

Partnership for Environmental Education

Regional Workshop on Environmental Education in the Asia-Pacific

17-18 December 1999, Salaya, Thailand

**Institute for Global Environmental Strategies (IGES)
Faculty of the Environment and Resources Studies, Mahidol University**

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Partnership for Environmental Education

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in the Asia-pacific

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Dedication

**This Proceedings is dedicated to our
Collaborators and Partners
who have given their whole-hearted support
to make this Regional Workshop a success**

Foreword

I am pleased that the Environmental Education Project is publishing the Proceedings of the “**Regional Workshop on Environmental Education in the Asia-Pacific**” held in Thailand from 17-18 December 1999. This is a highly commendable effort. On this occasion, I would like to congratulate Prof. Osamu Abe and his team for bringing out this publication.

IGES has always placed great emphasis on environmental education. Environmental education is an indispensable element of strategic research of the environment for making a paradigmatic shift towards sustainability and a new global civilization. Since this is the outcome of research of a series of participatory exercises involving experts, scholars, facilitators and practitioners from across Asia and the Pacific Region, I hope it will be a useful document to develop partnership amongst stakeholders for collaborative works to enhance eco-consciousness and to achieve a sustainable future in the region.

I believe that the Environmental Education Project will be successful in achieving its mission of “providing leadership in promoting, inspiring and fostering citizens to work towards achieving a sustainable future”. I wish the Project all the best with its endeavors.

Prof. Akio Morishima
Chair of the Board Directors
Institute for Global Environmental Strategies (IGES)

Acknowledgements

The Environmental Education Project was initiated to promote and foster eco-consciousness in relation to an environmentally sound and sustainable society in Asia and the Pacific Region. In the first phase (1998-2001), the Project identified two objectives to achieve this goal: (1) to prepare a comprehensive regional strategy on environmental education, and then (2) to facilitate the gradual implementation of the strategy in the Region.

In the course of preparing the regional strategy, country reports on environmental education assembled in collaboration with national collaborators from the Region provided the basis for preparing a working paper titled “Regional Strategy on Environmental Education in the Asia-Pacific” for discussion in a two-day long workshop, “Regional Workshop on Environmental Education in the Asia-Pacific” in collaboration with Mahidol University in Thailand in December 1999. The AEON Environmental Group provided the partial financial assistance to organize the workshop. The working paper was intensively discussed in the workshop and the final version is being reviewed.

This document, “Proceedings of the Regional Workshop on Environmental Education in the Asia-Pacific” is the outcome of numerous intensive discussions held during the workshop. It is divided into two parts; (1) Proceedings and annexes, and (2) reports on environmental education. A total of 12 country papers have been included in this report summarizing the current status of the environmental education, problems and prospects.

Many individuals have made their contribution to the success of the workshop and in preparing this Proceeding. Due to space constraints, it is not possible to mention their names. However, it will be remiss if I do not mention some individuals and organizations, who provided their critical support and cooperation to the success of the workshop and thus bringing out of this document.

First of all I would like to extend my deep gratitude to Prof. Akio Morishima for his time and an inspiring address in the opening session, and President, Prof. Dr. Pornchai Matangkashombut of the Mahidol University for officially opening the workshop.

Likewise, I would like to put on record the active support and cooperation from former dean, Prof. Rungjarat Hutacharoen, incumbent Dean, Prof. Anuchat Pongsommlee, and

Assistant Dean, Sansanee Choowaew of the Faculty of Environment and Resource Studies. Nor, would it have been possible to hold the workshop without the financial support of AEON Environmental Group. I would like to express my deep appreciation and gratitude for their kind support and assistance.

Also I am thankful to our national collaborators, participants, regional partners and their representatives for their suggestions and innovative ideas to push the cause of environmental education in the Region. I would like to offer my humble “thank you” to all of them.

Every effort has been made to include their ideas and opinions. Despite this, I may have not been able to represent the spirit, for which I solely remain responsible. I just want to assure that they will be included in the future, if the readers send in their comments, concerns and suggestions.

Thank you.

Prof. Osamu Abe
Project Leader
Environmental Education Project



Part I

Proceedings

Proceedings

The Institute for Global Environmental Strategies (IGES), in collaboration with the Faculty of Environment and Resource Studies, Mahidol University of Thailand, organized a two-day long workshop “**Regional Workshop on Environmental Education in the Asia-Pacific**” in Salaya from 17 to 18 December 1999. The goal of the workshop was to bring regional experts together to discuss issues, constraints and opportunities for environmental education in the Region in order to find out appropriate ways of mitigating them. The major objectives of the workshop were to achieve the followings:

- ❑ Review and discuss the working paper “**Regional Strategy on Environmental Education in the Asia-Pacific**”
- ❑ Make an active network of environmental educators and facilitators in the Region.
- ❑ Explore possibilities of future collaborative research works in the Region

In order to achieve the above-mentioned objectives, the workshop adopted the following modalities.

1. **Plenary Session:** Over and above the delivered opening speeches, a keynote speech and special addresses delivered by prominent environmental education experts and scholars from the Region were other main features of the workshop. Also, the representatives presented 12 country reports providing overview of general status of environmental education in the Region.
2. **Working paper:** A working paper titled “**Regional Strategy on Environmental Education in the Asia-Pacific**” was distributed to the participants. Salient features of the paper were presented by the IGES/EE Project in order to facilitate discussion in the Workshop.
3. **Breakaway Session:** Five breakaway sessions were held to review and revise the discussion paper, followed by an intensive discussion on the findings come out from each breakaway session.
4. **Open Discussion:** An open discussion was held at the end of the second day. During the discussion, courses of action necessary to promote environmental education in the Region were determined.

Some fifty environmental education experts coming from 15 countries of the Region attended the Workshop. Their full particulars along with contact addresses are presented in participants list.

The proceedings of different sessions are briefly summarized below :

Day 1: Friday, 17th December 1999

- **Opening Ceremony:** The workshop began with welcome remarks from Prof. Akio Morishima, the Chair of the Board of Directors of the IGES. He also gave a brief introduction of IGES and its activities carried out during the past two years. Then, Prof. Pornchai, the President of Mahidol University officially announced opening of the workshop. Prof. Osamu Abe and Dean Anuchat made special remarks in the Workshop.

- **Plenary Session (1):** In the first plenary session titled “Environmental Education in the Region”, Prof. John Fien of Griffith University gave a keynote speech on “**Partnership for Environmental Education in the Asia-Pacific**” to the workshop, which he prepared jointly with Prof. Debbie Heck. Before the keynote speech, the representatives of UNEP-PROAP, ASEAN, SPREP and SACEP made short deliberations on regional initiatives regarding environmental education in the Asia-Pacific. These presentations were made by Mr. Yoshihiro Natori, the Deputy Regional Representative and Mr. Mahesh Pradhan, a NETTLAP Program Officer of UNEP, Mr. Apichai Sunchindah, the Asst. Director of ASEAN, Ms. Seema Deo, an Environmental Education Officer of SPREP and Mr. K. H. Wijayadasa from SACEP. Then country reports highlighting the current status of environmental education in 12 different countries of the Region were presented. These papers are annexed alphabetically under the Section titled Country Reports.

- **Breakaway Session:** In order to facilitate thorough discussion on the working paper “**Regional Strategy on Environmental Education in the Asia-Pacific**”, Dr. Bishnu Bhandari, a Senior Research Fellow of the IGES/EE Project gave a synopsis of the discussion paper and enlightened the participants on modalities of discussion in the breakaway sessions. Then, five groups were formed to discuss issues related to the discussion paper. Each group was lead off by a moderator getting supported by a rapporteur. The breakaway group discussion was continued to the first half of the second day. The following groups were formed.

1. **Group One:** Environmental education and empowerment (Moderator: Prof. Retno Soetaryono and rapporteur: Ms. Kalyani Kandula).
2. **Group Two:** Partnership for collaborative works (Moderator: Assoc. Prof. Rungjarat Hutacharoen, Rapporteur: Mr. Uddav Karki).
3. **Group Three:** Improving the effectiveness of curriculum development (Moderator: Prof. Walai Panich, Rapporteur: Mr. Nalaka Gunawardene).
4. **Group Four:** Improved governance for environmental education (Moderator: Prof. Lilia Rabago, Rapporteur: Dr. Sanowar Hossain Sarkar).
5. **Group Five:** Mobilizing external assistance (Moderator: Prof. Seiji Utsumi, Rapporteur: Ms. Ataswarin Bambang Sarah).

In honor of all participants, a welcome party was organized at Thai House in Salya Center in the evening.

Day 2 Saturday, 18th December 1999

Day Two began with the continuation of the breakaway discussions. After intensive discussions have finished, all the rapportuers gave the summaries of the discussions at the plenary session.

Plenary Session II: The findings of each breakaway group were presented at the plenary followed by a profound discussion, which resulted in the revised version of the report “**Regional Strategy on Environmental Education in the Asia-Pacific**” which is under preparation. Prof. John Fien, Griffith University moderated the session getting supported by Prof. Che Salmah MD Rawi of Malaysia. After a short coffee break, a free discussion titled “**Where to go from here?**” began to explore possible venues of future collaboration in the Region. The participants actively discussed in this session. The brief summary of the discussion is given as below:

1. Prepare an executive summary of the document.
2. IGES should publish the strategy and announce its availability and distribution in the Region.
3. Distribute the final report widely to (1) governments, (2) regional and sub-regional organizations, (3) key networks, (4) IGES networks, (5) donors and fund-raisers, (6) private sectors, (7) participants of the workshops, (8) international bureaus, (9) universities and research institutions, (10) NGOs, (11) media, and (11) national alliances.

4. Put the strategy on the web site.
5. Give priority in strengthening of networking in the sub-regions.
6. Organize meetings of the donors and fund-raisers to mobilize international assistance.
7. Make arrangement necessary for a pilot application of the strategy in cooperation with national collaborators.
8. Prepare action plans toward the sub-regions, especially for SACEP and Northeast Asian sub-regions.
9. Support individual counties in preparation and implementation of national plans.
10. Prepare detailed action plan on each agenda item.
11. Organize the meeting of the key sectors and players at national level.
12. Identify critical issues in each country, and make a consensus on prioritizing the issues.
13. Involve all current players, do not leave anyone out

At the closing session, Prof. Abe offered his “vote of thanks” to the participants for their active participation in the workshop. He proudly said that the workshop was a great success to achieve its intended goal, despite its short duration of two days. He also said that participatory exercises would be continued to further improvement of the discussion paper. On behalf of all the participants, Dr. Sanowar Hossain Sarkar of Bangladesh and Dr. Suk-Jin Choi of South Korea offered their vote of thanks to IGES and Mahidol University for organizing this workshop successfully and providing opportunities to share their thoughts and perspectives on fostering environmental education in the Region. They also offered thanks to Mahidol University and their staff for their generous hospitality during their stay inside the Salaya Campus. Dr. Hossain cordially expressed that the strategy could be help for the present generation to achieve an “**ecologically sustainable environment**” and to grant a “better environment” to future generations. Delivering his presentation, Dr Suk-Jin Choi expressed his hope that all environmental educators will work together to promote the spirit of this workshop in the next millennium. Prof. Anuchat, the Dean of the Faculty of Environment and Resource Studies formally closed the workshop and appealed the participants to forge strong partnership to advance the cause of environmental education in the Region. A farewell party was held by organizers at Banquet Room in Salaya Pavilion to say “**so long**” to the participants.

Welcome Remarks

Prof. Akio Morishima
Chair of the Board of Directors
Institute for Global Environmental Strategies (IGES)
Kanagawa, Japan

Mr. President, Ladies and Gentlemen

Welcome to the “**Regional Workshop on Environmental Education in the Asia - Pacific**”.

First of all, on behalf of three organizers, the IGES (Institute for Global Environmental Strategies), Faculty of Environmental Resources and Studies, Mahidol University and AEON Environmental Foundation of Japan, I would like to express our sincere appreciation to you for your coming to attend this important workshop on environmental education.

I don't think it is necessary for me to explain to you why environmental education is important in tackling environmental issues. However, the Asia-Pacific Region is rapidly growing in terms of population, economy and environmental degradation, and is grappling with the problems growing out of their dynamic interaction. So, it is quite important for us to mitigate these problems and find out a better way for the 21st century.

Global environmental issues are complex and have a long-term effect on our society. These issues need to be coped with a long-term perspective. In that sense, environmental education is considered as a very important driving force and can play an effective role in improving environmental deterioration. However, serious attention has not been paid to this area. This is why we have to improve environmental education system in the Region. For this purpose, I believe that this meeting will be the key stepping-stone for the next generation. I also hope that this two-day long workshop will enable us to generate a concrete proposal for the improvement of environmental situation in the Region. In this mission, the IGES is willing to, and will make every effort for making an appropriate network for enhancing environmental educational system in the Region.

With taking this opportunity, let me give you a short introduction about the IGES. You will find the detail information about it in the brochure and the annual report, which have been provided to you in the beginning. I do not intend to use up this precious time just to explain to you about the IGES. Briefly, the IGES was formally established in 1998. It is an independent international inter-disciplinary strategic research institute. The credit of establishing this strategic research institute, now called the IGES, goes to the Prime Minister of Japan, Mr. Tomiichi Murayama. This Institute is committed to attain sustainable society in the Asia and Pacific Region. The preparatory organization for establishing this Institute was established in 1997. During this preparatory stage, my colleagues and I made a series of consultations and discussions with experts and concerned officials in the Region to identify major issues. We also visited several institutes and universities in Thailand. As the result of these consultations and discussions with important people in this Region, five project themes were decided. They are environmental education, climate change, urban environmental management, forest conservation and environmental governance. To address these issues in the Region, we also set out another project, called New Development Patterns Project, after formal launch of the Institute. Now, we have six projects.

Presently, we have 40 researchers who are recruited both from Japan as well as from abroad. The number of international researchers has reached to 12. In the future, half of its researchers will be recruited from outside Japan. I would just like to mention that even though this institute was established and is supported by the Japanese Government, its aim is to cover the whole Asia- Pacific Region including Japan. Although our institute is a newly born baby, we have learnt a lot about environmental issues in the Region during the past one and a half years.

I think this workshop has a great importance of another aspect. Through active discussions and intellectual exercises, I hope that the Workshop will be able to develop an active network of environmental educators, facilitators and institutes in the Region. And I believe that the IGES will be able to contribute in facilitating networking and other activities in this Region, and thereby the IGES will be able to contribute toward the global society.

Let me take this opportunity to express my sincere gratitude to the President, Dr. Pornchai, the Dean, Dr. Anuchat, Prof. Sansanee and their staff for their hard work in organizing this workshop. Also I would like to offer my thanks to AEON Environmental Foundation, a Japanese business group committed to improving human quality of life.

Without active cooperation of Mahidol University and financial support from the AEON Group, the IGES would not have been in a position to organize this workshop at this tidy, beautiful campus of Salaya. I hope we will be able to maintain active contact between Mahidol University and the IGES to initiate active collaboration and joint initiative in ameliorating environmental condition in the Region.

Finally, I wish you all the best and reiterate that the workshop will be able to provide a concrete guideline that facilitates implementation of the strategy for environmental education in the Region. Many workshops, conferences and discussion have been organized and then followed by the publication of glossy documents. Generally, they are forgotten after the events. I, therefore, have a great hope that this workshop will bear some concrete plans of action to guide our activities on environmental education for the Asia-Pacific Region.

Thank you very much.

Opening Remarks

*Prof. Dr. Pornchai Matangkashombut,
President Mahidol University
Salaya, Thailand*

Professor Morishima, the Chair of the Board of Directors of the Institute for Global Environmental Strategies (IGES), Prof. Abe, the IGES-Environmental Education Project Leader, the Dean of the Faculty of the Environment and Resources Studies, Distinguished Participants, Ladies and Gentlemen

First of all, I wish to extend a warm welcome to all the participants from overseas to the Kingdom of Thailand. And on behalf of Mahidol University, let me express our most cordial welcome to all of you, distinguished participants, for coming to our Salaya Campus.

I am very much pleased to be here today, and for me, it is a great honor and a real pleasure to participate in the Opening Ceremony of the Regional Workshop on Environmental Education in the Asia-Pacific.

It is a very great honour that our Faculty of Environment and Resources Studies has been chosen to be a co-organizer for this regional workshop. I consider the environmental education is a vitally important process, a long-term mission, which needs strengths of partnership and cooperation. Amidst the quickening and challenging pace of uneven economic development, living in harmony with nature requires both individual and collective awareness and actions.

I hope that this workshop will firmly establish a regional network of experts involved in environmental education. I believe all issues that will be dealt with in the coming two days here at Salaya will have a profound effect on our future environment.

I wish you all every success in this important endeavor. I now have the honor to declare open of the Regional Workshop on Environmental Education in the Asia-Pacific.

Thank you.

Remarks

*Assoc. Prof. Osamu Abe
Project Leader
Environmental Education Project
IGES*

Prof. Dr. Pornchai, the President of Mahidol University, Prof. Morishima, the Chair of the Board of Directors of IGES, Prof. Anuchat Pongsumlee, the Dean of the Faculty of Environment and Resource Studies, Ladies and Gentlemen

Welcome to this Regional Workshop on Environmental Education in the Asia Pacific. On behalf of the organizers, I also would like to welcome all of you for your participation to this workshop and look forward to receiving your valuable suggestions in coming discussions.

The aim of the IGES Environmental Education Project is to develop a comprehensive regional strategy on environmental education and facilitate its gradual implementation in the Region by collaborating with its national partners. The critical mass to which the IGES attempts to address includes environmental educators, facilitators and experts. The IGES attempts to reach out its target groups through formal education, media, non-governmental organizations, and business and industry.

This workshop has three set objectives. The first one is to work on the draft discussion paper ‘**Regional Strategy on Environmental Education in the Asia-Pacific**’. The second one is to establish a network in the Region on a direct and personal contact basis. The third one is to identify potential fields for future collaboration. Needless to say, your valuable practical opinions and experiences will provide guidelines for all of us and enrich our pool of knowledge for fostering environmental education in the Region.

I trust this workshop will be able to make some solid contribution toward making of an effective environmental education system in this region.

Thank you very much

Remarks

*Assoc. Prof. Dr. Anuchat Pounsomlee
Dean*

*Faculty of Environment and Resource Studies
Mahidol University, Salaya*

Prof. Dr. Pornchai, The President of Mahidol University, Prof. Morishima, the Chair of the Board of Directors of the Institute for Global Environmental Strategies, Prof. Abe, the IGES-Environmental Education Project Leader, Distinguished Participants, Ladies and Gentlemen

As a co-organizer of this workshop, I would like to take this opportunity to introduce to you briefly about our Faculty of Environment and Resource Studies. The Faculty was established in Mahidol University in 1973 as the Environmental Education and Research Project and became a full institution of the Faculty of Environment and Resource Studies later in 1978. It is the first institution in Thailand offering formal and non-formal environmental education as well as providing forums for environmental activists and concerned authorities. At present, the Faculty runs a full scale multidisciplinary courses at bachelor, master and Ph. D. levels. Environmental training programs are regularly provided to children, young and adults in both public and private sectors. Research works especially on development, applications and evaluation of environmental education materials and media are also carried out. From the very start, the Faculty has itself enjoined its commitment in cooperating and collaborating with national and international environmental education and training communities, and will remain active in the future as well.

Throughout this Workshop, I sincerely hope that experience and practical ideas of all distinguished participants will be shared and exchanged. After this workshop, I strongly believe that our networks and partnerships will be strengthened.

Thank you.

Keynote Speech

Issues and Challenges for Education and Sustainable Development In the Asia-Pacific: Towards Partnerships in Environmental Education

*Prof. John Fien and Debbie Heck
Griffith University
Brisbane, Australia*

Asia and the Pacific is a region of great cultural, economic and environmental diversity. This is reflected in the description of the Region in UNESCO's 50th anniversary commemoration publication on the Region, which described it in the following way:

From the world's highest city, Lhasa ... to the world deepest Lake Baikal... from the highest mountain to the deepest seas; from the driest deserts to the dampest forests; the Asia-Pacific Region covers an outstanding array of geography and culture.

The Region is one of sharp contrasts. It has two of the world's most populous countries, China and India, and some of the world's smallest countries, Nauru in the Pacific and the Maldives in the Indian Ocean. It has one of the world's richest countries, Japan, and the world's poorest, Cambodia and Bangladesh.

With over 700 languages in Papua New Guinea alone, the Region's ethnic and linguistic diversity is greater than anywhere else in the world. Great cultures have left legacies such as the Great Wall of China - 2350 kilometers long ... and the legendary temples of Borobodor in Indonesia. A wealth of religions crisscross the Region, ranging from Buddhism, Hinduism, Christianity, Islam and Sikhism, to other faiths such as Confucianism, Jainism and Taoism (UNESCO-PROAP, 1996).

This diversity means that it is difficult to be anything but general in an account of the development of education for a sustainable future in the Region. The paper begins with

an overview of the present state of the natural and social environment in the Asia-Pacific Region. This is followed by an account and examples of educational responses to the challenges of sustainable development. The main theme developed here is that country and organizations in the Region responded well to the first phase of challenges of sustainable development posed by Chapter 36 on Education, Public Awareness and Training in Agenda 21. An example of innovative ways in which this has been done is provided to illustrate this. However, the analysis of these trends, which is presented in the next section of the paper, indicates that these innovations may represent a case of 'innovation without change' as there is little evidence in the Region of the broad reorientation of education practices, systems and structures that is necessary for education to support the processes of sustainable development on national or regional levels. This wider reorientation of education is called the second phase of education for a sustainable future in this paper. The paper concludes with a brief case study of one project in the Region, which is using teacher education as a starting point to provide the necessary capacity development needed to support this second phase of educational reform.

The State of the Region

Despite the formulation of many international and national policies for sustainable development in recent years, the global picture is not encouraging. The state of the planet and the lives of the people who call it home have been exhaustively documented by such bodies as the United Nations Development Program (1998), the United Nations Environment Program (UNEP 1997), the World Bank (1998), the World Resources Institute (1998), the World Watch Institute (1990) and the World Wide Fund for Nature (1999).

Data on conditions in Asia and the Pacific are also becoming increasingly well documented, as seen in reports of the United Nations Economic and Social Commission for Asia and the Pacific (1990), the World Bank (1993) and the Asian Development Bank (1997). These publications paint a generally bleak picture of a descending spiral of unsustainable development. For example, the Asian Development Bank's report, *Emerging Asia: Changes and Challenges* (1997), argues that:

Asia is the world's most polluted and environmentally degraded region ...
The range of environmental problems is huge - from the degradation of rural land to the pollution and congestion of the Region's mega cities.

Some areas have unique difficulties, such as the danger that rising sea levels is posed for the Pacific Islands. Some environmental problems are created locally, such as the pollution of water resources, while others are involuntarily imported from abroad, for instance, acid rain in Japan and Korea comes largely from coal burning in the People's Republic of China (p. 201).

The social and economic costs of environmental degradation in the Region are very high. This descending spiral of environmental decline and lost social and economic opportunities is reflected in the broad patterns of living conditions in Asia and the Pacific. Despite being home to some of the world's largest and fastest growing economies in countries such as Japan, Australia, New Zealand, Singapore, Taiwan and the Republic of Korea, the Asia-Pacific Region is also one of great poverty. The acute impact of the 1997 economic collapse in the Region is evidence of the precarious nature of the last three decades of development efforts. Thus, the Asia-Pacific Region is home to over two-thirds of the world's poor and an equal percentage lack basic literacy. Population figures have doubled over the past forty years and are still on the increase, and the environmental and social effects of such numbers are the beginning to take their toll. Thus, UNESCO has noted that:

By the year 2040, the population of the Asia-Pacific Region is expected to have doubled to an astounding 3.3 billion people. The Region is already home to 63 per cent of the world's population, with five countries alone accounting for 46 per cent of the world's population -China, India, Indonesia, Pakistan and Bangladesh. The world has never seen such growth in so short a time. By 2040, requirements for food will have doubled and the need for water and sanitation will have quadrupled. The consumption of energy and manufactured goods will increase fivefold, while pollution may increase up to tenfold (UNECO-PROAP, 1996).

Educational Responses

Education has been identified as a critical way of addressing this range of concerns in the Asia-Pacific Region. Thus, many countries in the Region can point to ways in which their education systems have been responding to the challenges posed by the descending spiral of unsustainable development. Many of their initiatives preceded the Earth Summit

and are the result of the active International Environmental Education Program led by UNESCO and the United Nations Environment Program (UNEP) in the Region. After the 1977 Inter-governmental Conference on Environmental Education in Tbilisi, follow-up workshops were held in Asia in 1997 and 1980. These provided a range of catalytic activities, which include the exchange of information among institutions, the collection and dissemination of information, publication of materials for use in curriculum development and teacher education, study-visits and attachment programs, demonstration projects and the development of a pool of experienced resource persons to provide consultancy services to the Member countries. The impacts of this and related programs may be seen in the relatively high adoption of forms of environmental education in schools across the Region. These include the development of curriculum guidelines and new teaching materials, the revision of syllabuses to infuse an environmental perspective, the adoption of whole-school approaches to curriculum planning for environmental education, and the establishment of specialized environmental education centers.

