insufficient communication and coordination among professionals and organizations involved in environmental education, leading to isolated efforts with limited impact;
- Lack of trained professionals to plan and implement projects;
- Lack of materials appropriate to the region;
- Insufficient continuity of environmental education professionals and budgets in government agencies;
- Non-continuous funding at the local level for environmental education programs.

Box 5 Textbook Quality

World Bank’s Asia Environment Technical Unit (former ASTEN) review of Indonesian school textbooks revealed that while environment was mentioned in a wide range of volumes, and while revised curricula have succeeded in addressing environment topics at the level of headings and subheadings, the quality of the verbiage between the headings was not locally relevant and sometimes simply wrong. The Bank seeks to deal with curriculum change but Task Managers admit that they do not make a priority of ensuring the high quality of the ensuing texts. The Bank needs peer review of texts and needs to ensure that the latest relevant materials are provided to textbook compilers and writers to ensure an effective product.

41. Environmental education programs should consider:
- the main environmental problems of the country and the locality in particular (this can be extracted directly from NEAPs);
- existing environmental education curricula and programs;
- the appropriate kind of environmental education needed;
- prioritized target groups and programs to suit the individual groups;
- the existing material resources and the need for new materials;
- infusion of a new program into the existing curricula or educational system;
- teacher training; and
- the source of funds to develop and maintain curricula, textbooks, manuals, laboratory equipment, and field spaces (World Bank, 1993).
E. CONCLUSIONS AND RECOMMENDATIONS

42. To address the issues highlighted in the previous sections, the environmental education program (see Figure 1) currently underway is building competence in three major avenues of work in the Bank:

- operations in terms of environmental education components or stand-alone environmental education projects;
- environmental external training and partnerships; and
- project-related capacity building.

43. The gains will include stronger environmental institutions and better trained environmental managers in client countries; better educated students; and an environmentally aware civil society. An environmentally literate public will hold government, non-government, multinational and private entities responsible for environmental degradation and insist on participating in environmental decision making. Current planned activities are severely limited by the lack of a Bank core budget for environmental education, but include:

i. Improving the established network of environmental educators inside and outside the Bank
   The program involves a series of discussions on the approach the Bank will take in environmental education. Maximum participation is needed to build consensus, shared visions and “buy-in”. In the case of environmental education this will be a crucial function of the program because the range of views among educators and environmentalists is large. Science educators in the Education Family should be part of this process.

ii. Agreeing on an environmental education policy backed by strategy
   The formulation must be made jointly by the Environment and Education Families based on a shared vision. It will also be fruitful to involve a few external organizations in this endeavor. The strategy drafted together by the Environment and Education Families needs an external group of advisors.

iii. Approving a work program
   A work program based on policy and strategy must be approved by the Boards of Education and Environment. This requires a core budget for it to be taken seriously. The work program should:
   - Provide Technical and Advisory services
     This will entail assisting Task Managers of various projects Bank-wide to include environmental education, awareness and training in technical aspects as well as administrative functions such as helping them find appropriate consultants.
   - Seek trust funds to finance regional Task Managers Needs
     This will enable Task Managers to hire consultants to design environmental education, awareness and training components (specific guidelines for application for will be agreed on once the funds are secured).
• **Strengthen the seminar series**
  Seminars or brown bag lunches are valuable to bring in good practices and create sensitivity to the topic of environmental education. Few of these currently need funding to attract experts to speak.

• **Provide internal training for Task Managers**
  This will involve courses of various durations designed in collaboration with the Learning and Leadership Center (LLC). The first step will be a needs assessment based on the demands of Task Managers.

• **Collaborate and build partnerships with selected experienced organizations**
  External partnerships have already been established with the Asian Development Bank (Manila), the Mekong River Commission (Bangkok), United States Agency for International Development (Phnom Penh) and the World Conservation Union - IUCN (Geneva). However, these and other partnerships must be strengthened through greater use. The World Bank is far behind other organizations in pursuing environmental education.

• **Continue to maintain the environmental education web page to provide advisory services to Task Managers**
  An existing web site of the Environment and Education Families could be developed further to become a useful dissemination tool. This sub-web site would need to be hot-linked to both the ESSD/HDD sites and would need to supply state-of-the-art information.

• **Tool-kits and papers**
  Distilling lessons learned from on-going Environment Sector Plans with environmental education components would provide the opportunity to enhance future component/project preparation, implementation and monitoring.

• **Function as a ‘focal point’ for external agencies**
  There are many queries that come to the Bank from both educational and environmental agencies, NGOs and students. The program will serve as the focal point for these external participants in environmental education.

• **Monitoring and Evaluation**
  Only a handful of projects around the world have tried to measure the impact of environmental education and awareness components. It is useful, therefore, to conduct the following exercises:
  
  • determine the level of knowledge in beneficiary population through household surveys;
  • conduct cost-benefit analyses on dollars spent on education and awareness activities;
  • compare benefit of one dollar spent on education/awareness to a dollar spent on legislation and protection activities.
iv. Improving environmental education
To improve environmental education the issues listed below must be thoroughly discussed.

- **Designing a typical Environmental Education Curriculum**
  The testing and final implementation of a new environmental curriculum is a long process which requires sound preparation and working schedules. Stages include:
  - establishment of a core curriculum development team;
  - establishment of a network of consultants;
  - development of curriculum scope and sequence;
  - preparation of environmental education materials;
  - planning and realization of field testing;
  - evaluation of new materials and
  - scaling up to full implementation.

- **Training of Teachers**
  Almost all attempts at developing a sound environmental education program in schools will fail miserably if teachers are not adequately trained to teach the newly developed curricula. Teacher training centers can consider teaching the following elements:
  - basic environmental knowledge for teachers who have not had previous exposure;
  - contemporary methodological approaches to upgrade teachers to new teaching methods; and
  - multidisciplinary approaches for schools that are in a position to approach environmental education in a more holistic manner.

Pre-service teacher training can use the above three methods and can also incorporate environmental education into all existing courses or select some of the specialized subjects such as biology and geology. In-service teacher training may also use the above three methods and can also use an array of short seminars and workshops, coupled with audio-visual aids and field trips (World Bank, 1993).

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5 These points have been taken mostly from the unpublished 1993 World Bank paper prepared by the Education and Social Policy Department.
Figure 1: The World Bank Partners in Environmental Education

World Bank Families

EDI
External Training

Environment
Projects and Sectoral Assistance

Education

Operations
& LLC
Project Related
Capacity Building

Environmental Education Program

RESULTS

Better Environmental Institutions
Improved Environment Management
(National, Provincial and Local; Public and Private)

Better public awareness of and participation in national and local environmental issues

Better educated students voicing opinion, and taking action
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