During the 1990s, efforts were made to integrate the concept of sustainable development into these initiatives. The basic thrust for this began with the Earth Summit and was further encouraged by the Third Ministerial Conference on Environment and Development in Asia and the Pacific that was held in 1995 under the auspices of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). This meeting decided upon a five- year Regional Action Program for '*environmentally sound and sustainable development*' in the Region. Responsibility for catalyzing educational reform under this plan lies with UNESCO and UNEP, but several other bodies have also taken initiatives. It is too soon to see the result of these efforts but their intentions are to promote sustainable development through education and related capacity building initiatives. For example, the UNESCO Asia-Pacific Programme of Education for All (APPEAL) focuses on universalizing primary education and eradicating illiteracy in the Region as a foundation for the social and economic development. UNICEF also plays a major role in this goal. The UNESCO Asia-Pacific Programme of Educational Innovation for Development is active in the areas of secondary education reform, education for girls, pavement dwellers and refugees, vocational education and higher education, including teacher education. These are important elements in the reorientation of mainstream education towards a sustainable future. UNEP supports the development of capacity to develop and teach courses on sustainable development issues in the Region's universities through its Network for Environmental Training at Tertiary Level in the Asia- Pacific (NETTLAP).

The Association for South East Asian Nations (ASEAN) and the Asia Pacific Economic Cooperation (APEC) have small information, training, and network programs to support member countries while the South Pacific Regional Environment Program (SPREP) has prepared a *Action Strategy for Environmental Education and Training in the Pacific Region 1999-2003* (SPREP, 1998). Several international NGOs are also active in supporting education strategies for sustainable development in the Region. For example, IUCN supports the South and South-east Asia Network for Environmental Education (SASEANEE) while WWF has initiated a *South Asia Regional Cooperation Program Framework* as part of the WWF Global Priorities to capacity building for managing natural resources (CEE/IUCN, 1998). The Asia-Pacific Bureau of Adult Education (ASPBAE) has developed a framework for adult and community environmental education in the Region in order to promote the principles of the *Treaty on Environmental Education for Sustainable Societies and Global Responsibility* endorsed at the NGO Global Forum at the Earth Summit in 1992. Regional conferences of the Asia Environmental Council (AEC) and the Asia-Pacific NGO Environmental Conference (APNEC) have also emphasized the importance of education in creating sustainable societies. The Environment Agency of Japan and the newly formed Institute for Global Environmental Strategies (IGES) are also supporting cooperative regional efforts to promote sustainable development through environmental education. For example, IGES has initiated a review of the policies and capacities of business and industry, NGOs, the media and formal education systems in the Region to promote sustainable development. As a result of initiatives such as these, many examples of innovative practice may be found across the Region. The examples in Table 1 are presented in alphabetical order of country name and illustrate the range of innovations that may be found in the Region and which may become increasingly widespread as the innovations are diffused more widely.

Table 1. Examples of Innovative Practices in the Asia-Pacific Region (Fien and Tilbury 1996)

Australia	<ul style="list-style-type: none"> • A tradition of school based curriculum development within broad framework syllabi, which encourages local innovation and across-the-curriculum support for environmental education. • A series of state policies, curriculum guidelines and support materials for environmental education.
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	<ul style="list-style-type: none"> • Integration of professional development with curriculum development in Landcare Education programs.
China	<ul style="list-style-type: none"> • Environmental protection is a basic state policy. • Chaozhou City was named by UNEP as one of the “500 Best cities in the World” for its achievements in environmental education where 200,000 students in over 1,000 schools underwent an environmental education program, which combined in-school and out-of-classroom activities. • Teacher education for sustainability project sponsored by WWF.
India	<ul style="list-style-type: none"> • The National Policy on Education of 1968 and 1986 made environmental themes integral aspects of the curriculum. • The National Council of Educational Research and Training (NCERT) has produced model national textbooks for Years 3 - 5 on environmental studies. Beyond Year 6, texts of all subjects are to include environmental education. • The Supreme Court of India has made a court order to ensure all education systems promote environmental education. • Environmental themes integral to adult and non-formal education.
Indonesia	<ul style="list-style-type: none"> • A network of Environmental Study Centers in universities and incorporation of environmental education into national policies on environmental management. • A system of non-degree training programs in environmental impact assessment and other topics. • Widespread co-operation between schools, universities and community in local action projects such as Clean River Campaign.
Japan	<ul style="list-style-type: none"> • Comprehensive attention to environmental topics in a wide range of primary and secondary school subjects. • Identification of issues concerning the promotion of environmental education. For example: <ul style="list-style-type: none"> ▪ The need to relate environmental education to pupils’ lives to improve quality of life, and ▪ The development of teaching materials, especially on the local environment covering the full range of environmental education approaches. • Development of links between schools and administrative agencies, e.g., Ministry of Environment and Ministry of Education, to produce guidance notes and supplementary readers for primary and lower secondary schools, and to coordinate in-service education.
Malaysia	<ul style="list-style-type: none"> • “Man and Environment” topics integrated into five subjects in primary school, <i>Social Science, Health Education, Civics, History and Geography</i>. • A wide range of co-curricula activities, e.g. nature clubs, Environment Week, camping, “School in the Garden”, and environmental education projects.

	<ul style="list-style-type: none"> • Government agencies, NGOs and media support environmental education.
New Zealand	<ul style="list-style-type: none"> • Involvement of the NGO sector in environmental education is strong, eg. New Zealand Natural Heritage Foundation and Environmental Education Center of New Zealand. • School/University links provide special programs for teachers and students through programs such as Eco-school and Enviro-school.
Philippines	<ul style="list-style-type: none"> • Environmental concepts and skills integrated into National Minimum Learning Competencies for elementary schools and Desired Learning Competencies for secondary schools. • A national environmental education review gave strong support for formal and non-formal environmental education. • A strong curriculum materials and professional development program in environmental education for teachers.
South Korea	<ul style="list-style-type: none"> • Environmental Conservation Model School program to provide examples of environmental education across-the-curriculum. • Environmental education is central in the new Sixth Curriculum from 1995. At the secondary school level, it will be a separate subject.
Singapore	<ul style="list-style-type: none"> • Environmental Education is central in the government's plan to become a Model Environmental City by 2000. • There are at least fifteen different governmental and non-governmental institutions that are actively involved in promoting environmental awareness and action nation-wide. • Successful "Clean River" campaign and the promotion of the annual "Clean and Green Week". • Environmental education is already incorporated in the academic and curriculum studies in the pre-service teacher education.
Sri Lanka	<ul style="list-style-type: none"> • A strong connection between culture and religion and the philosophy of environmental education. • National Education Commission requires schools to contribute to "the evolution of a sustainable pattern of living". • Strong integration of environmental topics into primary and secondary curriculum, and the setting up of "Environmental Pioneer Brigades" and Environmental Clubs in some schools. • Active NGO involvement in environmental education.
Thailand	<ul style="list-style-type: none"> • Environmental education is integral to the issues of quality of life and health. • Environmental education is integrated into three units in the Life Experiences curriculum in elementary schools. Life Experience integrates Science, Social Studies and Health and Moral Education. • Community development electives in junior secondary social studies provide wide opportunities for student participation in working to solve local environmental problems. • There is a goal to have an accredited environmental park and

	community resource center in every village.
Viet Nam	<ul style="list-style-type: none"> • Environmental education is integral to the 1991 National Plan on Environment and Sustainable Development. • Incorporation of environmental education into three subjects in primary school (<i>Nature and Society, Health Education and Moral Education</i>) and three in secondary school (<i>Geography, Biology and Moral/Civic Education</i>). • Incorporation of National Festival of Growing Plants directly into the curriculum with inter-Ministry cooperation.

An Analysis

This overview of region-wide efforts to promote sustainable development through education indicates that the emphasis thus far has been upon what might be described as the first phase of educational reform that followed the Earth Summit, i.e., the reformulation of environmental education to include issues of sustainable development. This was not a difficult task as the concept of ‘environment’ in the Region has always included the human element. In many cultures, nature is seen as a ‘mother’ or as a teacher and, as life in most Asian societies remains predominantly rural and organized around the seasons, people can easily see that the quality of their lives is related to the sustainability of the natural world. With air and water pollution being the major causes of infant mortality in the Region (in that the most dangerous things a child under five can do is to breathe the air and drink the water), environmental education guidelines could readily integrate the rhetoric of sustainable development. However, the wider reorientation of educational practices, systems and structures to support sustainability that is emerging as the second phase of educational reform since the Earth Summit is yet to be seen in the Region.

As a result, several outstanding issues and problems remain. In most countries in the Region, for example, most initiatives have remained embedded within pre-Earth Summit conceptions of environmental education. These tend to favor nature conservation, especially through the study of science and geography, rather than the multi-disciplinary bases of sustainable development and the holistic imperatives that are served by the emerging concept of education for sustainable future. Consequently, most initiatives to promote environmental education in the Asia-Pacific have tended to come from Ministries of Environment, Agriculture or Natural Resources rather than Ministries of Education. While welcome, the efforts of such ministries tend to be directed to specific

environmental issues rather than a whole-of-government commitment to sustainability. They also tend to concentrate upon information and awareness-raising campaigns directed at individual behavioral change rather than broader educational or sustainability goals. Indeed, sustainable development is not well understood as a concept outside of limited environmental circles in most countries and, certainly, is only rarely being pursued as a whole-of-government commitment. Several countries in the Region also still lack national policies or guidelines for environmental education. The result of this set of problems has been a lack of coherence and long term planning for educational approaches to sustainable development. Indeed, even in those countries that does have environmental education policies, very few have been revised to incorporate the broad social, economic and political, as well as conservation aspects of sustainable development.

The general lack of interest in matters of sustainability by Ministries of Education has tended to marginalize environmental education from mainstream education policy. Most countries therefore lack a coherent plan for progression in environmental education from kindergarten to college level. As a result, it is often not a priority, especially where the curriculum is over-crowded. In addition, the low profile of environmental education and sustainable development in external examination subjects contributes to a lack of status for this area of learning. Therefore, it is not surprising to find that many teachers, students and parents do not perceive it as a curriculum priority. In some countries the innovative teaching methods of environmental education conflict with the traditional culture of schooling. This problem is particularly acute in countries where the curriculum emphasizes the recall of content and external examination performance rather than the development of thinking and problem solving skills. Such problems are intensified by a general lack of awareness and support for environmental education from many education policy makers, school administrators and academics in teacher education institutions. This makes the introduction of both in-service and pre-service teacher education for sustainability difficult and, unfortunately, when in-service courses are provided, they tend to be attended by teachers who are already committed to environmental education. As a result, the official as well as the 'hidden curricula' of schools is often not sympathetic to the social vision of education for a sustainable future. Indeed, while the official curriculum is often deficient in these matters, the 'hidden curriculum' is often an even greater barrier to sustainable development.

The effects of this pattern may be seen in the results of an international project that investigated the environmental knowledge, attitude and actions of over 10 000 sixteen

and seventeen year old students in eleven countries in the Region. The research involved a study of the cultural background and educational system in each country, questionnaire surveys and focus group interviews in each country and a meta-analysis of the national studies (Yencken, Fien and Sykes, in press). Three key findings of the study indicate that much remains to be done to ensure that education, especially in secondary schools, is reoriented towards sustainability. These relate to levels of student awareness and interest; the learning of appropriate concepts; and the willingness and ability of students to adopt sustainable lifestyles behaviors and to share civic responsibility for sustainable development activities.

Levels of Student Interest in the Environment

Several findings from the research indicate that young people in the Asia-Pacific Region have a strong interest in learning much more about environmental matters than they are currently. For example, Table 2 show those students in only one country (Singapore) wanted less frequent regular discussion of environmental matters in class. Similarly, in the focus group interviews, students from several countries reported that they had “learnt hardly anything at all about the environment since primary school” and did not believe that it was fair for these sort of topics to be taught only to those students who study biology or geography.

Table 2. Current Frequency of ‘Regular’ Discussion of Environmental Matters in Class Versus The Percentage of Students Who Say That They Would Prefer to Do This Regularly in Selected Asia-Pacific Cities and Countries (Yencken, Fien and Sykes, in press)

	Current Frequency	Desired Frequency
Australia-Brisbane	30	50
Australia-Melbourne	29	55
Indonesia	44	88
Brunei Darussalam	33	59
China - Guangzhou	11	38
China - Hong Kong	19	41
India	54	79
Japan	16	27
New Zealand	19	38

Singapore	18	3
Thailand	14	65

Learning of Appropriate Concepts

The students in the survey were asked to indicate whether they were familiar with a set of eleven concepts and then to define them. Tables 3 and 4 show the concepts that students are presently learning about in school are limited to traditional concepts from biology and geography, such as renewable resources, ecology, interdependence and carbon cycle, and the two major climate change issues of ozone layer depletion and the greenhouse effect. Students reported that they were partially familiar with the concept of sustainable development but that they were not familiar at all with the related concepts of biodiversity, carrying capacity, precautionary principles and intergenerational equity. When students were asked to define this set of concepts, their knowledge scores were very disappointing. This situation points to the urgent need to integrate such concepts into syllabuses in the Region so that students can begin to develop an understanding of concepts central to sustainable development. While only five such concepts were used in the survey, many others from the fields of political ecology and ecological economics could have been used. These include ecological footprint, eco-space, natural resource accounting, life-cycle analysis, environmental assessment, eco-efficiency, sustainable consumption and so on (OECD 1997).

Table 3. Group 1 Concepts: Relatively High Level of Awareness and Knowledge (Yencken, Fien and Sykes, in press)

Country and Place	Green-house Effect	Ozone Layer	Renewable Resources	Ecology	Carbon Cycle	Interdependence
Australia-Brisbane						
- Heard of	99	99	94	88	53	60
- Discussed in class	81	81	59	44	20	18
- Correct	24	39	59	35	44	77
Australia-Melbourne						
- Heard of	98	99	94	94	74	70
- Discussed in class	81	81	61	67	41	26
- Correct	68	36	61	50	47	-

Bali						
- Heard of	-	-	-	-	-	-
- Discussed in class	74	76	92	88	81	-
- Correct	27	47	85	80	44	
Brunei Darussalam						
- Heard of	98	99	98	90	91	71
- Discussed in class	58	57	58	51	73	20
- Correct	63	37	-	44	60	-
China - Guangzhou						
- Heard of	92	97	98	94	56	94
- Discussed in class	46	49	67	46	26	33
- Correct	7	54	70	44	40	-
China - Hong Kong						
- Heard of	98	96	98	72	47	78
- Discussed in class	59	47	56	35	18	25
- Correct	11	25	42	55	40	-
Fiji						
- Heard of	-	-	-	-	-	-
- Discussed in class	-	-	-	-	-	-
- Correct	29	45	43	42	36	-
India						
- Heard of	100	97	99	100	99	97
- Discussed in class	95	93	95	73	95	85
- Correct	67	57	51	73	50	-
Japan						
- Heard of	86	92	32	92	52	50
- Discussed in class	33	58	6	18	18	8
- Correct	48	82	10	14	26	-
South Korea						
- Heard of	-	-	-	-	-	-
- Discussed in class	-	-	-	-	-	-
- Correct	61	70	29	19	23	-
New Zealand						
- Heard of	95	97	91	78	75	79
- Discussed in class	64	67	60	38	50	45
- Correct	55	32	49	24	48	-
Singapore						
- Heard of	99	99	99	97	91	84
- Discussed in class	91	88	77	71	73	45
- Correct	94	75	57	59	78	-
Thailand						
- Heard of	99	99	87	99	70	98
- Discussed in class	70	69	36	69	27	32
- Correct	15	39	61	82	16	-

Table 4. Group 2 Concepts: Relatively Low Level of Awareness and Knowledge (Yencken, Fien and Sykes, in press)

	Sustainable Development	Carrying Capacity	Biodiversity	Intergenerational Equity	Precautionary Principle
Australia-Brisbane					
- Heard of	51	43	49	52	21
- Discussed in class	12	10	12	4	3
- Correct	26	77	82	66	21
Australia-Melbourne					
- Heard of	57	55	49	48	23
- Discussed in class	20	22	18	8	3
- Correct	26	79	79	63	19
Bali					
- Heard of	-	-	-	-	-
- Discussed in class	31	28	93	35	26
- Correct	70	64	37	82	61
Brunei Darussalam					
- Heard of	54	50	57	25	37
- Discussed in class	7	9	33	3	3
- Correct	9	40	69	50	25
China - Guangzhou					
- Heard of	87	72	90	62	66
- Discussed in class	11	22	43	11	15
- Correct	53	65	50	73	55
China - Hong Kong					
- Heard of	48	52	41	44	38
- Discussed in class	9	16	12	9	8
- Correct	24	66	52	59	25
Fiji					
- Heard of	-	-	-	-	-
- Discussed in class	-	-	-	-	-
- Correct	34	49	41	46	25
India					
- Heard of	68	48	86	35	26
- Discussed in class	38	26	72	17	14
- Correct	25	39	46	71	19
Japan					
- Heard of	43	43	67	36	26
- Discussed in class	13	10	12	4	3
- Correct	49	55	24	39	20

South Korea					
- Heard of	-	-	-	-	-
- Discussed in class	-	-	-	-	-
- Correct	54	-	55	60	63
New Zealand					
- Heard of	47	54	50	40	31
- Discussed in class	12	13	15	8	6
- Correct	20	58	58	53	49
Singapore					
- Heard of	45	62	53	30	28
- Discussed in class	10	25	19	4	4
- Correct	19	22	86	66	32
Thailand					
- Heard of	34	95	90	94	96
- Discussed in class	6	55	39	25	25
- Correct	60	70	68	64	14

The Willingness and Ability of Students to Practice Civic Responsibility

The third and, perhaps, most disheartening finding of the researchers was the ambivalence that the young people showed towards making life style changes and practicing civic responsibility in accordance with their high levels of expressed concern for, the environment. While the young people in every country expressed a strong desire to improve the environment, few reported a past record of active environmental citizenship or a willingness to work for environmental protection in the future. Recycling and reusing, choosing household products that are better for the environment, and reducing water consumption were cited as regular activities by some students and some also said that they had taken part in tree planting and clean-up campaigns. However, only a very small minority of young people in any of the countries said that they had written letters, signed petitions, attended meetings or made formal complaints. These ‘political’ actions are also the actions that most said that they would not consider taking in the future. This is despite the fact that a large majority of respondents (between 70% and 94%) in all countries stated that they felt ‘positive’ or ‘really good’ when they took pro-environmental actions and that they generally experienced positive reactions and strong support from others involved, their teachers and their immediate families.

This paradox cannot be easily explained. There are many cultural and political barriers to Western styles of active citizenship in several counties in the Asia-Pacific Region. However, there is a strong indication in the survey findings that the nature of common

educational experiences also plays an influential role. For example, most young people said that they had poor skills and knowledge for bringing about environmental improvements, even if in only a small way. When they were asked to rate their knowledge and skills in this area, the highest response in all countries was only a medium ranking. Indeed, students in all the countries studied said that the two most common reasons for not acting in an environmentally-friendly way were beliefs that (i) their actions would not make a difference, and (ii) that there was no practical alternative even when they knew that what they did was wrong. This reflects not only a lack of knowledge of possible alternatives but also a failure of schools to provide students with experiences that teach such knowledge and skills. It also indicates that students have rarely had the opportunity to work with others on practical environmental projects and develop confidence in their individual and collective abilities to successfully bring about change.

A re-affirmation of the contribution of education to active citizenship would mean that one of the central goals of education would be to help students learn how to identify elements of unsustainable development that concern them and to address them. This would involve students learning to reflect critically on their place in the world and considering what sustainability means to them and their communities. It would also involve practice in envisioning alternative ways of development and living, evaluating alternative visions, learning how to negotiate and justify choices between visions, making plans for achieving desired ones, and participating in community actions to bring such visions into effect. These are the abilities that Jensen and Schnack (1997) describe as “action competence”. Democratic action competence is the opposite of predetermined behavioral change as a goal for education and aligns education for sustainability as part of the process of building an informed, concerned and active civil society. In this way, education for sustainability can contribute to education for democracy.

Reorienting Education towards a Sustainable Future: The Role of Teacher Education

This situation indicates the need for a revision of the objectives and content themes of school curricula in the Region so that sustainability is a central concern, and teaching and learning processes emphasize appropriate concepts, learning how to learn, civic mindedness, and the motivation and abilities to work with others to help build a sustainable future. This is not a small task for, as Smyth (1995) has remarked, “It is

difficult to avoid the conclusion that many have reached that education should be largely recast” when the wide scope of the task of reorienting education towards sustainability is considered (p. 18). This will require a realignment of the major foci of education. Schools have the role of both empowering students to play an informed and active role as members of society and encouraging the politically endorsed (and mostly economically motivated) values, practices and institutions of the existing social order. These are not mutually exclusive roles, and education is designed to promote both. However, without a whole-of-government commitment to sustainable development in most countries, schools have tended to reproduce an unsustainable culture that intensifies environment and development problems rather than one that empowers citizens to work towards their solution. This situation of unbalanced priorities calls for a reaffirmation of the role of education in building civil society by helping students (i) develop criteria for determining what is best to conserve in their cultural, economic and natural heritage; (ii) discern values and strategies for creating sustainability in their local communities; and (iii) work with others to build sustainability outwards to include national and global contexts. This is not to say that the economic imperatives that underlie the reproductive functions of formal education are to be ignored. Economically sound, ecologically sustainable and socially just forms of development are to be encouraged; indeed, appropriate development is a core principle of a sustainable society. However, a reorientation of education towards sustainability calls attention to the problematical effects of inappropriate development and unfettered economic growth, and also to the ways that these are perpetuated through dominant patterns of schooling and the narrow and limited range of knowledge, attitudes and skills students tend to learn as a result.

The curriculum reforms that flow from a reorientation of education towards sustainability need to be supported by reforms to many current patterns of curriculum development and assessment in the Asia-Pacific Region. For example, the centralized control of teaching and learning through nationally mandated syllabuses, textbooks and assessment in many countries does not readily support the localization of curriculum themes or encourage student participation in local community projects. These reforms also require new attitudes and skills among teachers. This makes teacher education an especially important area for action.

Our Common Future, the Report of the World Commission on Environment and Development (1987) states that ‘*the world's teachers ... have a crucial role to play*’ in helping to bring about ‘*the extensive social changes*’ needed along the pathway towards a sustainable future (p. xiv). For teachers to play this role successfully they require a

commitment to the principles of education for sustainability; without it, they may lack the skills, insights and desire to ensure that their students are provided with opportunities to learn how to contribute to the ways their communities are working to advance the transition to sustainability. Thus, teacher education for sustainability has been the theme of a major UNESCO partnership project in the Asia-Pacific Region. A case study of this project provides a model of the way in which future partnerships might operate.

The Learning for a Sustainable Environment – Innovations in Teacher Education Project began in 1994 to assist teacher educators in the Region and includes the principles and innovative teaching and learning strategies of education for sustainability in their programs. Regional and subregional meetings in 1993 and 1994, which had been convened by UNESCO and the South East Asia Ministers of Education Association, provided the necessary needs analysis and direction for the project. These indicated that the project should focus on the personal and professional development of teacher educators rather than on the production of resources, in order to encourage appropriate pedagogical practice in teacher education which could have multiplier effects with teachers and their students (Fien, forthcoming)

Thus, the primary aim of the project was to support teacher educators in the Asia-Pacific Region as they developed locally relevant ways of rethinking their courses and make plans to reorient teacher education in their colleges and countries towards sustainability. The project developed an action research network of teacher educators across twenty countries in the Region. The purpose of the network was - and remains - to support teacher educators who wished to share in writing carefully researched evaluated and culturally sensitive modules for use in initial pre-service and continuing in-service programs in teacher education.

Evaluation reports indicate that the major outcome of the network has been the professional development of those involved and a series of national workshops and networks in many countries in the Region (NIER 1996, Fien forthcoming). An attractive professional development guide has also been published (Fien, Heck and Ferreira, 1997). Containing edited selections from the most interesting and innovative work completed by the network, the modules in this guide are not seen as a finished product but as inspirations for further adaptation in different countries. Some evidences of the success of this project includes:

- Publication of an Internet version of the guide at:

<<http://www.ens.gu.edu.au/ciree/LSE/index.html>>;

- Adaptations of the modules and translation (*) of some or all modules in India, Pakistan, Indonesia*, Thailand*, Vietnam*, Singapore, Malaysia*, Philippines, New Zealand, Hong Kong SAR, Taiwan* and Fiji;
- Adaptation of the modules in India for use in a professional development program for 70 teachers colleges in Karnataka state;
- Adaptation (and translation) of the modules to suit nursing education by staff of the National Department of Health in Thailand;
- Adaptation and use of modules in master courses in Thailand, Australia, New Zealand and Japan;
- Adaptation and use of modules in a professional development guide and training program on Coastal and Marine Studies in Australia; and
- Adaptation of some of the modules for a UNESCO multimedia teacher education program for teachers called *Teaching and Learning for a Sustainable Future*.

Conclusion

Education for a sustainable future in its second phase forms a widespread reorientation of educational practices, systems and structures, which is not common in the Asia-Pacific Region. This is a very large undertaking and one that the economically wealthy regions of the world have yet to make. Therefore it is not surprising that one of the world's economically poorer countries is yet to enact such reforms. However, there is sufficient leadership in the Region, in the form of international and regional agencies and active NGOs, to indicate that if countries can be convinced that a whole-of-government approach to sustainable development is desirable, then the teacher educators, curriculum development officials and teachers of the Region will have the necessary support to make the necessary reforms. Partnerships in the Asia-Pacific Region can do much to share experiences and resources and catalyze the educational reforms that are needed.

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UNEP and Its Initiatives in Environmental Education

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An Overview

Distinguished participants, ladies and gentlemen

On behalf of the United Nations Environment Program (UNEP), I would like to express my gratitude to the organizers of this “Regional Workshop on Environmental Education in the Asia-Pacific” for inviting UNEP to make a presentation on UNEP’s activities relating to environmental education in the Region.

As all of you may be aware, our organization – UNEP – was established as one of positive outcome of the United Nations Conference on Human Environment, held in Stockholm in 1972. UNEP is an environmental conscience of the UN system and creates a basis for comprehensive consideration and coordinated action within the UN on environmental problems.

Last year, UNEP Governing Council endorsed the following areas of concentration for UNEP. They are:

1. Environmental information, assessment and research, including environmental emergency response capacity and strengthening of early warning and assessment function of UNEP,
2. Freshwater,
3. Technology transfer and industry,
4. Enhanced coordination of environmental conventions and development of environmental policy instruments.

In relation to the areas of concentration, UNEP is promoting and re-orienting environmental education and training activities through a number of initiatives. In this

context, I wish to invite my colleague, Mr. Mahesh Pradhan, to provide more information and insight.

**NETTLAP: Building Regional Capacity through Environmental Research,
Training and Education**

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In 1993, UNEP's Regional Office for Asia and the Pacific (ROAP) established an ongoing program to enhance the region's capacity to manage the environment in a sound and sustainable manner. This initiative, called the Network for Environmental Training at Tertiary Level in Asia and the Pacific (NETTLAP), has evolved into a major contribution to helping to achieve both national and regional goals of sustainable development. It has explicitly recognized that tertiary institutions such as universities, technical and training institutes and teacher training colleges, play a major role in building capacity for sustainable development.

Staffs of these institutions were identified as "agents of change" for two reasons. Firstly, a large multiplier effect is associated with actions that strengthen tertiary institutions and enhance the abilities of staff to transfer, to their colleagues and students, the state-of-the-art understanding and international best practices. The improvements involve many people in a short period of time - graduates are soon improving the environmental management policies and practices in industry, government and the community. Secondly, in the Asian and Pacific Region, governments and industry keenly seek the advice and guidance of staff from universities and technical institutes. Industry in particular recognizes the ability of such people to bring innovative solutions to current environmental problems and creative approaches to preventing the occurrence of new problems.

Initially NETTLAP focussed on strengthening key tertiary institutions in 35 developing countries in the Region. The early efforts of NETTLAP did more to recognize the

enormity of the need and, in relative terms, little to address it. But incrementally NETTLAP made a difference throughout the Region. The benefits of the multiplier effect have begun to be seen. This was particularly so in the case of the design, preparation and dissemination of environmental curricula and the supporting instructional methods, materials and tools for use in tertiary and other relevant institutions in the Region. The approach taken here was to facilitate a process whereby successful academics and professional trainers from government and industry were brought together in intensive workshops sessions and asked to share and critique their individual and collective approaches to human resources development. These efforts resulted in sets of curriculum guidelines and associated training methods, resource materials and tools in such topics as environmental economics, hazardous waste management, toxic chemicals management and coastal zone management. These outputs are still widely sought, and extensively used in the Region.

In the mid and late 1990s, NETTLAP has matured in several ways. Significantly, it has shifted its target from institutional strengthening and human resources development in the tertiary sector itself. There is still an enormous need for such capacity building activities. However, past efforts of NETTLAP and many other programs have resulted in it becoming more appropriate to assist developing countries to plan and implement their own activities to build the capacity to achieve effective environmental management, and sustainable development. In-country initiatives can be much broader than the early NETTLAP focus on tertiary institutions. Countries can take a comprehensive approach that targets other important “agents of change” – politicians, government officials, and leaders from the private sector and NGOs.

Therefore, in recent years NETTLAP has focussed on building national networks that can facilitate the linking of policy makers, development planners, and environmental managers from industry and key staff from tertiary institutions. In addition to sharing expertise, experiences and best practices, the networks are also designed to help identify current and emerging needs that can best be addressed through a symbiotic relationship between these key players. Through these national partnerships, NETTLAP is linking research, training and education in order to improve the capacity to prevent or minimize adverse impacts on the environment. This involves identifying and implementing responses that are sustainable, responsive to identified needs, assured of achieving the desired results, supportive of related policies (e.g. appropriate economic and social development), innovative but consistent with

traditional indigenous practices, add value to other initiatives and encourage complementary activities.

NETTLAP has played a key role by facilitating nationally “owned and driven” environmental capacity building networks in the Philippines, Malaysia and Thailand. The major achievements of the latter two networks for training and research in environmental management have resulted, in part, from significant funding from DANCED, an initiative of the Government of Denmark. Given the success of its current approach of “Regional Cooperation with National Implementation”, NETTLAP is in advanced discussions to help develop similar networks in China, Vietnam, India and the Mekong countries.

Key players in NETTLAP’s strategy - “Regional Cooperation with National Implementation” – are such sub-regional organizations as SACEP, ASEAN and SPREP. NETTLAP is working with these, and similar organizations, to ensure that its actions are supportive of their strategies and action plans related to environmental research, education and training.

NETTLAP has evolved as new needs are identified and past needs are addressed. But despite its efforts, and its significant successes, much more needs to be done. NETTLAP has shown that the most effective approach is one that builds synergies between key international, regional, sub-regional and national players.

ASEAN's Initiatives in Environmental Education

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I. Introduction

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967 in Bangkok, Thailand, with the signing of the Bangkok Declaration by the five original Member Countries namely Indonesia, Malaysia, Philippines, Singapore and Thailand. Brunei Darussalam joined the Association on 8 January 1984. Viet Nam became the seventh member of ASEAN on 28 July 1995. Lao P.D.R and Myanmar were admitted into ASEAN on 23 July 1997 and Cambodia on 30 April 1999.

The Bangkok Declaration united the ASEAN Member Countries in a joint effort to promote economic cooperation and improve the welfare of the people in the Region. The Declaration sets out guidelines for ASEAN activities and defined the aims of the organization.

II. Organizational Structure for ASEAN Cooperation on the Environment

The organizational structure for ASEAN cooperation in the field of the environment consists of the ASEAN Senior Officials on the Environment (ASOEN) and its subsidiary bodies, the Meeting of the ASEAN Environment Ministers and the ASEAN Secretariat.

ASEAN Senior Officials on the Environment (ASOEN): ASEAN cooperation on the environment started in 1978 with the establishment of the ASEAN Experts Group on the Environment (AEGE) under the ASEAN Committee on Science and Technology (COST). AEGE was elevated in 1989 to become the ASEAN Senior Officials on the Environment (ASOEN). ASOEN meets once a year to consider the reports of its working groups, which also meet annually, and provide operational policy guidance on the various environmental programs being pursued.

The cooperative programs and projects of ASOEN are carried out with the assistance of currently three working groups and these are the working groups on Nature Conservation and Biodiversity chaired by the Philippines, Coastal and Marine Environment chaired by Thailand and Multilateral Environmental Agreements chaired by Malaysia. In addition to the above-mentioned working groups, a Haze Technical Task Force, chaired by Indonesia, was also established to operationalize and implement the measures recommended in the ASEAN Cooperation Plan on Transboundary Pollution relating to atmospheric pollution which has now evolved into the Regional Haze Action Plan.

Meeting of the ASEAN Environment Ministers: To promote ASEAN cooperation and ensure that the decisions of the Heads of Governments relating to environment are carried out, the ASEAN Ministers for the Environment have met regularly at least once every 3 years since 1981. So far, the ASEAN Environment Ministers have met seven times. In between the normal 3-year intervals for the formal ASEAN Ministerial Meeting on the Environment (AMME), informal meetings of the ASEAN Environment Ministers have been held almost every year since 1994. In addition, the first ASEAN Ministerial Meeting on Haze (AMMH) was convened in Singapore in 22-23 December 1997 to address the problem of smoke haze in the Region caused by land and forest fires. The AMMH has already met seven times.

The ASEAN Secretariat: Issues pertaining to environment cooperation in ASEAN fall under the purview of the Environment Unit of the Economic and Functional Cooperation Bureau. The ASEAN Secretariat normally services the afore-mentioned working groups, senior officials and ministerial meetings as resource person and rapporteur as well as assists the above-stated bodies by providing substantive inputs in the planning, coordination, implementation and monitoring of various cooperative projects on environment undertaken by them.

The current organizational structure for ASEAN cooperation on the environment and transboundary haze are shown as Figures 1 and 2 respectively.

Fig. 1 **Organizational Structure of ASEAN Environmental Cooperation**

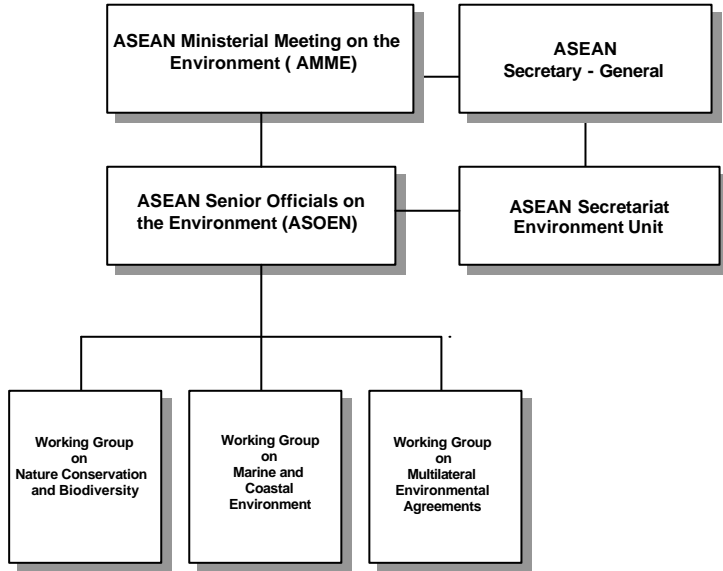
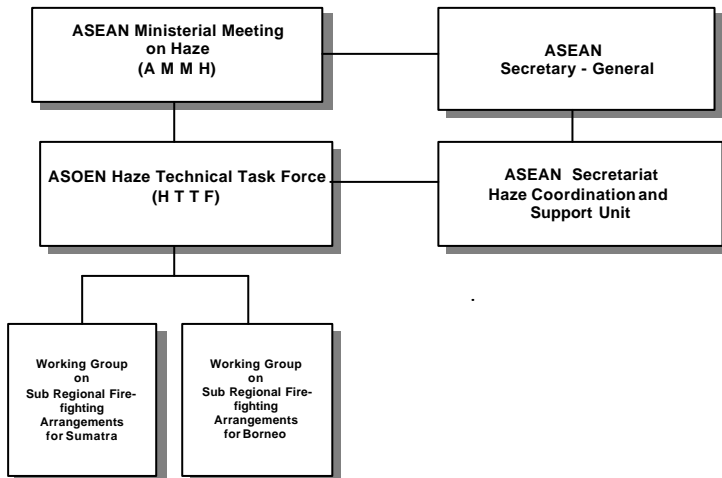


Fig. 2 **Organizational Structure of ASEAN Cooperation on Transboundary Haze**



III. ASEAN's Early Initiatives in Environmental Education

The ASEAN Sub-Regional Environment Program (ASEP I) was initiated in 1977 through the support of the United Nations Environment Program (UNEP). In the formulation of the proposed ASEP, UNEP undertook a study to identify the existing projects by the then five ASEAN Member Countries. The identification was meant to give necessary perspectives and help the countries identify the gaps in their environment fields. The proposed ASEP therefore complemented national activities. ASEP I was endorsed by the First ASEAN Ministerial Meeting on the Environment (AMME) held on 30 April 1981.

The ASEAN Experts on the Environment (AEGE) was established in 1978 to oversee the environmental cooperation in the Region. The First Meeting of AEGE, held in Jakarta in 18-20 December 1978 made the following recommendations on environmental education:

1. That existing agencies in the Region such as **RECSAM, BIOTROP** and other national institutions should look into the environmental teaching methodology more specifically and also have more active training programs along this line in the Region.
2. That UNEP/UNESCO should sponsor an inventory of the available research and educational establishments specifically dealing with environment in the ASEAN Region and, as a follow up, sponsor a workshop of educationalists and environmentalists of the ASEAN Region, to draw up a program for cooperation between the ASEAN countries to exchange information, personnel and graduate students to do research work among ASEAN Member Countries (AMCs).
3. That UNEP/UNESCO convene a workshop to identify and develop common teaching materials and teaching methodologies appropriate for utilization at different levels in the ASEAN countries and also suggest means for getting them mass-produced and distributed.
4. That all-possible sources of funds be identified and secured, and that an attempt be made to develop a special fund for environmental education.

The initial projects on environmental education under the purview of AEGE were as follows:

1. Regional Conference on Environmental Education in ASEAN Universities and Its Transfer

In its early recommendations, UNEP suggested that ASEAN hold a workshop on post-graduate environmental education, as part of the ASEAN activities toward instituting a network of universities in the Region for developing and conducting a Post-Graduate Integrated Environment Education Program. The workshop itself was to initiate mutual collaboration and to advance the activities.

The Third Meeting of AEGE, held in 19-23 May 1980 in Manila, Philippines, requested ASEAN Member Countries to prepare project proposals with Malaysia tasked to develop a Regional Seminar on Higher Education and Environment. The Fourth Meeting of AEGE in 8-10 April 1981 noted that Malaysia would hold such a regional conference. Malaysia eventually held the Regional Conference on Environmental Education in ASEAN Universities and Its Transfer, in 18-21 August 1981 in University of Pertanian, Selangor, Malaysia.

2. Action Plan on Environmental Education and Training for ASEAN Countries (Draft), June 1983 – June 1986:

The Fourth Meeting of AEGE held in 8-10 April 1981 in Singapore noted that there were various environmental education training courses. The Meeting provided a common format for each ASEAN Member Country to list the requirements and priorities in environmental education and training with the assistance of UNEP and UNESCO. The Interim Coordinator of AEGE formulated a Draft Action Plan on Environmental Education and Training for ASEAN Countries, June 1983-June 1986 which was presented at the Sixth Meeting of AEGE held in 22-24 March 1983 in Yogyakarta, Indonesia.

The Ninth Meeting of AEGE held on 22-24 April 1986 in Manila was informed of a Meeting on Environmental Education and Training (EET) for the Asia-Pacific Region held in 11-15 November 1985, and that this Meeting had drawn up an Action Plan/Program of Action for Environmental Education and Training (EET) for the Asia-Pacific. In this regard, UNEP felt that the ASEAN Action Plan should be a part of the

Asia-Pacific Action Plan, and therefore it was considered not necessary for ASEAN to have a separate Action Plan.

One of the important recommendations of the above-mentioned Meeting on EET was to set up a network of tertiary level institutions engaged in EET. Another recommendation was to identify an urgent need to develop curricula for tertiary level environmental education and training on the issues, initially of environmental economics, toxic chemicals and hazardous wastes and coastal zone management. Four EET Networks were established in 1986, namely:

1. Asia Pacific network for tertiary level institutes
2. EET network in environmental economics
3. Network on coastal zone management
4. Network on toxic chemicals and hazardous wastes management curricula development

UNEP subsequently established the Network for Environmental Training at Tertiary Level in Asia and the Pacific (NETTLAP) with the project's activities emphasizing the need for networking the development of curriculum materials and the implementation of training programs related to the three above-mentioned issues, as well as other issues that have wider concerns associated with environment and development in the Asia-Pacific Region.

ASEP I (1978-1982) had put environmental education as a priority area in its program and some of the activities were:

1. *Meeting on Environmental Education for Asia and Oceania.*

The Meeting was completed in September 1980 in Bangkok. Its objective was to promote environmental education in Asia with emphasis on primary, secondary, non-formal and out-of-school education.

2. *Asia-Oceania Regional Workshop on Higher Environmental Education*

The workshop was organized in Melbourne and Canberra, August 1979, with all ASEAN members present. The objective was to promote regional program on tertiary and post-graduate environmental education.

3. *Regional Seminar on Higher Education and Environment*

The Seminar, which was implemented as Regional Conference on Environmental Education in ASEAN Universities and Its Transfer, elaborated above.

ASEP II (1983-1987) also included environmental education (and training) into its priority areas. The goal was the promotion of environmental education and training in the ASEAN Region through the development of:

1. Suitable national programs at school, out-of-school and other levels; and
2. A network of institutions of higher learning offering environmental education, training, and research programs.

The proposed new activities in relation to environmental education of ASEP II were as follows:

1. Development of prototype curriculum materials for environmental education (in-school),
2. Development of curriculum materials for non-formal education,
3. Training and development of institutional materials for environmental education (in-school),
4. Training on integration of environmental education concepts in various disciplines as well as on the development of prototype institutional materials for out-of-school environmental education.

IV. ASEAN's Recent Initiatives in Environmental Education

In 1989, the AEGE was elevated to become ASEAN Senior Officials on the Environment (ASOEN). From then until 1998, ASOEN tasked the issues on environmental education to the ASEAN Working Group on Environmental Information, Public Awareness and Education (AWGIPAE).

In the period of 1988 – 1992, ASEP III was implemented through the support of UNEP as a continuation to the previous ASEP programs.

The First Meeting of AWGIPAE in 7-8 May 1991 in Bangkok, Thailand, made a prioritized list on environmental education projects as follows:

1. Adaptation of environmental education materials into primary and secondary school,
2. Multi-media package for environmental education on sustainable systems/practices in the various ecosystems.

Other proposed projects on environmental education considered under ASOEN were:

1. Development and massive production of supplementary instructional and learning materials for environmental education in all levels (1st AWGIPAE Meeting),
2. Enhancing integration of environmental concepts in the primary, secondary, tertiary and non-formal education curricula in the ASEAN Region (1st AWGIPAE Meeting),
3. International program on environmental education (3rd AWGIPAE Meeting),
4. Social forestry, education and participation (3rd AWGIPAE Meeting),
5. Survey on environmental conditions in schools and recommendations (6th AWGIPAE Meeting).

At its Fourth Meeting in July 1993 in Bangkok, ASOEN agreed that a new ASEAN Action Plan should be developed taking into account of new developments following the outcome of UNCED which adopted Agenda 21. The ASEAN Strategic Action Plan on the Environment (ASPEN) for 1994-1998 has ten strategic thrusts with each thrust containing several actions to be taken. Environmental education is a part of the ASEAN effort to promote sustainable development, as stated in Action 9.2 of Strategy 9 of the ASPEN:

Strategic Thrust	Actions
No. 9. Promote regional activities that strengthen the role of major groups in sustainable development	Strengthen regional information network and promote exchange of expertise on environmental education programs

Many of the projects under ASOEN were subsequently withdrawn because it was considered of less priority in relation to the newly developed ASPEN, and the followings are included:

1. Adaptation of environmental education materials,
2. Multimedia packages for environmental education on sustainable development, systems/practices in the various ecosystems in the ASEAN Region,
3. International program on environmental education,
4. Social forestry, education and participation.

The project proposal on Training Program in Environmental Education for Science Teachers and Supervisors in the ASEAN Region was submitted at the Eighth Meeting of AEGE in 17-20 April 1985. The proposal was noted by the Ninth Meeting of AEGE in 22-24 April 1986 entitled Regional Training Program of Training for Trainers in the ASEAN Region. The project was endorsed by the 15th ASEAN Committee on Science and Technology (COST) Meeting in October 1986. It was further approved by UNESCO, ASEAN and UNDP in August 1988.

The First Meeting of AWGIPAE in 7-8 May 1991 in Bangkok, Thailand noted that the project's status was on-going, and at the time the project had conducted the ASEAN planning meeting, regional and national training courses, and tripartite review of the program (by UN agencies, Institute for Science and Mathematics Education Development, and the National Economic and Development Authority of the Philippines) and sourcebook preparation.

The Sixth Meeting of AWGIPAE, held in 19-20 June 1996 in Brunei Darussalam, reviewed the ASPEN's progress including the above-mentioned action 9.2. The ASEAN Member Countries also presented their country papers on their activities relevant to the working group.

The projects on environmental education that were then considered by ASOEN include:

1. Regional training on integrated environmental education into subject matters for primary school teachers,
2. Survey on environmental conditions in schools and recommendations for improvements,
3. ASEAN environmental education action plan.

Regional Training on Integrated Environmental Education into Subject Matters for Primary School Teachers

The project was considered at the Fifth Meeting of AWGIPAE in September 1995 in Bali. The project concept was endorsed at the Sixth ASOEN Meeting in 20-22 September 1995. It was approved in principle by the Sixth Meeting of AWGIPAE, held in 19-20 June 1996 in Brunei Darussalam.

The project's objectives were as follows:

1. To provide primary school teachers with environmental information on issues and problems pertaining to ecological concepts and sustainable development,
2. To improve primary school teachers capability in integrating ecological concepts into his/her own subject matters (i.e. natural sciences, social sciences, mathematics, physical education, etc.),
3. To improve teachers' ability in carrying out evaluation on integrated environmental education.

The project concept was endorsed at the Sixth Meeting of ASOEN in 20-22 September 1995. To date, the revised project proposal has yet to be submitted.

Survey on Environmental Conditions in Schools and Recommendations for Improvements

The project proposal was considered by the Sixth Meeting of AWGIPAE in June 1996 and is yet to be reformulated by its proponent.

The objectives of this project were:

1. Analysis and evaluation of ambient physical conditions in the selected schools,
2. Survey and evaluation of social-economic conditions in the selected schools,
3. Recommendation of measures of waste treatment, improvement on environment in the selected schools,
4. Recommendation of oriented measures and regulations on design of schools in various areas in the urban, rural area, etc.,
5. Recommendation of measures for upgrading infrastructure, facilities, school

- equipment,
6. Strengthening of public awareness of environmental protection in the schools.

ASEAN Environmental Education Action Plan

The proposal was presented at the Fourth AWGIPAE Meeting in July 1994. The Seventh ASOEN Meeting held in September 1997 agreed to endorse the project proposal.

On 4th February 1998, a Meeting was held between Hanns Seidel Foundation (HSF) and ASEAN Secretariat to discuss the development of the funding support for the project by the foundation and requested the project proponent to revise its Work Plan and Terms of Reference (ToR). The Work Plan and the ToR was approved by HSF and concerned ASEAN parties in June 1998.

The project's objectives are as follows:

1. To provide a framework for the development and implementation of environmental education (EE) activities,
2. To enhance environmental manpower capability in ASEAN,
3. To initiate mass-based action in managing the environment through information, education and communication (IEC) campaigns.

On 30th March 1999, a meeting was held between the two consultants selected to prepare the action plan, HSF representatives and ASEAN Secretariat officials to discuss the implementation arrangements of the project. The consultants were tasked to formulate the draft Action Plan based on the findings in each of the ASEAN countries.

A workshop to review the Draft ASEAN Environmental Education Action Plan was held in 9-10th November 1999 in Metro Manila to discuss and provide comments for incorporation in the Draft. The revised draft has now been circulated for further review by ASEAN Member Countries.

Representatives from UNEP and Institute for Global Environmental Strategies (IGES) were also present at the workshop. UNEP has subsequently indicated its interest in collaborating in the preparation of the Action Plan by contributing funds for publishing the Plan when it is finalized.

The Environment Ministers of ASEAN Member Countries had on several occasions declared resolutions on the environment and development which incorporated environmental education. The resolutions were:

Manila Declaration on the ASEAN Environment, Manila, and 30 April 1981: The declaration adopted the policy guidelines to foster the development of environmental education program. It also considered the program on environmental education and training as a priority area.

Bangkok Declaration on the ASEAN Environment, Bangkok, 29 November 1984: The relevant policy guidelines and priority areas from the Manila Declaration was further developed with respect to environmental education and training as follows:

1. Continue efforts to enhance public awareness in respect of the importance of environmental protection and support governmental actions in this regard.
2. Provide environmental training of personnel involved in decision-making on projects, programs, policies and plans with emphasis on cause and effect relationship that exists between an individual's environment and his health.
3. Introduce stronger environmental theme into school and university syllabi.
4. Provide technical training for staff engaged directly in the work of environmental protection agencies and in environmental programs of other agencies.

Singapore Resolution on Environment and Development, 18 February 1992: To promote regional cooperation towards sustainable development, ASEAN Member Countries agreed to promote public awareness of environmental issues so as to bring about broader participation in environmental protection efforts, and to do so through greater exchange of information and experiences on approaches and strategies in environmental education.

The Second ASEAN Informal Summit, held in Kuala Lumpur on 15 December 1997, adopted the ASEAN Vision 2020 which sets out a broad vision for ASEAN in the year 2020. In order to implement the long-term vision, action plans are being drawn up to

realize this Vision. The Hanoi Plan of Action (HPA) is the first in a series of plans of action building up the goals of the vision. It has a six-year time frame from 1999 to 2004. The HPA consists of six plans of actions which encompass cooperation in different areas. The environment sector is taken into account by Section VI of the Plan of Action **on Protect the Environment and Promote Sustainable Development**, which consists of 15 actions, and environmental education is included under action 6 **Enhance public information and education in awareness of and participation in environmental and sustainable development issues.**

Conclusions

As indicated in the preceding sections, several international organizations such as UNESCO, UNEP and HSF were instrumental in developing activities, projects and plans in the ASEAN Region. As reflected in various ministerial resolutions and summit declarations, ASEAN continues to accord high priority to environment and sustainable development issues in general and environmental education activities in particular. A number of on-going and new initiatives in environmental education have already been mentioned earlier. It would therefore be a good opportunity for all the institutional parties and technical experts gathered at this forum to discuss ways and means on how to collectively move forward in implementing ASEAN-wide environmental education programs. The ASEAN Environmental Education Action Plan is one of these activities that would provide an important boost for environmental protection efforts in Southeast Asia as we enter the new millennium. It is hoped that this Plan together with other Plans from the Asia-Pacific Region provide a platform for generating substantive inputs from a regional perspective to the Rio + 10 Summit scheduled in 2002.

SPREP Initiatives in Environmental Education

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Introduction

The South Pacific Regional Environment Program (SPREP) is the intergovernmental organization responsible for environmental protection activities in the South Pacific Region. Its members are the governments and administrations of the twenty-two Pacific Island countries and territories (grouped into three sub-regions of Melanesia, Micronesia and Polynesia) and four developed countries (Australia, New Zealand, France and the United States of America) which have direct interests in the Region. The 26 SPREP member countries and territories are presented in Box 1 below:

Box 1: SPREP Member Countries and Territories

American Samoa	Niue
Australia	Northern Mariana Islands
Cook Islands	Palau
Federated States of Micronesia	Papua New Guinea
Fiji	Pitcairn
France	Samoa
French Polynesia	Solomon Islands
Guam	Tokelau
Kiribati	Tonga
Marshall Islands	Tuvalu
Nauru	United States of America
New Caledonia	Vanuatu
New Zealand	Wallis and Futuna

The mission of SPREP as stated in its Action Plan, 1995-2000 is “to promote co-operation in the South Pacific Region and to provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations”.

Environmental Issues and Constraints in the South Pacific

Several key environmental issues have been identified by Pacific island countries through their National Environmental Management Strategies (NEMS) developed in the late 1980's and early 1990's. The NEMS identify the following issues for urgent action:

1. Management of solid waste in urban areas,
2. Pollution of reefs, lagoons and other coastal areas,
3. Climate change issues,
4. Disposal of sewage in urban and industrial areas,
5. The growing scarcity of land,
6. Lack of effective land-use controls,
7. Contamination of scarce groundwater,
8. The need to establish protected areas for the preservation of biological diversity,
9. Improper management of liquid wastes (including petroleum products, pesticides, and other non-sewage toxic substances),
10. Intensification of agriculture (and associated poor land management practices),
11. Overfishing of inshore areas (including reefs and lagoons), and
12. Need for alternative (non-petroleum-based) sources of energy.

Additionally, all national reports expressed concern regarding the inadequacy of their government policies or practices for:

1. Land-use planning (especially coastal zone management),
2. Environmental monitoring (of resource use and pollution or degradation),
3. Educational programs to improve public awareness of environmental risks, and
4. Proper pricing of resources to recover all costs.

Although some Pacific islands are developing environmental policies to deal with these issues, the small size of many of these countries coupled with a relatively low economic growth rate has meant that, in many cases, countries simply cannot afford to carry out good environmental practices or to enforce their environmental protection policies. Limited land availability, for example, has meant that landfills are not possible and solid wastes tend to be incinerated or simply dumped along coastal areas. Huge freight costs often mean that return of recyclable material (such as aluminum cans and glass bottles) is an economic impracticality (although this situation is slowly changing as the Pacific

becomes of more interest to new investors). A further concern has been the lack of awareness of environmental concerns amongst the general public. Many of the environmental concerns are new or emergent issues and the general public has remained unaware of the consequences of these problems. SPREP, along with its member countries, has undertaken several initiatives to further environmental education and environmental training in the Region.

Initiatives in Environmental Education and Awareness

It has long been recognized that the success of environmental management and conservation is strongly dependent on effective environmental education, awareness raising and training. Without the participation of the general public, there is little real chance of convincing those in charge of the natural resources (landowners, tribal leaders, village chiefs and government administrators) to better manage their use. In fact, almost all-environmental management project documents tend to list environmental education and awareness as a component of the ongoing project.

To date, in the Pacific, environmental education and awareness raising has been addressed by regional organizations such as SPREP and by the increasing number of environmental non-governmental organizations (NGOs) in the Region. A wide range of resource material including posters, pamphlets, videos, as well as teachers' guides, curriculum modules and even children's story books have been produced in the effort to raise community awareness of environmental issues. Material has been produced in English, French and several local languages in each country. In 1992, SPREP published an Environmental Education Teachers' Manual with financial assistance from UNEP and from ICOD (International Center for Ocean Development – Canada). The Manual aimed to provide a series of environmental education activities that could be used by teachers in existing disciplines within the school curriculum. A second edition of the Manual was reprinted with AusAID (Australian Agency for International Development) funds in 1997.

Teacher training is another key role of the SPREP environmental education and training program. Regional and national training programs have been conducted to provide teachers with the knowledge as well as the appropriate pedagogical skills to educate their students about the environment.

Despite these initiatives, participants at the Pacific Conference for Environmental Education and Training (held in Fiji in 1998) suggested that a more systematic and focused approach to environmental education and training was needed if it was to have a lasting impact in the Pacific Islands. Participants at the Conference further suggested that a more systematic approach to environmental education and training would result in better and more efficient use of financial and human resources available to the Region.

An Action Strategy for Environmental Education and Training

The Conference resulted in the development of the Action Strategy for Environmental Education and Training in the Pacific Region, 1999 – 2003. The Strategy provides guidelines and best practices for environmental education and training initiatives and attempts to “map out” possible actions that may be taken at both the national and regional levels for more successful environmental education and training programs.

The Strategy is divided into four target areas, each with a specific goal and related outputs and actions. Countries will be able to select those outputs they consider priority under their own national policies without having to undertake all activities in order to implement the Strategy.

The four target areas are:

1. Formal and non-formal education
2. Planning and decision-making
3. Public awareness
4. Networking, communication and collaboration

A series of best practice guidelines have also been identified for environmental educators and trainers in the Region. One of the key areas of focus is that of traditional knowledge and the need to incorporate this with the more science and technology based environmental management practices.

Performance indicators are also identified for each target area of the Strategy, however, these are not all easily measurable and clearer indicators are required for the future.

Implementation of the Strategy

Implementation of the Strategy started almost immediately upon its endorsement by SPREP member governments in September 1998. The Environmental Education Officer for SPREP conducted country visits to meet with environment educators and trainers in order to identify national priority areas for implementation of the Action Strategy. To date, Vanuatu, Niue, Nauru and Kiribati visits have been completed. The visits have, in general, been successful as they resulted in better networks being developed between government offices (eg. Environment and Education/ Water Authority and Environment) as well as between some NGOs and government departments. Needs in environmental education have been identified by the relevant organizations and funds are being identified to help begin implementation of the related Action Strategy areas. Activities conducted to date are listed below:

Primary Teacher Training Workshop (Target Area 1: Output 1.2): This Workshop was conducted in August this year as the first sub-regional activity under the Action Strategy. The Workshop was organized in collaboration with the University of the South Pacific (USP) and SPREP. Six countries (Cook Islands, Nauru, Niue, Kiribati, Tonga and Tuvalu) were identified to participate in the workshop. Participants received training in environmental education methods and were also provided with information on a range of environmental issues. These participants will now implement further training programs and/or environmental awareness and education activities in their countries. Follow up activities will include SPREP and USP education personnel visiting the countries and providing additional assistance as necessary.

Community Education Training Center - Environment Elective: In line with Target Areas 1 and 3 (Outputs 1.2 and 3.1), a weeklong pilot environment elective was run in conjunction with the Community Education Training Center (CETC) of the Secretariat for the Pacific Community (SPC). About 30 community development trainees from 16 Pacific Island countries were provided with information on environmental issues of relevance to them. The pilot program will be further evaluated and it is expected that the environment elective will be run as a core course in 2000.

Collaboration with the South Pacific Geoscience Commission (SOPAC) in designing Water Awareness Campaign for 2000: The SPREP Education Officer worked closely with SOPAC staff to help design the World Water Day 2000 campaign and related materials for the program. This sharing of resources has been an effective use

of SPREP and SOPAC resources.

These examples of collaborative action (including the publication of the actual document through UNEP/ROAP) underline the essence of the Regional Action Strategy. With regional organizations working together to address the needs of Pacific Island countries, it will be possible to utilize both financial and human resources efficiently and effectively. Such collaboration will also help to reduce replication of activities under different projects in the various organizations.

Other activities that are now under way include the preparation of country-specific resource materials for Vanuatu and Niue. Collaboration is also being encouraged between countries through the sharing of appropriate existing educational resource materials.

Environmental Campaigns

Several successes have been seen in some of the awareness-raising programs run by SPREP. An example is the Pacific Year of the Coral Reef campaign (1997) which had participation from all SPREP member countries at the national and the regional levels. The yearlong campaign resulted in heightened awareness amongst governments, local communities and the private sector of coral reefs and the need for their protection.

An earlier campaign on turtle conservation resulted in some countries placing a moratorium on harvest of turtles for commercial use with others banning the collection of turtle eggs. Whilst funding for this project has come to an end, the campaign succeeded in raising the interest of many environmental groups and awareness-raising activities continue to be conducted at the national level in several countries.

Environmental Training

There are increasing demands being placed on the small Environment Units and Departments around the Pacific, many of which are greatly under-staffed and are not given priority when staffing levels are being determined. Prior to 1993, several of the smaller island countries did not have even one person whose task was specifically environmental management and protection. Today, this situation has changed but

environmental departments in most countries continue to have only a handful of personnel, each carrying very heavy workloads and expected to work on a wide variety of issues.

As economic development increases, there is a greater need for environmental impact assessment of development activities and therefore greater demands on environment units. What is needed are stronger links and more information sharing between economic and environmental planners, together with additional capacity building and training opportunities.

SPREP is attempting to ensure that Environment Departments/Units have people skilled in the wide range of environmental management areas by providing access to appropriate training programs in this area.

An important capacity building activity conducted by SPREP is that of the SPREP Country Attachment Scheme, whereby an officer working within an environment-related department can be attached to the SPREP Secretariat for up to twelve months to gain additional regional environmental management experience. This scheme is regarded by SPREP as an important means of developing a cadre of well trained young professionals who return to their respective countries following exposure to working within a regional organization and with a number of different countries.

Effective media reporting on environmental issues is considered by SPREP to be an essential tool for environmental awareness raising. As a result, SPREP has been working closely with UNESCO (United Nations Education, Scientific and Cultural Organisation) to provide specialized training to journalists, media personnel and environmental officers on effective reporting (and interview) skills.

The information technology section is also seeking to provide greater assistance to our member countries by strengthening the information technology capabilities of Environment Departments, in line with training currently underway in Environment Department library establishment.

Specific environmental management training programs are also run both by SPREP program officers and by affiliated universities and other organizations in the Region. Climate Change, Marine Pollution, Solid Waste Management, Hazardous Waste Management and Conservation Area Management are some of the types of training that

have been conducted to date.

Future Plans for SPREP Environmental Education and Training

Production of country-specific resource material (Target Area 1: Output 1.1; see also Target Area 4: Output 4.4): This has been identified as a priority action by almost every Pacific Island country. The need for good resource materials, which can be translated into local languages, is essential for effective environmental education and awareness raising. SPREP will also ensure that an inventory of all resource material is produced to enable better access to the material and prevent duplication.

Implementation of teacher training workshops and in-country teacher assistance programs (Target Area 1: Output 1.2): Development of educator skills in environmental education is required to ensure that resource materials produced are utilized effectively in formal and non-formal education institutions.

Development of training programs for government and private sector (Target Area 2: Output 2.2): Training programs will be developed under various SPREP projects to ensure that government departments and relevant members of the private sector are fully aware of existing legislation and good environmental practices. Currently the SPREP Training Officer is conducting a training needs assessment in the Region to determine immediate areas for action.

Train tourism operators and community educators to impart environmental information effectively (Target Area 3: Output 3.1): Specific training programs have been planned to be run in collaboration with the Tourism Council of the South Pacific and with other existing SPREP projects. These training programs will equip community educators with skills in communication, facilitation and use of education resource materials. Tourism operators will be provided with skills to carry out in-house training in more sustainable practices.

Provide training in development of public awareness campaigns and production of resource material (Target Area 3: Output 3.2): Environment officers, NGOs and other environmental educators will be provided with hands-on training in campaign development and in resource production. One of the concerns voiced by several SPREP member countries is the lack of knowledge and skills in producing public awareness

materials in-house. This has meant constant reliance on overseas-based consultants, which has led to a drain on meager financial resources. Similarly, skills are required to help develop effective in-country awareness campaigns.

Conclusion

The development of the Action Strategy for Environmental Education and Training in the Pacific Region, 1999 - 2003 is a reflection of the renewed recognition of the importance of effective environmental education and training amongst governments and regional and international donor agencies. The Strategy provides hope that the Pacific Islands can still work together to achieve their regional objective of strengthened environmental education and training to motivate people to manage their natural resources whilst continuing to undertake social and economic development.

However, there is still a need for more co-ordination of environmental education and training programs to provide a longer-term impact. It is also important to note here that merely providing information on or knowledge about an environmental issue is not enough. There must also be renewed effort at providing young people with opportunities to develop pride in their environment and thus, hopefully, becoming motivated to take action to protect the environment. Hence, training of teachers in environmental issues is an urgent need. The educator must believe in the “cause” of environmental education in order to be effective in motivating students to become involved in environmental protection. Or, to use the words of UNECO, we must seriously consider the education of the heart and the hands along with the education of the head.

The Role of SACEP in Environmental Education in South Asia

Mr. K. H. J. Wijayadasa
UN Consultant in Environmental Management

I. Aims, Objectives and Functions of SACEP

South Asia Co-operative Environment Program (SACEP) is an association of 8 member states, namely; Afghanistan, Bangladesh, Bhutan, Maldives, India, Nepal, Pakistan and Sri Lanka. It came into being with the adoption of the Colombo Declaration and the articles of Association of SACEP at the Ministerial Meeting held in Colombo in February 1981. The aims and objectives of SACEP are:

- (a) To promote and support the protection, management and enhancement of the environment, both natural and human, of the countries of South Asia, individually, collectively and co-operatively, and
- (b) To encourage the judicious use of the resources of the environment with a view to alleviating poverty, reducing socio-economic disparities and improving the quality of the people.

The functions of SACEP are to promote co-operative activities which would be beneficial to the member countries in priority areas of mutual interest, facilitate exchange of knowledge and expertise and provide local resources for implementation of priority activities while mobilizing maximum constructive and complementary support by donor countries and agencies. The principal organs of SACEP are the Governing Council (GC), the Consultative Committee (CC), Subject Area Focal Points (SAFP) and the Secretariat.

The Governing Council determined some 4-subject areas in 1983. Each subject area was assigned to a focal point. These subject area focal points are expected to co-operate with the SACEP Secretariat in project identification, formulation, implementation and monitoring. Each country that has assumed responsibility for a particular subject area designates a center of excellence in the subject area as the focal point and appoints a Liaison Officer.

Since the inception India has functioned as the Subject Area Focal Point for environmental education and training, the designated center of excellence for this activity is the Center for Environmental Education (CEE) Ahmedabad, India.

The CEE is a national institution established in 1984 and supported by the Government of India. The main objective of the CEE is to create environmental awareness among children, youth and the general community. The main areas of the CEE's activities include environmental education in schools, training, eco-development, media, experiencing nature and urban programs.

II. Major Issues and Problems of Environmental Concern

The South Asian sub-region extends from Afghanistan in the North to the Maldives in the South and from Iran in the West to Bangladesh in the East. The sub-region covers 5.38 percent of the total land area of the world. It carries a population of around 20 percent of the world's population. Over 35 percent of the population live below the poverty line. Acute population pressure, abject poverty and development devoid of environmental safeguards have resulted in irreparable environmental degradation and depletion of natural resources. Two of the highest priorities in all these countries are poverty alleviation and sustainable development.

In South Asia almost all the environmental problems have their roots in poverty, population pressure, over exploitation, wasteful production and human greed. Paradoxically, underdevelopment as well as the haphazard development process is also responsible for this precarious situation. Therefore, the crusade for the creation of an environmentally sound and sustainable society should be fought in four fronts; namely, minimizing environmental degradation and pollution; eliminating the root causes of environmental degradation; integrating environment and development and vigorously pursuing the path of sustainable development.

The Region has to contend with six major environmental problems. They are the (1) degradation of ecosystems, (2) depletion of natural resources, (3) loss of biodiversity and natural habitats, (4) unmanageable levels of soil, water and air pollution, (5) inadequate shelter, sanitation, health care and water supply and (6) threat of climate change and sea level rise. Poverty and population pressure have driven millions of poor to eke out an existence through environmentally destructive practices such as slash and burn and over

fishing. Industrialization and urbanization, which are haphazard, dirty and rapid has created the most chaotic environmental conditions in the new growth centers of the Region.

III. SACEP'S Vision and Mission on Environmental Education

To educate is to provide intellectual and moral instruction to young and old alike through formal and informal education. To train is to bring a person to the desired state or standard of efficiency by instruction and practice. Therefore, environmental education, awareness and training are not only inseparable and interdependent but also intricately interwoven. Chapter 36 of Agenda 21 on Education, Public Awareness and Training states that environmental education awareness and training be recognized as a whole and as a process by which human beings and societies can reach their fullest potential. Therefore, it is imperative that environmental education is defined to include awareness and training. Further, the scope and content of environmental education should be enlarged to encompass the environment and development interface. In this regard, integration of environmental concerns into the development process should be recognized as the principal means of harmonizing environment and development.

Environmental education and training have been a priority concern of the SACEP since its inception and the rationale for this have been that environmental education, communication and training are of fundamental importance as they provide the necessary knowledge, values and skills needed by the general public and decision-makers to understand the complexities of the environment. Governments alone cannot reverse the environmentally adverse trends of resources utilization, despite the legal and regulatory powers are vested in them. Environmental improvement programs need the support of the common people and their whole hearted and committed participation. Environmental education has to be conceived of an expected program of the people for the people by the people, fully backed by political will and technical competence.

Environmental education can be successfully imparted, and being provided a high rate of literacy is achieved in the short term. Electronic and print media should be made accessible to the large mass of the people especially the poor. Above all, environmental capacity building should march hand in hand with the expansion of environmental education.

IV. The South Asian Approach to Environmental Education

In South Asia, three main approaches have been used for the introduction of environmental education into the existing school curricula. They are the infusion, integration and separate subject approaches. The infusion approach is more of an ad hoc arrangement which involves enriching and expanding existing units by substituting examples into already existing course materials. This is done mainly through examples, which are related to real life environmental issues. Through this approach at which the content of the core subject remains the same, only the substance of the example changes. This approach is currently finding the most widespread application at all levels of formal education in this sub-region.

The integration approach means breaking down the barriers of the different disciplines. It therefore involves a systematic incorporation of relevant environmental concepts into the syllabi. The curriculum of selected subjects is overhauled to allow for the incorporation of relevant ideas that ensures full integration of the environmental content into the curriculum as well as the integration into the core subject.

In the third approach, environmental education is taught as a separate identifiable subject. While the infusion and integration approaches to environmental education have been widely adopted, the separate unit approach is gradually gaining ground.

National Education Systems in all countries of South Asia have considered that it is essential to include important elements of environmental education in their school curricula. The need for developing and implementing opportunities for children to explore the interrelationships between the people and their surroundings is well recognized, and primary level education is mostly centered around first-hand contact with the natural environment.

The efforts to implement environmental education at the primary level are not so apparent at the secondary level in most of the countries. This is due to problems in the development of integrated interdisciplinary approaches. As a result, the incorporation of an environmental content is still confined to individual activities in specific subjects.

Several techniques have been developed for introducing environmental education in non-professional courses at the secondary level. Attempts are also being made in many countries to incorporate project type studies or field activities in formal school education

to supplement classroom teaching.

A survey conducted by the UNEP in 1986 showed that many countries in the ESCAP Region offer environmental education at the tertiary level. There is, however, some variation in the type, which ranges from its inclusion as a part of a discipline such as Engineering, Biology, Earth Sciences, Chemical Sciences and Law to the formulation of independent degree programs.

The growing demand for the integration of environment into development and decision making is nevertheless resulting in an increase in the number and type of short-term professional and in-service training courses in tertiary-level education.

Non-formal environmental education programs in this Region may be grouped into two main streams. The first consists of informal education used in schools to reinforce formal learning. The second comprises systematic but informal environmental education provided to adult groups in various socio-occupational categories such as industry or women.

Even though environmental studies are being incorporated into primary, secondary and tertiary education, the approach is neither integrated nor holistic. It is necessary to recognize environment and development as two sides of the same coin. Environmental education should expand into new horizons on the basis that environment is multi sectoral, multi disciplinary and multi faceted. Environmental education should undergo reforms with a view to bringing about radical changes in thinking, deciding and executing both environmentally and developmentally. Optimum benefits should be derived from the use of indigenous knowledge, traditional methods and systems and environmentally friendly livelihoods.

In the Asian and Pacific Region, a major catalyst for the enhancement of environmental education was the Regional Meeting of Experts held in Bangkok in 1976. Another important Meeting of Experts on Environmental Education and Training and Public Awareness in the Asia-Pacific Region was held in Bangkok in 1985 to formulate a list of recommendations for Formal and Informal Education and Training and to prepare an Action Plan for Environmental Education and Training for the Asia-Pacific Region.

Considerable improvements have been made in the field of environmental education since then. Environmental education is now seen as problem focused education, based

on real environmental situations. It has developed into a discipline in itself, interdisciplinary in nature with a stronger balance between cognitive learning, skill learning and effective learning. Environmental communication for both awareness and the understanding of issues related to sustainable development has progressed side by side using modern and traditional media. An encouraging aspect of which is the activity-centered approach based on personal encounters and practical preference.

V. SACEP'S Initiatives

In addition to small initiatives undertaken by the SACEP in the field of Environmental Education and Training, the major undertaking has been the implementation of a major project with financial assistance from the Norwegian Agency for Development Co-operation (NORAD) titled *Co-operation in Environmental Training: A Proposal for Capacity Building in the South Asian Region*.

The Project Objectives were as follows:

Short Term

1. To assess the training requirements on a priority basis initially for a country and then for the Region, and
2. To identify existing training programs and opportunities in environment and development related fields in the Region.

Long Term

To assist in the development of a concrete plan of action for the SACEP Region in respect of meeting the training needs on a national and regional basis.

In order to meet the objectives of the project, the national focal points of the seven participating SACEP Countries designated one national consultant. The principal collaborating agency in the implementation of the project was the SACEP's Priority Subject Matter Area Focal Point, namely the Center for Environment Education (CEE), Ahmedabad, India

The first phase of this project was the conduct of a “*Regional Workshop of National Consultants for Assessment of Environmental Training Needs and Opportunities in the South Asia Region*” in Male, Republic of Maldives. The Workshop was held from 16th - 20th July 1995 where the training needs of the participating countries were discussed at length.

In the next phase of the Project, the national consultants in co-operation with the SACEP and the CEE revised the country reports on the training needs for each of the SACEP Countries, based on the revised format.

A Final Review and Evaluation Meeting was then held at CEE, Ahmedabad from 22 - 24 February 1996 and was attended by the national consultants and the national focal points of the 7 participating SACEP Countries. There were also observers from Asian Development Bank (ADB), Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Environment Program (UNEP) and the funding agency NORAD. The objective of the Workshop was to finalize the Regional Report and the Action Plan in connection with the environmental training needs of the Region.

To place on record of the findings, conclusions and recommendations of the two workshops, a publication entitled “*Co-operation in Capacity Building for Environmental Training in South Asia*” was released in 1997.

V. South Asian Strategy for Environmental Education and Training

The SACEP recognizes the need for a systematic approach to Environmental Education and Training (EE&T) in South Asia. Such an approach calls for an identification of the problems of EE&T and the formulation of a South Asian Strategy on EE&T. Preparations are underway to formulate a project. The primary goal of the EE&T Project would be to promote, foster and facilitate environmental education, awareness and training with a view to creating an environmentally sound and sustainable society in South Asia.

The following problems need urgent attention.

1. A South Asian strategy on EE&T has not been formulated,
2. Countries do not have national policies on EE&T; further, legislation and

institutions are non-existent,

3. The education and training infrastructure is inadequate, disorganized and disoriented; at present there is no governance for EE&T,
4. There has been no systematic approach to capacity building in EE&T. The SACEP's Project for co-operation capacity building in environmental training in South Asia would address issues in relation to training only.
5. EE&T lacks planning, co-ordination and implementation capacity. There is no proper direction and supervision as EE&T has not been assigned to either of the two Ministries of Education or Environment.
6. Very little attention has been given to specialized teacher training in Environmental Education. There are no schemes for training of trainers.
7. Curriculum development has not received any special attention, teaching materials and aids are in shortage and teaching methods have not been modernized.

The proposed South Asian Strategy for EE&T should address *inter alia* to the following critical areas :

1. Policy development, legislative backing and instructional framework,
2. Research, especially problem oriented and action oriented research,
3. Education, awareness and training should be treated as inseparable and indivisible,
4. Environmental conservation and protection approach should be upgraded to an environmentally sound and sustainable development approach,
5. Curriculum development, teacher training and training of trainer's should receive priority attention, and
6. Capacity building in EE&T should encompass policy, planning, infrastructure, management skills, development and integration of environment and development.

Vote of Thanks

Assoc. Prof. Osamu Abe
Project Leader
Environmental Education Project
IGES

Dean Anuchat, Ladies and Gentlemen

In closing this workshop, “**Regional Workshop on Environmental Education in the Asia-Pacific**”, on behalf of the organizers, I would like to express our sincere gratitude to all of you for your active and enthusiastic participation in the Workshop. Without your active participation, we would not have been able so successfully to revise the document “**Regional Strategy on Environmental Education in the Asia-Pacific**”. I am proud of you and your support. The Workshop has provided a giant stride toward fostering environmental education in the Region. In deed, you deserve a big “thank you”.

Finally, I would like to extend my thank to Prof. Poungsamlee, Dean Anuchat, Prof. Sansanee and the staff of Mahidol University for extending their kind hospitality to all of us here inside the campus and organizing this workshop successfully. I wish you a safe trip back home.

Thank you.

Closing Remarks

*Assoc. Prof. Dr. Anuchat Pounsomlee
Dean
Faculty of Environment and Resource Studies
Mahidol University, Salaya*

Prof. Abe, The Project Leader, IGES-Environmental Education Project, Distinguished Participants, Ladies and Gentlemen

The past two days were too short, but most productive. We all have worked hard and reviewed the document closely. All of us will now be looking forward to undertake future collaboration and partnership to foster environmental education in the Region.

On behalf of Mahidol University, I would like to convey my heartfelt thanks to the Institute for Global Environmental Strategies (IGES) for choosing us as a co-organizer of this Workshop. I hope that our collaboration will be continued and strengthened in the future.

Thanks to the great efforts and enthusiasm of all participants who contributed to the success of this Workshop. Permit me to presume that in spite of your tight schedules, you have had an enjoyable stay in Salaya and in Thailand. Please do make a revisit. All of you are always welcome to join the on-going and future activities of our Faculty of Environment and Resource Studies, Mahidol University.

Distinguished ladies and gentlemen, may I now have the honor to declare close the **Regional Workshop on Environmental Education in the Asia-Pacific**. I wish you all every success in your deliberation and a safe trip back home.

Thank you.

Part II

Country Reports on Environmental Education

1. Environmental Education in Australia

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The National Scene

It is not possible to provide a detailed picture of environmental education in Australia due to the complex nature of the education system in Australia where two of the three levels of government – Commonwealth, State and Territory – have different responsibilities for education. The Six State and two Territory governments have major responsibility for education policy, the provision of schools, teachers, syllabuses, and teaching resources in public schools. The Commonwealth government provides special purpose funds for educational projects of national significance (e.g. gender equity, multicultural education, and school-industry links) but most interest in and support for environmental education at the national level comes from environment and resource management departments, and from education. However, in recent years, the Commonwealth has acted to try to bring a degree of co-ordination and uniformity to education policy and curricula across the various State/Territory systems.

In 1989, the Commonwealth, State and Territory Ministers for Education agreed on the Hobart Declaration of ten “*Common and Agreed National Goals for Schooling in Australia*”. These goals include two of direct relevance to environmental education: developing “*an understanding of and concern for balanced development of the global environment*”, and “*a capacity to exercise judgement in matters of morality, ethics and social justice*”. These goals are now incorporated into educational programs in all school systems. The national curriculum process identified eight areas of knowledge for co-operative curriculum action: (1) Studies of Society and Environment, (2) English, (3) Foreign languages, (4) Science, (5) Technology, (6) Mathematics, (7) Health, and (8) the Arts. Studies of Society and Environment is recognized as the “home” of environmental education but it is included also in Science, Technology and Health.

Actions in the field of *Studies of Society and Environment* have included a national audit of environmental education materials and an in-depth review of the pattern of curriculum

provision for environmental education in Australia through an analysis of all relevant educational policies and syllabuses throughout the country. The results of these reviews were incorporated into a *National Statement on Studies of Society and Environment* and the development of “Profiles” through which a common template for syllabus development and for identifying and describing student performances may be achieved. These agreed national documents are now being implemented in schools in ways that suit the priorities of each education system.

Now that most States and Territories have accepted the eight key learning areas the State, Territory and Commonwealth Ministers of Education agreed in April 1999 on a new set of goals titled the “*Adelaide Declaration on National Goals for Schooling in the Twenty-First Century*”. In this document it states that when student leave school they should: “*have an understanding of, and concern for, stewardship of the natural environment, and the knowledge and skills to contribute to ecologically sustainable development.*” They should also be “*active and informed citizens*” who have the “*capacity to exercise judgement and responsibilities in matters of morality, ethics and social justice.*” The eight key learning areas are reaffirmed as well as the inclusion of a separate statement related to social justice within schools. It is clear that environmental education has been strengthened by the revised National Goals for Schooling in Australia.

It is difficult to judge these developments and their implications for environmental education at this early stage, but the general feeling amongst environmental education teachers in Australia is one of caution. They are pleased that environmental education has an official home in the curriculum that enables the interdisciplinary study of natural systems and people. However, concern has been expressed about the overly-anthropocentric orientation in the National Statement, its treatment of resources mainly from an economic viewpoint, its lack of a strong global perspective in a too heavy emphasis on Australian studies, and its lack of emphasis on critical enquiry and education for active citizenship. It is also feared that the tradition of school-based curriculum development that has been very good for the professional development of teachers might be constrained by tighter syllabus and assessment controls.

Indeed, there is a very strong tradition of school-based curriculum development in Australia where schools and teachers are responsible for developing the detailed objectives, content, teaching methods and assessment of student learning within the parameters of broad-framework syllabuses. This has led to much innovation and the development of programs, including many in environmental education, which suit the

needs of students in their individual schools and communities. This autonomy and diversity of practice may enable schools and teachers to withstand the standardizing tendencies of centralized curriculum actions. However, they also make it very difficult to keep up with what is happening and, coupled with the division of Australian education into eight State/Territory systems, makes the task of providing a national picture very difficult. Thus, this overview of the responses of Australian environmental education to international conferences is necessarily a selective one and focuses on only one state, Queensland.

Environmental Education in Queensland: A Case Study

This section focuses on the policy and curriculum initiatives of the Queensland Department of Education (recently renamed Education Queensland). The Department's first policy on environmental education was a two-page document published in 1976. This brief paper used the definition of IUCN- The World Union Conservation, listed aims for environmental education - including one on environmental citizenship, and identified key departmental agencies involved in implementing the policy. It also provided the impetus for the establishment of field study centers throughout the state. In 1988 the policy was revised and reprinted as *Policy Statement 20*. This document augmented advice about how the original policy might be implemented in schools and included teaching guidelines. These policy documents were largely focused on learning about the natural environment, but over the next couple of years a number of important events and publications influenced the Department's concept of environmental education.

The publication of *Our Common Future* by the United Nations World Commission on Environment and Development legitimized a more holistic view of environment and brought the concepts of social justice and ecologically sustainable development to environmental education. This view was reinforced by the publication of *Caring for the Earth: A Strategy for Sustainable Living* by the IUCN, the United Nations Environment Program (UNEP) and the Worldwide Fund for Nature (WWF) in 1992. In the same year Australia endorsed and signed the four key agreements relating to social and ecological sustainability at the Earth Summit in Rio de Janeiro. These developments had a major influence on environmental education in Queensland as did attempt to coordinate environmental policies between the various levels of government in Australia. Thus, 1992 saw the development of a National Strategy for Ecologically Sustainable

Development in Australia. All states endorsed this strategy and in Queensland, the Department of Education has been assigned a key role in its implementation. An objective of particular relevance proposes the incorporation of the principles of ecologically sustainable development into the curriculum, assessment and teaching programs of schools and higher education.

As a result of these and other developments the focus of environmental education in Queensland has changed. The new aim is to deliver effective learning and teaching which assists students to acquire the understandings, skills and values to participate as active and informed citizens in the development and maintenance of an ecologically sustainable, socially just and democratic society. A number of events and publications have resulted from this changed focus.

Firstly, Field Study Centres were renamed as the Environmental Education Centres to reflect this broadening of the focus of environmental education. Second, the Department published *Environmental Education P-12: A Resource List* following the national audit of environmental education resources in 1990. The Department also published *Teaching for Ecologically Sustainable Development: Guidelines for Years 11 and 12 Geography*. Linking ecologically sustainable development (ESD) with senior syllabi in geography and economics, this document pays particular attention to values of education. Listing core democratic values and principles essential to the achievement of ESD, the Guidelines draw on *Our Common Future* for the definition of key issues and presents several sample activities and case studies that illustrate how schools may teach for ecologically sustainable development. Interestingly, these examples anticipated several of the themes that would emerge in later UN conferences, such as indigenous rights, the links between health and the environment, and the ‘healthy cities’ movement.

“*Active and Informed Citizenship*” is a national priority and links between it and environmental education became important, signifying the importance of being ‘citizens of the earth’. *Active and Informed Citizenship: Information for Teachers* was published in 1993 and describes these links and those with other Departmental social justice initiatives, which focus on social and personal environments. In 1993, a *P-12 Environmental Education Curriculum Guide* was developed which drew together these influences and presented an holistic notion of environmental education based upon the themes of “*healthy people living in healthy communities within the limits of healthy natural environments*”. Thus, the document proposes that the environment has natural, social and personal elements, which are inextricably linked. The eight principles of

sustainability in *Caring for the Earth* were used to provide the philosophical basis for the *Guide*. This curriculum guide is presently informing the development of environmental education practice in Queensland. The aims and objectives of environmental education as outlined in *P-12 Environmental Education Curriculum Guide* published by the Department of Education, Queensland, 1993 are outlined below:

Aims

An effective environmental education program in schools would provide all students with the opportunity to acquire the followings :

- An awareness of, and concern for the (total) health of the planet and its people
- The knowledge, skills, attitudes and values needed to protect and improve the environment (natural, social and personal)

Objectives

(1) Skills: Teachers can help students to think critically about and act for the environment by developing skills such as these. Students will:

- explore a variety of environments using all of their senses,
- observe and record information, ideas and feelings relating to environments,
- evaluate and reflect on explorations in various environments,
- investigate and communicate concerns about environmental matters and issues,
- experience a variety of perspectives on environmental matters and issues,
- debate and discuss alternative viewpoints on environmental matters and issues,
- identify, clarify and express value judgements relating to environmental concerns,
- consider and predict consequences (ecological, social, political, economic, etc.) of possible courses of action,
- select, design and implement appropriate courses of action on environmental matters and issues,

- co-operate and negotiate with others in order to resolve conflicts arising over environmental issues,
- make oral, written and graphic presentation of information gathered in investigations of the environment,
- develop political skills necessary for active citizenship (eg. lobbying, petitioning, forming a delegation, letter writing),
- learn the skills of lateral and creative thinking.

(2) Attitudes and Values: Teachers can help students to develop an environmental ethic based on the values of social justice and ecological sustainability by providing students with opportunities to develop the followings :

- a sense of joy in, and enthusiasm for the environment,
- a respect for nature,
- an enthusiasm for inquiry about human interaction with the environment,
- a concern for the quality of environments, and a preparedness to actively care for them,
- a sense of place and an appreciation of the unique character of particular environments,
- an appreciation of indigenous peoples' cultural knowledge and experience of the environment and their contribution to a unique understanding of the environment,
- an appreciation of the need for personal, community, national and global co-operation in preventing and resolving environmental problems,
- a preparedness to evaluate and change one's personal lifestyle to support the concept of sustainable, healthy futures,
- a preparedness to participate in making informed decisions,
- a willingness to work individually and with others to improve the environment, and
- a willingness to be open-minded, challenges pre-conceived ideas, accept change and acknowledge uncertainty.

(3) Knowledge: Teachers can provide opportunities for students to learn about the environment by addressing concepts such as these:

- *Natural systems* are complex, self-regulating and interconnected. Physical cycles continually recycle energy and matter, making it possible to sustain a

diverse range of living things. Within these ecosystems a myriad of interdependent organisms flourish and their diversity keep the natural system resilient.

- *Social systems* have political, economic, cultural and religious facets, which are interconnected with each other and with natural systems.
- *Personal ecology*: The way we see the world is often a reflection of the way we see ourselves, and so has a bearing on our attitudes to our environment. In return our inner self is affected by our social and natural environments.
- *Ecologically Sustainable Development (ESD)* is an approach to development that meets the needs of the present without compromising the ability of future generations to meet their own needs. For development to be sustainable it must also be socially just, and appropriate to the culture, history and social systems of the place in which it occurs.
- *Citizenship* requires that all people be responsible for their own actions and work together in their local, national and global communities to make the world a better place.
- *Sacredness*: Nature has its own value, regardless of its value to people. A harmonious relationship between people and nature is both natural and essential for well being.
- *Knowledge and uncertainty*: Although we understand that everything is connected to everything else, there is much we do not understand, and so we should make decisions accordingly. We need to act rationally and intuitively, carefully and truthfully.

The practice of environmental education in schools is diverse. To encourage excellence in environmental education practice within this diversity, the Department recommends pedagogical principles to be incorporated into program. These principles encourage the development of programs which are interdisciplinary, holistic, student-centered and community-orientated and which use an action research or community problem solving approach for examining issues.

The quality of environmental education programs is changing significantly as a result of these developments. This is due, in part, to increased student, teacher and parent interest, the availability of resources, and support from the community. Thus, environmental education is now on the agenda of many organizations in Australia who are actively seeking the co-operation of schools in promoting more soundly based resource utilization and management. Local councils, State government departments, business

and community groups have been partners in the upsurge of school involvement in community based environmental education projects.

Towards a Broader Notion of Environmental Education

In January 1999 the Federal Minister for Environment and Heritage in Australia, Senator Robert Hill, released a national discussion document: '*Today Shapes Tomorrow: Environmental Education for a Sustainable Future.*' This document suggests a list of components of learning that people encounter as they explore issues of sustainability.

(1) Awareness Raising - 'Does it matter to me?'

Market research into environmental issues consistently confirms what educators have long held as a first principle of operation: start from where the students (or consumers, farmers, industrialists, citizens, decision-makers and so on) are. What is it that matters to them most at this point in time? What do they want to achieve? How do these attitudes relate to environmental issues? These are the starting points for any useful process of problem solving as well as meaningful and enduring learning.

Awareness raising is not just a matter of shaping attitudes; it must also be about the development of knowledge. Is this view legitimate? What information supports it? Is that information relevant and reliable?

It is anticipated that from these initial steps of establishing and confirming the personal relevance of environmental issues, there will be an evolution to understanding of issues on a larger scale: personal, local, regional, national and global.

(2) Shaping of Values - 'Should I do something about it?'

Without appropriate and helpful underlying values and attitudes, environmental education is bound for failure. These values include:

1. Respect for and appreciation of the interdependence of all life forms and the resilience, fragility and aesthetic qualities of the natural environment,
2. Appreciation of the dependence of human life on the finite resources of the earth, and

3. Appreciation of the role of human ingenuity and creativity in ensuring survival and in the search for appropriate and sustainable progress.

Because of the way in which environmental education may challenge accepted practices and beliefs, it is an area of some contestation. For this reason the process of developing values has a controversial aspect. Thus the following values are also most important:

1. A sense of balance and fairness to all in deciding among conflicting priorities, and
2. An appreciation of the importance and value of individual responsibility and action.

(3) Developing Knowledge and Skills — 'How can I do something about it?'

At its heart capacity building means acquiring relevant knowledge and skills. This process often be seen as the conventional function of any type of education.

It has been noted that the types of knowledge needed to participate effectively in environmental education are wide-ranging and not confined to any particular discipline. Some of the areas of knowledge which environmental education must deal with, however, are as follows:

- The planet earth as a finite system,
- The resources of the earth, particularly air, soil, water, minerals, their distribution and their role in supporting living organisms,
- The nature of ecosystems, their health and interdependence within the biosphere
- The dependence of humans on the environmental resources for life and sustenance,
- Sustainable relationships within the environment,
- The rate and character of economic development,
- The role and values of science and technology in the development of societies and the impact of technologies on the environment,
- The interconnectedness of present political, economic, environmental and social issues, and
- Processes of planning, policy-making and acting to solve problems.

The skills, which should be acquired include capacities to do the followings :

- Define and explain fundamental concepts such as environment, ecological systems, community, development and technology and being able to apply them to specific situations using a range of relevant resources and technologies,
- Analyze problems, and frame and investigate relevant questions,
- Assess and evaluate differing points of view,
- Develop hypotheses based on balanced and accurate information, engage in critical analysis and careful synthesis, and test new information and personal beliefs, explorations and experiences against these hypotheses,
- Communicate information and points of view effectively,
- Develop partnerships and the foundation for cooperative and consensual action, and
- Develop strategies for action, including locating appropriate resources, and means for their implementation.

(4) Making Decisions and Taking Action - 'What will I do?'

Environmental education is not a passive process. In response to the new levels of awareness, knowledge and skill, and on the basis of evolving values and attitudes (all suggested above), it is about changing behavior, whether one's own or as part of larger community changes.

As mentioned in the above, this is one of environmental education's defining characteristics. It is, above all, practical in the sense that some results should and must come from it if our futures are to be as we would wish (Department of the Environment and Heritage, 1999:13-14).

The discussion paper clearly indicated the need to consider environmental education broader than formal school education. The document identifies these levels as follows:

- Government: Federal, state/territory, local;
- Formal Education: Early childhood, school education, higher education, vocational education and training;
- Workplaces: Business and industry, peak (apex) bodies ; and

- Non Formal Settings: Media, environmental interest groups, other community groups and the home

It is expected that the Federal Minister will release a new policy document for environmental education based on the community responses to the discussion paper in the very near future. This document will allow environmental education to be considered in its broadest sense in terms of the audience, aims and goals. The future certainly looks positive for the development of environmental education.

Conclusion

There has been a sound response to the sustainable development agenda that arose from the 1987 publication of *Our Common Future* and the 1992 Earth Summit. There has yet to be time for education systems to respond to other international agendas such as the UN's Copenhagen Conference on Social Development (1994), the Beijing Women's Conference (1995), the Cairo Population Conference (1995), and the Istanbul Habitat II Conference on Cities (1996). However, the holistic nature of the policies of *ecologically* sustainable development in Australia has meant that equity, gender, human rights and urban issues are being supported as key elements of environmental education.

However, environmental education is more than just another 'social problem' which requires a response from schools. David Orr has argued that "*the crisis of sustainability ... is not only a permanent feature on the public agenda; for all practical purposes it is the agenda*" (Orr, 1992, p. 83). No other issue facing the world today is of such pervasive and long-term significance as the need to find ways of living within the resource limits of the planet and our social systems. This has been recognized by many people from all walks of life and is manifested in the rising levels of public awareness of environmental problems and growing public concern over the stability of ecosystems and the sustainability of present patterns of development. This means that, as environmental educators, we need to remain flexible and reflexive and have processes in place to ensure that the highest of possible standards of excellence are met in planning and delivering environmental education.

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2. Environmental Education in Bangladesh

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Introduction

Bangladesh occupies an area of 1,47,570 square kilometers. About 130 million people live in here. Out of them 20% live in urban area and the rest, in rural area. Population density is 880 per sq. km. Population growth rate is 1.7%. It is one of the poorest developing countries with a per capita income of 275 US\$. Over 58% of its population are illiterate.

In Bangladesh, education system consists of the followings: (1) general education, (2) technical education, and (3) Madrasha education (religious education). General education is the mainstream education system in Bangladesh. There are 4 levels of general education system: compulsory primary level, secondary level, higher secondary, and tertiary levels.

Primary schools fall in the categories of (1) government primary school, (2) registered non-government primary school, and (3) unregistered non-government primary school.

Secondary and higher secondary schools and colleges are provided by government and registered non-government organizations.

At the tertiary level, there are universities and institutions run by both government and private sectors in general education as well as in engineering and technology, agriculture, and medicine. Public examinations are held under the supervision of the Secondary Education Board, Higher Secondary Education Board, Technical Education Board and Madrasha Education Board.

Primary age group populations are enrolled in primary school but of which two third drops out before completing 5-year primary cycle. At the secondary level enrollment ratio is 35% of the respective age group. And at the tertiary level enrollment ratio is only

8-9% of the respective age group.

In Bangladesh there are two basic channels of education, which are (1) formal education and (2) non-formal/informal education. While the government and private sectors have taken initiatives in formal education, non-formal/informal education is run by NGOs. Recently, NGOs are also involved in higher education. For example, the BRAC has very recently opened a university in Dhaka.

Environmental Education

The concept of environmental education began to take separate shape since mid 80's. In 1986 National Curriculum and Textbook Board undertook the curriculum renovation program and completed it in 1991. Environmental themes are included in the new curriculum. The government-run schools and non-government-registered schools follow the national curriculum but some of the NGOs like the BARC don't, necessarily, follow this model. Environmental education is provided in both formal as well as non-formal education in Bangladesh.

Environmental Education Activities

School Level: In Grades 1-2, environmental education begins from the primary level. There is a course *Environmental Studies* at this level, but there is no formal textbook except a source book on environment comprising areas such as domestic animals, birds, village environment, family environment, clothes, family food, etc.

In Grades 3-5, environmental subject is divided into two parts- (a) *Environmental Studies* (Society), (b) *Environmental Studies* (Science). Social aspects of environment are included in *Environmental Studies* (Society), whereas science elements of environment are included in science part of the *Environment Studies*.

Social part includes elements like social environment, regional environment, people's lifestyle, living condition, and change in environment and people's lives. Such topics are continued through the secondary level of schools.

The science part of the course includes elements like rudimentary knowledge of earth, the solar system and universe, the inanimate and the animate worlds, man and his environment, conservation of the environment, food, nutrition and population, agriculture development in Bangladesh and various natural resources of Bangladesh.

In Grades 6-10, environmental themes are included in general science and social science in order to enable the learners to know the environment around them. In Grades 9-10, population education is offered as a part of the biological science.

In Grades 11-12, environmental education is not offered.

Higher Education Level: In the higher education, colleges and universities teach *Botany* and *Zoology*, in which ecology is a component paper. In the honor course, ecology is included in *Botany* as a full paper. The courses in *Botany*, *Zoology* and *Geography* at universities have included ecology as a full paper.

At the post-graduate level, ecology is a compulsory subject in *Botany* and *Zoology* programs. In the Department of Geography at the Universities of Dhaka and Jahangir Nagar, *Environmental Management and Perception* and *Resource Management and Environment* are offered at the M. Sc. degree. Similar courses on environment are integrated at post-graduate level programs in Rajshahi University, Bangladesh Agricultural University and the Bangladesh University of Engineering and Technology. Private universities like the Independent University of Bangladesh, and North South University also offer courses on environmental science.

Non-formal Environmental Education: NGOs involved in environmental education in Bangladesh are mostly multipurpose-organizations and have their policies, and programs focussing on many aspects of human development. Their activities include institution building, human research development, environmental development, integrated management of resources, empowerment of grassroots organization, the poor and disadvantaged section of the society. The BRAC, Proshika, POUISH, RDRS, BUK, the ASA, SHE, etc. are a few leading NGOs undertaking environmental education in Bangladesh.

There are some NGOs involved in environmental education mostly in the non-formal or informal sectors. Their activities include environmental awareness raising, environmental training, afforestation, sustainable agriculture, regenerative agriculture,

sanitation, and environmental education programs. NGOs provide environmental education through their specialists, partners, and community workers.

Books, posters, exhibitions, dramas, group discussions, video shows, slide shows, lectures by experts, electronic and print media etc. are the methods of doing environmental education in Bangladesh. The target audiences are those who can not be reached by formal education and training institutions. Problems faced by NGOs in providing environmental education are (a) inadequate fund and resources, (b) shortage of experts and professionals, and (c) shortage of teaching materials for environmental education. Media (print and electronic) covers areas such as pollution, green house gas effect, deforestation, population growth, natural calamities, land erosions, bio-diversity, etc.

Suggestions

The following are the suggestions to promote environmental education in Bangladesh.

1. Institutional strengthening and capacity building for environmental education and awareness,
2. Human resource development,
3. Ensuring greater participation of non-formal and informal channels of education,
4. Reviewing and updating the curriculum,
5. Regional co-operation, networking and collaboration,
6. Coordination at local, national and regional all levels,
7. Adding cultural values to be included in environmental education and awareness programs, and
8. Development of environmental education to be included in all social/humanities courses.

3. Environmental Education in China

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Since the beginning of the economic reform in late 1970s, China has enjoyed rapid economic growth. While living standards are improving, environmental problems caused by industrial pollution to natural resource depletion are becoming more and more acute and pervasive in the country. One national survey in 1998 showed that 64 percent people do not agree with the statement that China should slow its economic development speed in order to protect environment¹. The Survey on Environmental Reporting in Chinese Newspaper undertaken by Friends of Nature provided us an interesting finding. This finding suggests that among 76 newspapers the environmental reporting accounted for 1.2 % of the news coverage and advertisement accounted for 33.3 % in 1997². Most people regard economic development as the approach to improve the quality of life, a tendency towards which China's national ethos of materialism has favored consumer-oriented lifestyles over environmental considerations.

Government and Environmental Education

The Chinese government, especially Environmental Agency, has enhanced its administrative and institutional capacity to mitigate environmental problems. The following events had strong influence on environmental education³.

¹ State Environmental Protection Agency and Ministry of Education, Investigation Report on National public Environmental Awareness, 1999

² Friends of Nature, Survey in Environmental Reporting in Chinese Newspaper, April 1998

³ Hao Bing and Zeng Hong Ying, Environmental Education Status in China, 1998

- 1978 The document “*Essentials on Environmental Protection*” was issued by the Central Commission of the Chinese Communist Party
- 1979 The State Council and other governmental departments formulated the “*Environmental Education Project Draft*” and integrated this into the National Education Plan.
- 1990 Energy, environment and ecology were emphasized in the “*Draft of Educational Plan for Primary and Secondary Schools of Nine-year Compulsive Education*”.
- 1991 The Syllabus of Commission required including fundamental principles of population environment and resources. Environmental education was emphasized in nature in primary school and in *Physics, Chemistry, Biology* and *Geography* in middle school.
- 1992 The first national environmental education conference was organized. This provided the guiding principle for environmental protection.
- 1996 *The National Action for Environmental Publicity and Education (1996-2000)* was announced.

Environmental Education in Universities and Schools

In general, the Ministry of Education is not as active as the Environmental Agency in protecting the environment in China. The education has been mainly driven by examination. Educational institutions have not shifted their focus on environmental education from the margin to the mainstream. Since 1990s, the Environmental Agency has made efforts to integrate environmental education in schools. At the same time, some devoted teachers have started their own environmental education. So, the idea of environmental education has emerged in the universities and schools in China.

The university students and environmental groups are active in many universities, including the popular universities like Tsinghua University and Peking University. Given the fact that all of them are campus-based, the information can be delivered effectively and easily to each other. In March 1996, student groups federated themselves to form the China Green Student Forum. This Forum has more than 30 groups of students and has become the most powerful voice in China⁴. Most of these groups are working on environmental education. They organize lectures, make exhibitions and translate books

⁴ Wen Bo, *Environmental Education in China: From awareness to Action*, 1999

into the Chinese language on environmental protection and ecological ethic. Since 1996, university campuses have sent about 30 students to remote area of China to conduct studies on the snub-nosed monkey protection, forestry conservation, and dessertification and wetland conservation. These students describe such field trips as a nature classroom and environmental laboratory. After they return from the trip, they share their experience with other fellow students. Southwest China Environmental Volunteer Association of Sichuan University has translated an environmental material from English into the Chinese language and has integrated environmental concerns into its curriculum and teaching programs.

In the school, the environmental awareness, knowledge and values are mainly delivered through the existing curriculum. In primary schools, *Society* and *Nature* are the two main courses. In secondary schools, the subjects like *Geography*, *Biology*, and *Chemistry* play a key role on disseminating environmental education. But teachers' lack of experience, expertise and skills necessary for an effective pedagogy in environmental education is an impediment to widespread infusion of environmental concerns across-the-curriculum. The situation will not completely change unless pre-service and in-service teacher training programs focus on environmental education and new methods of teaching. The environmental education pursued through course work, is usually very theoretical and does not involve direct and field experiences. On the other hand, the best form of environmental education often takes place in nature study, outdoor, camp education, or conservation education. Extra-curricular activities also provide another approach of teaching environmental education effectively in schools, where time-table, contents and methods are flexible to suit the needs of students and are more attractive than the classroom teaching. In order to develop students' appreciation for the natural and social environments and bring out desirable changes in behaviors and responsible and positive actions on environment protection, voices have been raised on providing training to teachers and development of relevant materials in both in-school and out-of-school.

The National Public Environmental Awareness Survey showed that environmental awareness of children and young people is stronger than that of adults and old people⁵. This result reflects the achievement of environmental education in universities and schools, which makes the educators more confident in their work.

⁵ State Environmental Protection Agency and Ministry of Education, Investigation Report on National public Environmental Awareness, 1999.

NGO and Environmental Education

In recent years, many individuals and organizations have become concerned with the alarming rate of resource depletion and with the resultant degradation of the natural environment. Consequently, many efforts have been made in fostering environmental education in China, although a lot of people still can not tell the difference between a non-governmental organizations and an anti-governmental organization. NGOs have been playing active role for the last five years in promoting environmental education in China.

(1) The “Hand in Hand Global Village” Program: The motto of this program is “*hand in hand to pick up hope, protect the large earth by small action.*” The program target is to having urban and rural children to help each other for environmental protection work. Ms. Lu Qin, a volunteer, started this Project. She works for the *China Children Newspaper*, which is very popular among children in China. In 1996, Yucai Primary School put forward a proposal on the newspaper with the help of Lu Qin. The proposal put forward that children would recycle cans, papers, newspapers, battery and plastic bag and sell them. The proceeds from the sale of these items went to build a “Hand in Hand Environmental Protection Primary School” in a poverty-stricken region of Jiangxi Province. The *China Children Newspaper* collected 200 thousand RMB (Chinese currency). In 1998, the money was used to build a primary school in Anyi County, Jiangxi Province⁶. This result gave Lu Qin and Children a confidence that they can do something to protect the environment and to help others. So “Hand in Hand Global Village Program” appeared popular in primary schools. Every village has now a *Council Hall, Information Desk, Recycle Station, Radio Station and a Small Bank*. Children are responsible for running these departments. Through these activities, children can now participate in the process of solving community problems. This Program has proved to be effective to promote environmental education in the Province.

(2) Friends of Nature : The Friends of Nature (FON) is a five years old environmental NGO in China. It is based on Beijing and has more than 500 members at present. It’s activity focuses mainly on environmental education. The FON has published a book called “**Earth Home**” for the children providing popular environmental literatures on several hundred nature reserves across the country. It organized a trip for 30 teachers to Germany and Holland in 1997 and 1998. In 1999, it organized another trip to Germany

⁶ Beijing Evening News, Jan 24, 1999

for journalists. The FON also has been making survey on environmental reporting in Chinese newspaper since 1994. The FON also organizes lectures and discussions on different environmental topics for its members.

(3) WWF China: The WWF-China has launched the Environmental Education Project, in collaboration with the Ministry of Education and the British Petroleum Company. The Project is of three years duration. Environmental education centers were set up, one each in Beijing Normal University, East China Normal University and Southwest China Normal University to carry out the Project. Some 24 schools have been chosen as the pilot schools. The objective of this Project is to train teachers and facilitators through workshops. The workshop provides confidence and skills to teach environmental education effectively. The workshop included provincial consular, head teachers and teachers. The teachers warmly welcomed the inquiry method of teaching. At the same time, they also realized the difficulties they faced, while applying this inquiry method of teaching in their own teaching. Through the Project, the teachers regard themselves as a classroom guide, not a leader. Some schools have extended their activities to the community as well. Recycling is a successful example. Through recycling, some schools provide parents the opportunity to involve in environmental education project⁷.

Besides the WWF, the LEAD-International Program, the US Peace Corp, the International Crane Foundation and the Friends of Earth (Hong Kong) also provide services in the area of environmental education in China.

Media and Environmental Education

A survey showed 79 % people know about the environment through media including television, radio and newspaper. Professional newspaper like the *China Green Time*, the *China Environmental News*, the *Green Weekly of the Science and Technology Daily* and the *Environmental Protection Herald* have reported environmental problems and environmental protection systematically for their readers. Except these professional newspapers, in-depth reporting such as investigative articles, feature articles, problem analysis, essays, opinions and editorials appear increasingly in a large numbers of newspaper. According to the FON's survey in 1997, the total number of environmental reporting of the 76 newspapers reached 22,066 pieces, and environmental reporting

⁷ Tian Qing, Medium Report on Environmental Education Initiatives, 1999

accounted for 1.16 % of the total coverage. The top ten issues in 1997 in order of importance are as follows:

1. Tree planting
2. Governmental policy and action
3. Environmental sanitation
4. Urban environmental problems
5. Wildlife conservation
6. Environmental laws, regulations and their enforcement
7. Water pollution and treatment
8. Resources
9. Air pollution and treatment
10. Farm land problems⁸

Regional Strategies on Environmental Education

Environmental problems are the outcome of interaction of complex problems. It is easy to say but difficult to contemplate. Here is a story from Britain, which illustrates how difficult it is to adopt new ideas. One day a child asked his mother to sell their car because his teacher told him the car is a bad thing because it pollutes air. His mother would not say “no” to her son, but ask him a question: How do we go to school without the car.” The son thought for a while and gave his answer: “We can buy a plane.” This mother was very positive in green activity, but she won’t sell her car as her son asked for because the car is the basic need for her life. “Without the car, the life will lose balance”. This story draws a typical picture of the dilemma between environmental education and environmental protection. As long as they live in a modern society of Britain, it will be difficult for them to give up the car. So environmental protection is not just an individual’s behavior. The global ecological issues can not be solved by an ordinary person. However, an individual should develop eco-consciousness and environmental education to help his/her role towards sustainable development. Suggestions to promote environmental education at the regional level are given below :

1. Re-evaluate the regional life style and economic development patterns,
2. Provide a regional framework for integrating environmental education,

⁸ Friends of Nature, Survey in Environmental Reporting in Chinese Newspaper, April 1998

3. Reorient the teacher training programs towards sustainable development,
4. Develop partnerships between countries of the Region. and
5. Encourage NGOs in environmental education.

4. Environmental Education in India

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India has made a major commitment to environmental education (EE), through the Ministry of Environment and Forests (MOEF) and the Ministry of Human Resource Development (MHRD) at the central level, and through various initiatives of the state governments. NGOs across the country have also taken various initiatives and pioneered innovative EE programs in both formal and non-formal areas.

This paper presents the EE efforts in the formal education system in India in some detail. It also gives an overview of other non-formal EE efforts in the country.

EE through the formal education system

At the primary level, by and large the policy in India has been to combine science and social studies as a subject titled '*Environmental Studies*'. At the middle and high school levels environment is infused in other subjects. At the college level it is proposed to introduce environment as a separate subject. In other words, in India, the approach has been:

- Composite environment subject at primary level;
- Infusion at middle and high school levels ; and
- Separate environment subject at college level

Many schools in the country undertake non-formal and co-curricular activities for EE. Eco-clubs in schools, for instance, are a popular approach. The MOEF provides financial assistance for setting-up eco-clubs in schools. The clubs are facilitated by a coordinating agency, which may be an educational institution, an NGO or a professional body. More than 3,500 clubs have been funded by the MOEF so far.

In order to make EE in schools effective; the following activities are in progress in India.

(1) Teacher Training: There is a growing recognition that teachers need to be prepared to become EE facilitators, who will proactively adopt the activity-oriented approach to teaching the ‘environment’.

The National Council for Educational Research and Training (NCERT), the National Council for Teacher Education (NCTE), the State Councils for Educational Research and Training (SCERTs) and the District Institutes of Education Technology (DIETs) are largely involved in in-service teacher training in India. There have been efforts to train both teachers and teacher instructors in environmental education. But these efforts are yet to be mainstreamed.

At least nineteen universities across the country have introduced environmental components at the B.Ed. and M.Ed. levels. Efforts are underway in India to introduce EE in pre-service teacher training. For example, in one state a curriculum plan for EE is being developed for pre-service teacher education. This will be institutionalized as an additional/optional subject in all the B.Ed colleges in the state.

(2) Development of EE materials and facilitating the development of locale-specific materials

Teachers need materials such as manuals, classroom charts, posters, field observation guides, audio-visuials, etc. to facilitate and/or supplement their educational programs. Materials such as information and activity books for children are needed to reinforce the child’s learning. The extent to which the materials are effective depends to a large extent on their relevance to the local teaching-learning environment.

In India there is a strong recognition of the need for more locale-specific EE materials across the country. The need for locale-specificity extends beyond the language in which EE materials are available to address the contents, concepts, issues and examples the materials contain. The Environmental Orientation to School Education (EOSE) Scheme, supported by the MHRD provides financial assistance to voluntary agencies to develop locale-specific teaching-learning materials. A few states in the country have taken initiatives in developing locale-specific EE materials and in adapting other materials to suit local requirements. There are also initiatives such as the EE Bank Program of the Center for Environment Education that facilitates the development of locale-specific

materials by educators.

(3) Networking: In addition to training, teachers need ongoing support to sustain and strengthen EE efforts. One innovative approach to providing this support has been in the form of external resource agencies such as NGOs, voluntary groups, etc., that closely interact with the school/college system on an ongoing basis helping in the planning, implementation and monitoring of the EE programmers. The CEE's National Environmental Education Program in Schools (NEEPS) which networks NGOs and the State Department of Education with schools in a given area, is an example of one such effort.

(4) Concerns

1. Infusion needs to move from ad hoc addition to reorientation of the whole curricular content,
2. Infusion has limitations and hence, a space in the curriculum for integrating learning's from infusion may be necessary,
3. Evaluation is a reality of the education system and EE needs to respond to this reality,
4. Schools and teachers need external support systems - NGOs are a rich, available resource (asset) that can provide this support,
5. Teachers need to build their capacity to be environmental educators,
6. There is a strong need for appropriate EE materials,
7. There is a need for enabling development of locale specific EE materials.

(5) Future directions: For strengthening EE in the formal school system, a four-pronged strategy for EE in schools has been developed and is being discussed nationally. This strategy involves:

1. Strengthening infusion of environmental contents into various subjects at all levels of the school curriculum,
2. Additional space in the curriculum for environment at middle and high school levels,
3. Teacher training, and
4. Non-formal EE through involvement of NGOs.

A study of infusion in school curriculum has been initiated to understand the status of

infusion (both the content and the methodology).

A National Consultation on EE in Schools has been organized to examine and detail the four-pronged strategy by involving all stakeholders including the MHRD, the MOEF, the State Departments of Education, NGOs, universities, teacher's associations, etc. Plan has been made for the implementation of the four-pronged strategy in one state.

EE through Non-formal Systems: A brief overview

Both governmental and non-governmental EE efforts reach out to urban and rural communities, industry, decision-makers, visitors to natural and cultural heritage sites, etc., through the use of innovative programs and media.

(1) Use of Media: Both local and modern mass media are employed for EE in India. Examples of using the print as a medium for EE include the '*Down to Earth*' magazine published by the Center for Science and Environment and the CEE-NFS (CEE-News and Feature Service). The All India Radio, the National and Private Television channels broadcast programs on environmental issues. Traditional media are extensively used by NGOs for EE.

Concerns

- Existing media networks need to be utilized to the optimum, and
- Capacity building to enable media to take on an EE&C role is necessary.

(2) Interpretation Center: A large number of people visit places of natural and cultural interest. These visits have great potential as educational opportunities. Visitors can be educated about the natural and cultural significance of the location as well as the need for conservation. Interpretation is an approach that meets this need. Interpretation employs a variety of media including exhibits, guided tours, trails, publications, etc., to communicate to visitors about the natural/cultural heritage of a location. Interpretation of natural heritage sites (including National Parks, Sanctuaries and Zoos) is undertaken by the Forest Departments, the Center for Environment Education and the Wildlife Institute of India.

Concerns

- The recognition of interpretation as an important way of education about environmental issues.
- The media for interpretation must be low-cost, low-maintenance, long lasting and suited to the Indian context.
- Capacity building of the local community to actively participate in interpretation programs is necessary.

(3) Reaching Urban and Rural Communities

Community based EE efforts for both urban and rural communities are actively undertaken in India. A number of NGOs are involved in these efforts which are supported by the government, several funding agencies, etc. In urban areas the focus is on issues such as housing, water and sanitation, air pollution, garbage management, etc. In rural areas the focus is on watershed management, agriculture and animal husbandry practices, etc. There are also programs addressing specific issues such as people-park conflicts around protected areas.

Concerns

- It is necessary to seek locale-specific approaches towards ecodevelopment,
- Participatory processes require understanding of and sensitivity to realities such as gender and social class distinctions. Capacity building of specific groups may be required to facilitate participation.

(4) Reaching Industry and Decision Makers

There are innovative efforts in the country that reach out to the industry. These include information servicing to specific industrial sectors on issues such as cleaner production and waste minimization. Institutions such as the Central and the State Pollution Control Boards, the Confederation of Indian Industry, etc. are actively involved in these initiatives.

Selected programs initiated both by governmental institutions as well as by NGOs reach out to decision-makers. Examples of these programs include the 'Environment and Development' book series of the CEE that examines specific environment and

development themes and presents alternative paradigms.

Concerns

- It is necessary to target specific informational requirements while reaching out to the industry and decision-makers,
- There is a need to present alternative points of view and possible solutions.

(5) Training: There are a few courses available to people aspiring for a career in EE to help them understand the scope of and approaches to EE. Prominent among these initiatives are as follows:

1. Training in Environmental Education: An eight month residential training program for post-graduates from India and other Commonwealth developing countries, offered by the CEE.
2. Post Graduate Diploma in Environmental Education: Offered by Bharati Vidyapeeth Environmental Education and Research Institute.
3. Postgraduate Diploma in Environmental Education and Management: Offered as a distance education course by the Central University at Hyderabad.

Concerns

- Pre-service and in-service training programs in EE are necessary for creating a cadre of environmental educators and for meeting needs of in-service professionals in EE.
- There is a need for both specific and generic EE courses.
- Tailor made training programs to suit specific requirements of individuals and organizations involved in EE is required.
- Linking training to real life projects that ensures on-the-job continuous learning has to be encouraged.
- Training can be a viable tool for building networks and this potential has to be tapped.

(6) Networking: NGOs in India are part of many formal and informal networks related to EE and communication, at the local, national and regional levels. This networking is

facilitated through newsletters, seminars, capacity building programs, etc.

Concerns

- Networking needs to be more proactive,
- It is necessary to build both the network and the capacity of people in the network to ensure that networks are vibrant and sustained,
- Networking needs to go towards learning from experiences, synergies and complementarily.

(7) Government Efforts: The MOEF accords priority for the promotion of non-formal EE and awareness among all sections of the society through diverse activities using traditional (local) and modern media of communication. Some of the initiatives taken by the Ministry in this direction areas follows:

1. The national environmental awareness campaign,
2. Establishment of centers of excellence,
3. Establishment of national and regional museums of natural history,
4. Setting-up of 'Paryavaran Vahinis' (youth groups reporting on environmental degradation activities) at the district level,
5. Setting-up of eco-clubs in schools,
6. Production and dissemination of films, audio-visual, popular publications on environmental issues,
7. Supporting the organization of seminars, symposia, conferences on environmental issues,
8. Institutional awards and fellowships, and
9. Establishment of ENVIS centers

(8) National Environmental Awareness Campaign (NEAC): The NEAC was initiated in 1986. Under this scheme a large number of NGOs, schools, colleges, universities, etc., are provided financial assistance for organizing environmental awareness activities. The activities undertaken under this scheme include public meetings, rallies, exhibitions, folk dances, street plays, competitions, etc. The Campaign also supports the preparation and dissemination of EE resource materials.

(9) NGO Involvement: There are a number of NGOs working in the field of environment, development, education and communication in India. Some of the

significant NGOs involved in EE activities are the Bharati Vidyapeeth Environmental Education and Research Institute, the Center for Environment Education and CPR-Environment Education Center (Centers of Excellence of the MOEF), the Ekalavya, the Kalpavriksha, the Kerala Sastra Sahitya Parishad, the Uttarakhand Sewa Nidhi, and the World Wide Fund for Nature (the WWF-India).

Suggestions for Regional Collaboration

India's experience in EE has been rich, with innovative programs for diverse groups of people. Both the government and non-governmental organizations have been actively involved in EE efforts in the country. This experience also includes several challenges that need to be addressed. Networking to facilitate sharing of this experience and challenges will benefit both India and her networking partners. India has had strong networks in EE with partners in both the South and Southeast Asia region and the Asia-Pacific Region. It is in the context of this background that the following suggestions are made:

1. Networking should not be restricted only to sharing of information about initiatives in the Region. It should facilitate initiatives that stem from sharing and building on expertise in the Region.
2. Capacity building for EE in the Region is required,
3. It is necessary to identify approaches to mainstream EE,
4. It is critical that EE reaches out to key decision-makers,
5. Sharing resources, expertise, materials, facilities, etc., across the Region is necessary.

5. Environmental Education in Indonesia

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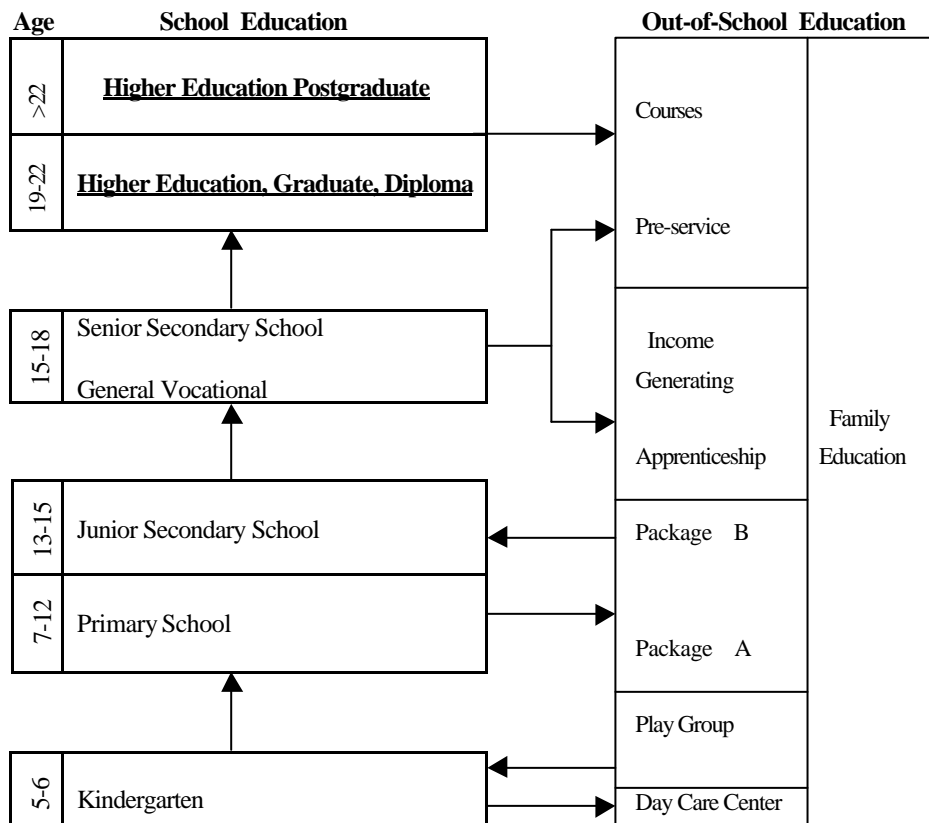
National Education System as Vehicle

National education is primarily organized in two different paths/channels, i.e. **in-school and out-of-school education**. The first is organized in schools through teaching and learning activities, which are supposed to be gradual, hierarchical and continuous. Out-of-school education is organized outside the formal schools through teaching and learning activities, which may or may not be hierarchical and continuous.

National education system consists of seven types of education, i.e. general education, vocational education, special education, service-related education, religious education, academic-oriented education, and professional educational. Formal school education system consists of continuous levels of education, i.e. basic education, secondary education, and higher education. Basic education is a general education of nine years, six years of primary education and three years of junior secondary education, which includes general and vocational education, religious secondary education, service-related education and special education. Secondary education gives priority to expanding knowledge and developing the students' skills, preparing them to continue their study to the higher level of education, or preparing them to enter the labor force, expanding their professional attitude.

Higher Education is an extension of senior secondary education, consisting of academic and professional education. Institutions involved in the provision of higher education are of the following types: universities, institutes, academic, polytechnic, schools of higher learning and open university which runs a number of distance programs. Pre-school education (kindergarten), a kind of preparatory education before entering the elementary education can be provided either in the formal school or out-of-school system of education.

**Chart 1 : Educational System n Indonesia
(Based on the National Education Act no.2 / 1989)**



The Impact of Economic Crisis in 1997

Social impacts arising from the country's economic crisis, which hit the nation's life in the 1997's, have been extremely serious. According to the World Bank, social fall out from the economic crisis represents the most complex of all the East Asia crisis countries. The country is being hit hardest and is taking the longest to stabilize. As the crisis deepens, the country's educational sector of life is being exposed to complex challenges, i.e. how to prevent a sudden dropout at all levels of school education throughout the country.

In recognizing the impact of the crisis and the fact that the problem has long-term dimensions, in particular as the decision to drop out of school is nearly always irreversible, the Government adopted aggressive five-year plan of action with a four-pronged approach, i.e. a social mobilization effort through mass media in the form of **stay-in-school campaigns** focused primarily during the new schoolyear enrollment months. Other efforts are, maintaining levels of real expenditures for basic education in the state development budget, **providing block grants** targeted to the poorest 40 percent of primary and junior secondary schools, and the **provision of scholarships** to high-risked junior secondary schoolchildren based on household poverty criteria, under the Social Safety Net Programs.

The prevention of and rescuing pupils and students from dropping out of basic educational schools are very critical decisions in terms of environmental education's sustaining policy, as at these particular levels of education environmental subjects are still integratively provided to the students through the school curricula's subject matters.

Environmental Education

Environmental education is being perceived and manifested as educational programs designed to increase public awareness of environmental issues and problems. Environmental education seeks to provide individuals or groups of individuals with an understanding of environmental issues and the skills to solve environmental problems. In Indonesia, environmental education has its beginnings in the "conservation education" movement of the early 1960's. A variety of efforts and organizations were created with the aim of promoting environmental awareness. The Environmental Study Centers (ESCs) and a wide variety of local associations were formed at local and national levels to help teachers, principals, and other educators become better at environmental teaching. Environmental education movement gradually expanded and senior scientists began to urge the Government to persuade environmental educational programs at public schools. However, responses are slow. Some even think that with the integration of environmental education into formal schools through the transplantation of environmental issues in the nature-sciences-grouped-subject matters of the curricula, efforts are considered as sufficiently accomplished. Pioneering movements from the part of policy makers were later observed as having the basis on the international conferences, fora, or gathering which required participating countries' commitment at national level.

In the 1970's, "*Greening the Curriculum*" has become an obsession among the environmental education pioneers.

Later on, people agreed that as an essential component of the national environmental management strategy, environmental education has to form a continuing, life-long process. The Government was later determined that it has to be necessarily promoted in all areas of education: formal and non-formal. Starting 1980's, the Government perceived environmental education as fundamental to all learning as literacy (Emil Salim, 1980), providing elementary knowledge, skills and motivation to people to participate in the solution and anticipation of environmental problems; thus making its indispensable contribution to sustainable development and improved quality of life, as stated in the General Outlines of the State Policy.

Still, there are groups of people who are in the opinion that the complexity of environmental issues has made environmental education difficult to be implemented. Environmental problems and issues require knowledge and skills from a number of specialists if they are to be understood properly and acted upon effectively. No single discipline or specialist is sufficient to achieve this. Significant monolithic strategy for providing environmental education can easily be developed at graduate and postgraduate levels of education, in particular regarding those complexities. While at the primary, junior and senior secondary educational levels environmental education is being diffused or integratively provided through the school curriculum.

With the enactment of Act no. 4/1982 on the Basic Provisions for Living Environment Management, the government highlighted the importance of environmental education and public environmental awareness, as stated in the article 9 of the said regulation: "*The government has the obligation to promote and develop environmental responsibility from the part of the community by way of extension service provision, guidance, education and research in the field of living environment*".

In 1979 the Minister of Population and Environment and the Minister of Education and Culture signed a joint agreement consenting to the establishment of Environmental Study Centers (ESCs) in all state-owned universities. It was therein agreed that the two Ministers would be jointly responsible for the ESCs capacity development as university's executing units to carry out education and training, research and community service in the field of living environment. Since then, there are now about 86 ESCs in Indonesia, integrated into the organizational structures of existing universities, both state-

owned and private universities as well. As of 1984, the Minister for Population and Environment signed agreements with university rectors, where it was agreed that universities' ESCs should provide technical training in the field of EIA (Environmental Impact Assessment) to government officers, industries, universities, NGOs and individual consultants. Nowadays, there are already thousands of EIA certificate holders (Basic EIA, Advanced EIA and EIA Evaluators).

With the establishment of National Environmental Impact Management Agency (BAPEDAL) in 1990, it was deemed necessary that ESCs as accredited EIA course providers should also provide training in Environmental Audit and ISO 14001 (EMS), Cleaner Production and Waste Management, under the BAPEDAL's auspice. However, only well-established ESCs offer such courses; individually, or in cooperation with environment-consulting industries. The ESCs play a critical role in fulfilling the objectives of sustainable development in Indonesia. They are considered as sources of expertise and innovative thinking related to the solution of national and more local environmental management problems through applied research, education and training, and community service. Recognizing ESCs potentials, the OECF (Japan) has assisted the Government by providing assistance under soft loan program to build the institutional capacity of the ESCs (1992/93 – 1998). Under technical assistance and cooperation program, several Training of Trainers (TOT) modules have been issued and later being implemented by ESCs in the field of: (1) Marine and Coastal Zone Resource Management, (2) Water Resource Management, (3) Environmental Audit, (4) Waste Management, (5) Environmental Health and Toxicology, (6) Environmental Economics, (7) Environmental Modeling and Simulation, (8) Environmental Risk Management, (9) Environmental Policy Development, (10) Environmental Planning and Management, (11) Geographic Information System and Remote Sensing, (12) Agro-ecosystem Management, and (13) Environmental Information System Management.

In 1997, training on Cleaner Production Information Search through Internet was conducted by the Government (BAPEDAL) in collaboration with a NGO (*Dana Mitra Lingkungan*) and a private consultants company (PT SUCOFINDO). The training has the objectives of providing knowledge on the utilization of information sources through internet to enable the students to respond to technical problems dealing with cleaner production programs, including (a) the use of software to search information sources, (b) effective search strategy to obtain correct answers to certain technical problems, and (c) to become familiar with numerous websites which offer various information sources on cleaner production. Material presentations were backed-up with interactive case studies.

Preparatory efforts to develop *Pendidikan Kependudukan dan Lingkungan Hidup* (PKLH), i.e. special **Education on Population and Living Environment (EPL)** has been initiated since the 1980's through school education, starting from primary school to senior secondary school including vocational schools. Prior and post to this, various efforts were initiated to facilitate the implementation of this particular EPLE. Other massive EPLE Training of Trainers were carried out national-wide, with primary, junior and senior secondary school teachers and principals of 27 provinces as target groups. Since then, the upgrading project has succeeded educating 2330 primary school teachers, 1410 junior secondary school teachers, 1368 senior secondary school teachers and 4600 school principals.

From the evaluation research conducted in 1994 in five provinces in Java, it was identified that one key factor constraining the success of EPLE was the limited number of EPLE manuals and referent books. The research was followed by a project which succeeded in redesigning and testing the TOT manuals in 1995, and disseminated the revised manuals to outer-Java provinces in 1996 (Winarno, 1998).

EPLE thus have been for years developed and integrated into school curricula as a “dimension”, rather than a new discipline, i.e. multidisciplinary dimension, where various disciplines can discuss EPLE dimension in the learning processes. During the last decade, EPLE in its progress has been oriented toward “Sustainable Development” or “Sustainability”, bearing human being, economy, environment and technology as focus. Such education was later popularly called “education for sustainability”, where human beings are expected to change their way of life toward lifestyles which maintain the sustainability of the planet, both for the present and future generations as well.

The interdisciplinary nature of EPLE implies that its materials can be explained in various disciplines contained in the school curricula. This interdisciplinary nature also insists that teachers should early master the core materials before linking them to the discipline they are teaching. Hence *the pivotal aims of EPLE at schools should be the promotion of environmental awareness as well as the development of methods, procedures and competencies* which are considered necessary for a long-term ecological sound development of society seen from the perspective of sustainable development model.

Monolithic population-environmental education has long been provided to students of higher/tertiary education. At the Teachers Education Institutes, environmental subjects are being provided to the students as general basic lectures to equip the teachers-to-be with environmental dimension. Postgraduate study program in Environmental Science was established in the University of Indonesia (1982), later followed by other state-owned universities. Up to this date, more than one thousand students have been granted with master's degrees on environmental studies. At present, final preparations are being made at the University of Indonesia (UI) to open Faculty of Environmental Science and the doctorate program of study towards the implementation in the next year (2000). By then, UI will be the first university in Indonesia, which develops complete environmental education at tertiary level, both graduate and postgraduate levels.

It is significant to note that within the scope of the competence to act in more environmental capacities, attention should be paid to decentralize solutions. Corresponding with the motto "*think globally, act locally*" and with the AGENDA 21 (national and local), students are taught to try out to what extent they can test the problem solutions within their local environment. In 1996, local content of environmental education called "*Pendidikan Lingkungan Kehidupan Jakarta (PLKJ)* or Education on Jakarta Living Environment was provided to elementary and junior secondary schools in Jakarta. To support the socialization of such local content on environmental education, in 1997 the Ministry of Education issued "*Basic Concepts and Implementation of Local Content Curriculum*", a government formal manual that states that environmental education should have local contents in the curriculum.

Some Prospective Thoughts

Innovations are largely driven by demands. The multidisciplinary and interdisciplinary natures of environmental education development will continue to increase. New methods and approaches eventually establish themselves as transdisciplinary fields; that is, once results have been achieved on what was originally an interdisciplinary basis, they will develop themselves as autonomous areas of the work in the complex disciplinary networks. Educational technology is a major example. A decisive factor is the facilitation of efficient transfer and rapid learning by means of intelligent linkages, covering (1) development of new approaches to the content of environmental education course and course design, (2) development of new teaching practices and techniques, (3) development of new approaches to students learning of major importance, (4)

development of more collaborative work practices among in-country experts in partnership with subregional, regional and international organizations.

The common perception of education as a one-way flow of information should be changed. Environmental education is an instrument to enable participation and learning based on two-way traffic communication, as students have different perspectives concerning their own realities. When grounded in dialogues, environmental education and communication of transfer become more effective and successful. Educators must facilitate the students to engage in open inquiry and investigation, especially when considering environmental issues that are controversial. The students are required to reflect findings upon their own and other's perspectives.

If we want to be successful, we need to cooperate and reinforce networking. This can be among and within government sectors, educational and research institutions, media, NGOs, community groups, chambers of commerce, industries, and individuals. All can play a role in educating their constituencies as well as incorporating environmental concerns into their policies and practices.

Internationalization or regionalization of environmental education curriculum is also a good approach and strategy. The creation of curriculum with an "international orientation" could be considered as a prospective exercise in the future IGES-EE Project agenda. Through such curriculum we can develop intercultural environmental awareness, alliances, solidarity, and vocational potentials for domestic/national students and facilitates the integration of domestic and international students through teaching and learning activities. The IGES could set up international training and research programs, promoting the international mobility of experts, scientists and students. The IGES could also promote cross-border research projects in the framework of collaborative research programs by facilitating funding or attracting other international funding agencies to become involved.

Finally, the sharing of information on environmental education related issues and technology exchange between the IGES collaborating countries is deemed very necessary, particularly within the framework of eco-efficiencies. With the pressing environmental problems, quick and accurate first-hand information is a prerequisite. In this respect, the establishment and strengthening of virtual centers in the respective regions, which are linked to a network might become a great idea. Since 1997, The IGES Japan has initiated the establishment of the APEC Virtual Centers For Environmental

Technology Exchange through the operation of Web Site accessible through internet. We can follow the example or join the already existing virtual networking under the IGES-EE Project. Environmental education might also be approached through distant learning system by way of interactive networking.

6. Environmental Education in Japan

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Introduction

This paper provides a brief overview of environmental education and its problems in Japan and focuses on activities undertaken by NGOs in the country.

Formal Education

Primary and Secondary Schools: The history of environmental education in Japanese formal education sector started with education on pollution problems in the 1960's, what is known as *Kowgai* education. *Kowgai* education was common during the 1960's and the 1970's. Between 1971 and 1973, teaching materials such as manuals, resource materials and readers supplements were published by local boards of education, and were used mainly in social studies (*Shakaika*) at primary and lower secondary schools.

At present, the Ministry in charge of environmental issues is the Ministry of Education, Science, Sports and Culture (MESSC). The Ministry makes the courses of studies, and the freedom of expanding its units and contents are left to schools. It should be noted that the word "environmental education" itself has not been used in the description in the Course of Study.

The MESSC put an emphasis on actual teaching. For example, the position of the Ministry in this regard is manifested as follows: "*If the content of the Course of Study is faithfully practiced, the purpose of environmental education can be achieved*"⁹.

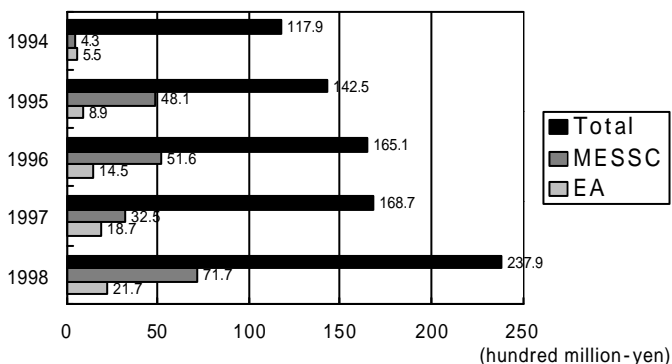
⁹ Ministry of Education, Science, Sports and Culture, The (1992), *Kankyo Kyoiku Shidou Shiryo* (Environmental Education Guidance Material for Elementary School Teachers), The Ministry of Education, Science, Sports and Culture, 1992

Higher Education: At higher education, the number of departments offering courses on environment, especially relating to natural science, has increased as a result of *Kowgai* education during the 60s and 70s. Similarly, after the late 1980s, the number of department associated with social science and humanities offering courses on environment has also increased due to the emergence of global environmental problems.

Currently, there are 69 universities where the faculties offer courses related to “Environment” or “Ecology” in their courses at the post-graduate level. Environmental education course itself was started in the late 70’s. At post-graduate level, the first environmental education course was introduced at the University of Tsukuba in 1979. Now courses such as *Principle of Environmental Education* and *Environmental Education* are offered at 17 different universities.

Extra/co-curricular Activities: In schools, there are several extra/co-curricular activities for school children, the most common one is eco-club. In 1995, the Environment Agency of Japan started a program called “Junior Eco-Club”. Its aim was to enhance eco-consciousness amongst school children. It is a nationwide “green” club activity for school students. The Environment Agency encourages children to set up groups of students (up to 20 students) and supports their environmental activities and studies in school and out-of-school. While the particular activities of each club are voluntarily decided by the club, sharing and exchanging their knowledge and skills among clubs and students are promoted through a bi-monthly newsletter, national and regional exchange visit programs, and exchange programs in the Asia-Pacific Region.

Government Expenditure on Environmental Education: The data provided in the



graph indicates that actual expenditure on environmental activities has increased by four times during the period from 1994 to 1998. Similarly, the budget of the MESCC also has increased from 4.3 in 1994 to 71.7 hundred million in 1998. General expenditure on environmental education has been remarkably increasing during the past five years.

Problems and Prospects: In addition to the MESCC and the Environment Agency of Japan, other ministries such as the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of Construction are also involved in environmental education for school children. Nevertheless, the coordination by these Ministries is weak. Another problem is the lack of trained teachers who can effectively teach a composite course on environment.

Despite these problems, Japan has attempted to integrate environmental education into existing courses as mentioned elsewhere, both in-school and out-of-school activities. However, activities that are not related to the entrance examinations are not given a priority in the schools. In order to improve this situation, the government has started new idea, called "Period of Integrated Study". This new idea is broad, holistic and cross-disciplinary in nature and includes elements such as international understanding, environment, welfare and health. Also, the experiential learning, skill development, and problem solving methods are emphasized during this period. This approach, which is compatible with the existing Japanese educational system, is expected to be able to enhance the education system in the future.

Non-Governmental Organizations

Environmental education activities by NGOs in Japan began in the late 70s. For example, the Nature Conservation Society of Japan (NACS-J), one of the largest environmental groups in Japan, started a training program for "nature conservation educators" in 1978. The Kiyosato Educational Experiment Project (KEEP) started to provide environmental education in 1983. The Japan Environmental Education Forum (JEEF) was established in 1992.

According to a survey, there are about 1,500 environmental NGOs in Japan. More than 40% of them are engaged in environmental education in one way or the other. However, they are new, small and active at the local level only. The survey shows that the target of environmental education tends to be non-specialists and city dwellers and more than 70

percent of the organizations deal with “green issues” such as nature studies and conservation education. Some selected NGOs’ environmental education activities are summarized below.

1. The WWF Japan has set up a network called “The WWF Environmental Education Club” for educators who are interested in environmental education. Participants of the Club are provided environmental education newsletters, seminars and workshops. The *Soushisha* founded a museum named “*Minamata* Disease Museum” in order to preserve and disseminate the information on the casualties of (*Kumamoto*) *Minamata* diseases mainly for school children.
2. The JEEF’s activities include providing training program for leaders of environmental education and developing environmental education materials related to nature studies and conservation education.
3. The use of homepages on the Internet has become very popular as a tool of environmental education among Japanese environmental NGOs.
4. In addition, it must be noted that some Japanese NGOs have provided international assistance to the developing countries on environmental education. It started in the early 1990’s. Currently, some 30 NGOs are engaged in international activities, and most of them are confined within the Asian Region.

Problems and Prospects: Generally speaking, NGOs in Japan have some organizational problems. For examples, most of the NGOs in Japan do not have legal corporate status. However, an “NPO (Non-Profit Organizations) Law” was promulgated in 1998. This is a law to promote specified nonprofit activities. It would have a direct bearing on this matter.

Another problem faced by NGOs is related to funding. The Japanese funding systems like public subsidies and fund from private foundations do not allow NGOs to spend the money on administration cost. They have to depend on revenues from membership fees, even though most of them do not have many members. Also, unlike in Western countries, there is no tax incentives for donors contributing to NGOs, which seems to

prevent NGOs from receiving more funds from private sectors. The new NPO Law has not addressed this issue, since the underlying cause is the complicated tax system in Japan.

Conclusion

As mentioned above, each sector (such as schools and NGOs), has many obstacles to promote environmental education in Japan. One way to solve these obstacles would be to develop collaboration among these sectors. There are many things that can be improved by allocating their resources efficiently. Cooperation among sectors is essential to promote environmental education and create a new educational environment. Also, cooperation can result in the capacity building of the others. To put it in a better way, it is necessary to create a situation where schools, NGOs, companies, media and other sectors can effectively collaborate with each other.

7. Environmental Education in South Korea

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Policy on Environmental Education

The Ministry of Education is responsible for developing the curriculum and textbooks on environmental education and for providing training to teachers. Yet, environmental education has not received full support from the Ministry as the Ministry is concerned with the general problems of the country. The Department of Civilian Environmental Cooperation in the Ministry of Environment is, however, making some efforts in the field of environmental education. The Ministry of Environment selects model elementary and secondary schools for environmental education and thus promotes the importance of environmental education. And presently, the Ministry of Environment is in the process of establishing a Cyber Institute for Environmental Education through the use of Internet. They are also developing texts and resource materials for the purposes of learning and using Internet.

Environmental Education in Schools

The importance of conservation of nature has been taught in elementary and secondary schools in Korea for a long time. The 5th educational curriculum of elementary and secondary schools, which was revised in 1987, stipulated '*environmental education*' in all subject and school activities. In kindergarten, environmental education deals mainly with '*cleanliness*'.

The 6th educational curriculum of elementary and secondary schools was reviewed in 1992. As a result, new courses were offered as electives. A course '*Environment*' was offered in middle school and the '*Environmental Science*' course, in high schools. Similarly, '*Environmental Conservation*' course was offered in vocational high schools as

an elective. Also the concept of environmental education was emphasized in several courses.

In colleges, lecture and discussion programs is provided to the students of culture on environmental education. About 200 colleges provide training to environmental experts. Most of these colleges have established environmental programs to promote environmental education.

The Environmental Education in Society: As of 1999, there are about 450 registered organizations and about 400 non-registered organizations are working in the field of environmental education. These organizations are called Environmental Non-Governmental Organizations. Most of these Environmental NGOs were established during the 1980s and are operating at the grassroots level.

They run campaigns for environmental conservation, consumer education, the traffic problems, and so on. The government supports the activities related to the environment. However, the financial support provided to them is not enough to run their activities.

Examples of Successful Cases

(1) Recently, the Ministry of Education has established the Department of Environment. The aim of this Department is to enable students to conserve the beautiful natural environment through education. The bases for introducing this course on the environment are given as follows: Korea is mountainous country located in between cold and temperate zones. Its natural environment is pristine as well as beautiful. Until the 1990s Korea put the high importance on policy on economic development. As a result, the national per capital income reached US\$10,000 just before the economic crisis in 1997. In the course of economic development, Korea also recognized the severity of environmental degradation and made some efforts towards environmental conservation, leading to a decision to introduce the *Environment* as a course in 1992.

The idea of the 'Department of the Environment' was widely accepted in the sense that it was futuristic in nature. Thus, the idea of environmental education provided a new orientation in school education because of its interdisciplinary and integrated characteristics. Since then environmental education experts and the people of Korea have

shown interests in environmental education and made efforts to promote it in various ways.

(2) Current Status of 'Environment' subject in Secondary Schools: When the secondary school curriculum was revised in 1992, courses *Environment* and *Environmental Science* were developed respectively for the middle and secondary schools, then textbooks and teacher's guides were developed in the following years. Only 3% of the secondary schools decided to teach the '*Environment*' subject in the beginning, but in 1999 about 16% of secondary schools (about 700 secondary schools) were teaching the '*Environment*' subject. And this number is increasing rapidly.

At the time of the 7th educational curriculum of secondary schools in Korea, the title of the *Environment* course in middle schools remained unchanged, but in high schools it was changed to '*Ecology & Environment*'. The 7th curriculum of the secondary school also introduced the theory of environmental science and environmental pollution, including topics such as the relationship between ecology and human beings, people's philosophy on environment, environmental ethic, environmental society, relevant methods for environmental conservation, and environmentally sound and sustainable development (ESSD). At present, the schools are in the process of developing textbooks and teacher's guides for environmental subjects according to the 7th revised curriculum.

(3) Training of teachers for 'Environment' subjects: Teachers responsible for the '*Environment*' subject are provided a series of training. Firstly, certificate of teaching environmental education is given to volunteer teachers. Secondly, it is given to collegiate, who are majoring in environmental science. Thirdly, the certificate of teaching is given those collegians, which are majoring in environmental education at the department of environmental education of the College of Education. Now 4 universities are offering programs on environmental education and the first batch of graduates will come out in 2000.

(4) Innovative Methods: The Ministry of Education is trying its best to provide the environmental education to its students. The Korean Society for Environmental Education (KOSEE) and the 'Association of Environmental Education Experts' with the support from the Ministry of Environment have been conducting study named, "*Innovation Plan Preparing for Environmental Education for the 21st century*". The study will be completed by the end of the year 2000. And Environmental Non-Governmental Organizations, in collaboration with the government, are making efforts in promoting

environmental education in Korea.

Suggestions for Regional Collaboration

The following suggestions are put forward for an effective regional cooperation.

1. Re-strengthening the efforts to renew environmental education,
2. Developing the system of life-long environmental education,
3. Examining the interlinkage between schools and societies,
4. Exchange of successful cases and experiences in the Region,
5. Training of experts and teachers,
6. Developing information and data sharing system,
7. Formation of network among communities and nations, and
8. Activating the collaboration between environmental education experts, policy planners and businessmen.

8. Environmental Education in Malaysia

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Introduction

Malaysian population has approached 21.1 million people in 1996. The annual growth rate is 2.3%. Increasing in population means increasing in residential demand and more demand for earth's natural resources. Due to this, a dramatic pressure is imposed on the natural environment including the increase in production of waste and higher usage of natural recreational areas. Natural resources under stress could be lost at a very fast rate in the absence of widespread awareness of their existence, their significance and their values. These natural resources are elements of ecosystems, interrelated and interconnected to each other as well as to people. When one part of the ecosystem is affected, other parts receive the impacts. Therefore, in developing the environmental sound decisions, it is required an understanding of these interconnections as well as of the life-support roles played by the components of the ecosystem. Government officials, business leaders, students and private citizens must better understand the complexity of the natural ecosystems that support our quality of life and make Malaysia an appealing place to live, work and visit.

Since the declaration of the Malaysia Environmental Day on the 21st October 1991, several environmental awareness programs were carried out by various government departments, NGOs. As well, the private sectors have improved the level of environmental awareness among the people. With improved educational policy and structure of the Malaysian Educational System that effectively increase the literacy rate of the population, the public are more exposed to environmental issues through the print and electronic media, thus Malaysians in general are concerned about the state of environment.

Environmental Education

Environmental education is a process aimed at raising the level of knowledge, understanding and awareness of students or people towards environment which would lead on to their adopting positive values and attitudes towards it and equipping themselves with the skills that would enable them to assess the quality of the environment and act to better it. Environmental stewardship depends upon the ability to resolve conflicting interests, make decisions and take action.

Environmental Education was first started in Malaysia in 1976 when a workshop on Regional Environmental Education was held at the Regional Center for Education in RECSAM, Penang. Another workshop was held at the Off Campus Unit of the Universiti Sains Malaysia (also in Penang) entitled '*Science and Environmental Education*' in August 1980. In 1987, there was a Sub-regional Teachers Training in Environmental Education held in the University of Agriculture Malaysia in Kuala Lumpur. The methods on improving teachers training in environmental education were discussed. In 1992, the Ministry of Education and UNESCO had jointly organized a course on Environmental Education for Senior Science Teachers, Lecturers, Science Instructors and resource staff in the Teachers College in Malaysia. This effort has finally led to the introduction of a formal course called *Man and Environment* in primary school. Later, this course was split into 2 courses; *Science* and *Local Study*. During the Sixth Malaysia Plan (1991-1995), the concept of environmental education in the national education system was formulated based on the Tbilisi Conference of 1977 and Malta Conference of 1991 organized by the UNESCO-UNEP. The goal of environmental education, which is learned through formal and non-formal education, is to have a citizenry with knowledge, understanding and skills necessary through sound decision making and responsible stewardship of the Malaysian environment. The formal education was addressed at all levels of teaching of primary, secondary and tertiary education in Malaysia. The non-formal education is generally targeted for all citizens in order to provide them with a broad knowledge and awareness of environmental problems, generating concerns for, and committed to, work towards their solutions.

Up to this point however, not much attention has been paid to the inculcation of values, attitudes, decision making and problem solving skills as far as environmental problems are concerned. The stress has been on the communication of information about the environment. There is a lack of a clear formulation of a concept of environmental education in the educational system. As for the non-formal education, the problems such

as inadequate local community participation, inadequate resource materials, poor continuity of programs, insufficient non-formal environmental education programs still arise.

Examples of Successful Environmental Education Programs

There are a number of successful environmental education programs carried out in Malaysia by government departments, NGOs or the private sectors. They are as follows:

1. The absorption of elements of environmental education in subjects and co-curricular activities in schools. For example, the subject *Man and Environment* was introduced to the children in Standard (Grade) 4. In the secondary schools, the environmental science subjects encompass all three major areas of biology, chemistry and physics.
2. Offerings of environmental courses in major universities in the country mainly in the Universiti Sains Malaysia, the Universiti Putra Malaysia, the National University of Malaysia and the University of Malaya. Undergraduate courses and graduate research in environmental studies are available.
3. Extra/co-curricular activities including National Nature Science Quiz, Essaython, and National Science Camp are organized by the Universiti Putra Malaysia. The Department of Environment organized environmental awareness camps, recreational environmental project, river watch programs, intervarsity debate and competitions such as quizzes, essay writing and drawing environmental themes, enviro-hunt and enviro-creative. Several modules accompanied the department of environment programs such as highland ecosystem, forest ecosystem, river ecosystem, marine ecosystem, plantation ecosystem, urban ecosystem and organic farming ecosystem. The private sectors also participate in some of the programs as joint organizers or award providers.
4. Yearly training of teachers and school children by the Sarawak Forest Department. Other departments such as Sarawak Department of Education, Kuching North City Council and Ministry of Tourism also conduct environmental education programs.

5. Conferences and publication held by various departments and authorities. The publication includes the 32,013 environmental publications distributed by the Department of Environment, the yearly Environmental Quality Report, the ERA HIJAU magazines, INFOTERRA pamphlets, environmental guidelines, A Guide to Investors, the IMPAK newsletter and also environmental information booklets and posters. An Environmental Education Conference was recently organized by the Department of Wild Life.
6. Campaigns through electronic media such as television and radio. Among them were 'Save the Water' and 'Love Our River' which were aired through out the country for quite sometime. Small-scale campaigns by the NGOs were 'Save Penang Hill' and 'Save Belum Forest'.
7. Presentation of awards and recognition by the Department of Environment, Malaysia together with private sectors and NGOs as incentives to encourage the development and marketing of environmental initiatives among the public. Among the awards are The Langkawi Award (for contributing a significant impact towards environmental protection), Malaysian Ozone Layer Protection Award, ICI/CCM Environmental Journalism Award and Hibiscus Award (for environmental accomplishment and leadership), Green Citizen Award and Green Advertisement Award.

Suggestions

1. Nowadays people especially the young generations, spend more time watching television and surfing the internet. Provide these media with environmental programs such as those of disastrous areas or mishaps as the results of environmental mismanagement.
2. Improve environmental education curriculum in primary and secondary schools from time to time. The school children are the best target in inculcating environmental values.
3. Get more participation of people to be involved in development business such as architects, developers, contractors, foresters, irrigation and drainage officers, farmers etc in environmental education programs and make them understand about the

ecological aspects of nature, the carrying capacity of the environment, the value of natural resources and the social effect of improperly planned development.

4. Urge appropriate authorities to thoroughly study and assess baseline data before any development is approved.
5. Concerning regional collaboration, the following needs to be done: Exchanging resource materials, holding regional meetings to discuss and solve ongoing/important issues, and provisions of funding for research

Conclusion

Environmental education in Malaysia has progressed quite significantly and the Malaysians are generally more concerned about the environment they live in now than many years ago. However, many people are still not aware of their surrounding environment and need to be educated through both formal and non-formal programs. The best target group of the environmental education is still the school children. They should be equipped with proper knowledge as far as the betterment of environment is concerned.

9. Environmental Education in Nepal

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Environmental Education

His Majesty's Government of Nepal has given importance to environmental education in the national education system. Over the past decades, international circumstances have pushed the government to formulate policy and strategy for environmental education and to adopt a systematic process of integrating environment concerns into national education system as well as in development activities. Policy documents such as the National Education Commission Report (1992), the High Level Commission Report (1998) and 8th and 9th Five-Year Plans have already made a policy statement on environmental education. Major environmental education activities are briefly presented below :

Primary Level: In Grade 3, environmental concepts have been integrated into *Social Studies*, which comprises social elements, health concerns and science components. In Grade 4 and 5, environmental education has been integrated into a compulsory course, *Science and Health Education*. These courses provide the students with basic knowledge and skills in pursuing population and environmental education at lower secondary level.

Lower Secondary Level: Environmental concerns have been integrated into the course "*Population and Environmental Education*". It aims to teach fundamental principles and concepts of population and environment to students. After the completion of this course the students will be able to study subjects like *Science, Environmental Science, and Health, Population and Environmental Education* at the secondary level.

Secondary Level: Since 1998, a separate course "**Health, Population and Environmental Education**" for Grades 9 and 10 has been included in the national curriculum with a view to providing students with knowledge and skills on health,

population and environmental education. It is a core subject.

Higher Secondary Level: The Higher Secondary Level of Education has also initiated a course on environmental education.

Higher Education: The Faculty of Education (FOE) in collaboration with IUCN/Nepal has developed courses on environmental education, one for the students majoring science and the other for non-science students of the Three-year Bachelor Degree Program. Resource books have also been developed.

Non-Formal Education: The Ministry of Education has been conducting non-formal education programs through its network in districts and villages. In collaboration with the Ministry and donor agencies, a number of NGOs have also been organizing non-formal education programs. The course books include environment and conservation issues such as forest protection, sustainable agriculture, sanitation, water resources, etc.

Training: Technical Ministries run in-service training programs for their staff in order to conduct outreach programs for their target groups. For example, the Ministry of Education, in collaboration with the Faculty of Education, the IUCN and others, organizes in-service training programs for master trainers, school teachers, head masters and other administrators. The Ministry of Forests and Soil Conservation in-service training to rangers, forest guard, community workers, etc.

The training centers under different ministries include the Agricultural Training and Research Institute of the Agricultural Development Bank, the Cooperative Training Center, the Central Local Development Training Center, the Civil Aviation Training Center, the Central Agricultural Training Center and the Cottage and Rural Industry Training Center. Efforts are under way to incorporate environmental concerns into their programs. The Hotel Management and Tourism Training Center (HMTTC), the Nepal Administrative Staff College (NASC) and the Women Training Center (WTC) conduct pre-service and in-service training programs and have integrated environmental concerns into their training packages. IUCN Nepal provides technical supports to these centers.

Mass Media and NGOs: The NGOs that are conducting public awareness programs, forest protection and environmental education are the King Mahendra Trust for Nature Conservation (KMTNC), the Plant International (PI), the Nepal Forum for

Environmental Journalists (NFEJ), and the United Mission to Nepal (UMN). The following media are active in providing environmental education in the county.

Print Media: Dailies, weeklies and magazines cover matters related to environmental conservation. Some publish environmental news and editorials, whereas others have regular columns for articles.

Radio: The Radio Nepal broadcasts environment-related programs such as forestry, agriculture, health and sanitation, agricultural activities and their impacts on the environment.

Television: TV programs related to environmental conservation include community forestry, wildlife conservation, health and sanitation, global environmental issues and others. The Nepal Forum for Environmental Journalists has been regularly preparing prepares *Aankhijhyal*, a fortnightly video magazine and deal with the critical environmental issues of the country.

Some Successful Examples

Initially the Environmental Education Program of the IUCN Nepal in partnership with the National Planning Commission worked to integrate environmental education in formal and non-formal education systems. The curricula, textbooks and other resource materials have been developed for use in schools.

Suggestions for Regional Collaboration

Suggestions to promote regional collaboration are given below.

1. Mobilize resources for developing manpower,
2. Mechanism should be developed to share and exchange information, experience and materials in the Region,
3. Conduct regional audits of environmental education materials and develop the directory of environmental education experts and facilitators,
4. Encourage NGOs to carry out environmental education programs,
5. Develop a system to document data and information,

6. Assist individual country in the formulation of environmental education policy, and
7. Encourage research institutes to conduct action researches.

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10. Environmental Education in Philippines

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Concepts of Environmental Education

For the agencies involved in environmental education (EE) in the Philippines, it refers to the process of helping people, through formal and non-formal/informal education, to acquire understanding, skills and values that will enable them to participate as active and informed citizens in the development of an ecologically, sustainably and socially just society. It aims to make the use of these knowledge and skills to preserve, conserve and utilize the environment in a sustainable manner for the benefit of present and future generations.

EE also involves learning how to employ new technologies, increase productivity, avoid environmental disasters, alleviate poverty, utilize new opportunities and make wise decisions. Furthermore, EE involves acquisition of skills, motivation and commitment to work individually and collectively toward the solution of existing environmental problems and the prevention of new ones.

EE efforts in the Philippines are undertaken in coordination with the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR), the agency specifically mandated to do so.

Environmental Education in the Formal and Non-formal Sectors

In 1989, the EMB convened a multisectoral gathering to formulate a national strategy for environmental education. The strategy aims “*to develop an environmentally literate and responsible citizenry who shall ensure the protection and improvement of the Philippine environment in order to promote and implement sustainability, social equity and economic efficiency in the use of the country’s natural resources.*” The strategy provides

a national framework intended to synchronize government and NGO-initiated activities in environmental education. It includes the following measures:

1. Strengthening linkages with, and provision of, environmental support to key educational institutions and broad environmental education coalition networks,
2. Evaluation of the current level of understanding of environmental concepts by different audiences,
3. Enhancement of the integration of concepts on environmentally sound sustainable development in the curricula at all levels of education,
4. Pursuit of a vigorous human resources development program for environmental management,
5. Production of Information, Education and Communication (IEC) materials on the environment to include supplementary materials, source books, videotapes and tri-media production packages for teachers, and
6. Development of evaluation instruments for environmental education.

The National Environmental Education Action Plan of the Philippines

The Philippines completed its National Environmental Education Plan (NEEAP) in 1992, just one month before the Earth Summit held in Brazil. The Plan is directed towards the resolution of the most urgent environmental problems of the country, *i.e.*, deforestation, soil erosion, indiscriminate conversion of prime agricultural lands into nonagricultural uses, air and water pollution, solid waste disposal, mangrove/coral reef depletion, wildlife depletion, and toxic and hazardous waste disposal.

Goals of Environmental Education

1. The long-term goal of the NEEAP is to realize an environmentally literate citizenry imbued with a sense of responsibility to care, protect and enhance environmental qualities that is conducive to their well-being as well as be supportive of the nation's economic development.
2. In basic education (*i.e.*, elementary and secondary), EE aims to orient young citizens to develop their perceptions and actions toward environmental protection and conservation.

3. In higher education, EE aims to develop a critical mass of specialists capable of managing natural resources in a manner that sustains their productivity and maintains ecological integrity.
4. In the non-formal sector, EE inculcates awareness, understanding, skills, commitments and actions among individuals and social groups for the protection and improvement of environmental quality for the benefit of present and future generations.

Strategy in Basic Education: In basic education, DECS and EMB agreed that the main strategy for teaching EE will be, not as a separate subject in the curriculum, but by integration of the EE concepts in the different subject areas. However, there are a few secondary schools such as the U.P. Integrated School (the laboratory school of the College of Education, University of the Philippines in Diliman, Quezon City) that offer *Environmental Science* as an elective.

Strategy in Higher Education: A number of higher education institutions (HEIs) in the Philippines are now offering degree programs in environmental studies. Among the first are the University of the Philippines System (particularly the U.P. Los Baños and the U.P. Diliman), the Philippine Women's University in Manila and the Miriam College in Quezon City.

Because of the multidisciplinary nature of environmental studies, there is much inter-departmental and inter-college coordination within each HEI offering a degree in environmental study. Thus, in the U.P. Diliman, where the College of Science offers *Diploma*, *Master of Science (M. S.)* and *Ph.D. in Environmental Science*, there are courses which are team-taught by professors belonging to two or more colleges. Similarly, in the College of Education, which offers Master of Arts in Education (Ed.), major in *Environmental Education*, the content courses on environment are taken at various institutes of the College of Science.

Strategy in Non-formal Education: The DENR, the Department of Agriculture, the Department of Health and various non-governmental organizations (NGOs) promote environmental literacy, sanitation and nutrition among groups of farmers, fishermen, housewives, etc., through meetings, field demonstrations, workshops and symposia, in cooperation with local government units and media intervention.

In the Philippines, NGOs and people's organizations (POs) have a wide range of

interests and concerns. They are involved in education, information and communication, advocacy and organizing the communities. These groups work closely with the DENR through its NGO/PO Desk, which is directly under the DENR undersecretary for Environment and Program Development.

Media (including print, radio, television and film) has done much for promoting environmental awareness and EE by relaying environmental information and messages and by serving as conduit of environmental networks.

A survey conducted in the Philippines in the late 80s revealed that the respondents' frequent sources of information on issues related to environmental problems were: television (61%), newspapers (39%), radio (33%) and Barangay Captains (24%).

Examples of Successful Cases

Success in EE can be determined only when the attainment of EE goals/objectives is measured. In the final analysis, an EE success story would be one in which the people have gained environmental knowledge, skills and attitudes and have learned to apply these to conserve and utilize the environment in a sustainable manner, for their benefit and that of generations to come. In the Philippines, there are several examples of such success stories especially in non-formal education. For the purpose of this meeting, however, only three are mentioned below. These stories differ from one another in terms of environmental problems to solve and the agency that initiated and provided technical support to the project.

1. **Apo Island Marine Life Sanctuary in Negros Oriental in the 1990s:** The human activities that degraded the environment and threatened the livelihood of the island were blast fishing and cyanide fishing. These two fishing practices destroyed the coral reef surrounding the island and drastically reduced the fish catch. The Silliman University initiated a project and provided technical support. With the EE intervention, the fish catch doubled in two years' time.
2. **Lapinig – Matangale Sustainable Coastal Resource Management Project in Balingoan, Misamis Oriental in the Later Part of the 1990s:** The environmental problems that the people faced were like those of Apo

Island. But this was a bigger project, involving several government agencies and people's organizations. The TOUCH Foundation, an NGO based in Cagayan de Oro City initiated a project and provided the technical support.

3. **San Miguel Bay Partnership for Sustainable Development in San Miguel Bay, between the Provinces of Camarines Norte and Camarines Sur, in the Early Part of the 1990s:** The environmental problem addressed was coastal resource depletion that resulted from both fisheries and land-based activities. On the one hand, commercial fishing using trawls and *pantukos* (an illegal fishing method wherein gasoline is burned on top of the water) has left very little for subsistence fishermen. On the other hand, exploitative activities in nearby the Mount Isarog (*i.e.*, heavy logging activities, Sweden farming and conversion to human settlements) partly caused heavy siltation in the bay. Technical support was provided by the Municipal Fisheries, the Aquatic Resources Management Councils and three collaborating NGOs. The Municipality of Calabanga received recognition from the United States Agency for International Development (USAID) as the Best Community Resource Management (CRM) Project under category B (project implemented solely from internal sources and without external aid or assistance).

Innovative Methods

Common to the successful non-formal EE cases cited in the preceding section are the followings:

1. Cooperation of as many agencies/organizations as possible,
2. Making the people realize that the project is their own and for them to benefit from the environment or natural resource, they themselves have to protect it from harmful practices of people, and
3. Making an environmentally harmful practice (*e.g.*, blast fishing) not only illegal but also socially unacceptable.

In formal education, one of the reasons for the effectiveness of the Philippine Association of Tertiary Level Institutions in the Environmental Protection and Management (PATLEPAM) is the fact that its permanent secretariat is the EMB which is specifically

mandated to coordinate environmental efforts in the country. Thus the task as secretariat is not an additional job of the staff.

Suggestions for Regional Collaboration

Suggestions for enhancing regional collaboration are given below.

1. Develop and produce support materials for EE teachers and teacher trainers,
2. Facilitate sharing of EE information, materials and experiences among the Asia-Pacific countries,
3. Conduct collaborative research among Asia-Pacific countries,
4. Solicit scholarships in EE for teachers and teacher trainers,
5. Establish exchange programs involving students and teachers/educators, and
6. Set up a regional center for EE that will (a) train EE teacher trainers, (b) produce EE support materials, (c) conduct conferences and consultative meetings to discuss regional problems on the environment and to find collective action plans to solve those problems, and (d) serve as nerve center of an EE information and communication network of the Asia-Pacific Region.

11. Environmental Education in Sri Lanka

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Context for Environmental Education in Sri Lanka

Sri Lanka, an island nation in the Indian Ocean, is grappling with problems of both development and environment. A mismatch between people's high aspirations and the inability of the country's economic and social systems to meet these needs have characterised Sri Lanka's development pattern since gaining independence from the British in 1948.

A key factor contributing to this situation is population growth and population density: the island packs 18 million people into an area smaller than Ireland. Although population growth, at 1.1 per cent per year, is moderate in comparison to many developing countries, it still adds numbers that aggravate the situations of wide spread poverty, high levels of youth unemployment and slow economic growth.

Faced with such formidable challenges of survival, countries like Sri Lanka have to use more, not less, natural resources. Historically, Sri Lanka has had advanced systems of natural resource management and conservation, dating back to nearly 25 centuries of recorded history. One of the world's earliest protected areas was declared by a Sinhalese king three centuries before Christ. The early inhabitants had evolved a complex system of rainwater harvesting and storage, through an intricate network of large and small reservoirs and canals. These also served as a soil and water conservation system. In the past 400 years, however, a combination of factors including colonial influence, unsustainable economic development patterns and the increase in human numbers have rendered these traditional practices inadequate.

The need and scope for environmental education in Sri Lanka needs to be discussed in this overall context. Several factors make Sri Lanka's opportunities and challenges in environmental education markedly different. Half a century of free education from primary to tertiary level has produced a population that is literate, relatively well

educated, politically alert and culturally sensitive. The adult literary rate, at nearly 90 per cent for both men and women, is much higher than the South Asian average; levels of schooling and mass media penetration are also considerably higher. In terms of overall human development, the UNDP's Human Development Index ranks Sri Lanka much closer to some of the newly industrialised countries or middle income countries than to other developing countries in South Asia. These achievements have been made with a per capita GNP of US\$ 700 per year, and while coping with a bitter civil war that has lasted 18 years, which annually drains a quarter of government spending on fighting against one of the most well organised guerrilla groups in the world. Thus, in Sri Lanka, both socio-economic development and environmental conservation have to be pursued under duress, in the midst of trying circumstances and against many odds.

Gaps between Perception and Reality

The higher levels of literacy and education, and the generally high civic consciousness, mean that many people in Sri Lanka are already aware of the major environmental issues and problems, as well as their implications. Unfortunately, however, many people also believe that they are powerless to do anything about these issues: there is a widely shared sense of frustration that the forces of environmental degradation and destruction are completely out of their control. A common misconception is that the cumulative environmental impacts arising from the liberalised market economy, government-driven development programs, serious problems of foreign debt and population pressures are both inevitable and irreversible.

There are also misconceptions about causes and effects of environmental problems. For instance, most Sri Lankans are well aware of the adverse impacts of deforestation, a major environmental issue in the country. Natural forests, which covered 44 per cent of the total land area in 1956, had been reduced to less than 20 per cent by the mid 1990s. The remaining forests are under heavy pressure, and many forests have been degraded or encroached. People already know of, and appreciate, the role of forests in regulating rainwater catchment on which a good part of the island's agriculture and electricity generation depends. To a lesser extent, there is also awareness of the biodiversity values of forests. Interestingly, when it comes to the causes of forest loss, farmers and others routinely attribute it to illicit timber felling. While such illicit felling is, indeed, one factor leading to deforestation, it contributes less to the loss of forests than is widely perceived. According to scientists, the main factor fuelling deforestation in Sri Lanka is not the

demand for timber, but the scarcity of land: the island's already acute land/man ratio induces both authorised and unauthorised clearing of forests for cultivation, settlements and other public needs. Statistics confirm that during the 1980s, much of the deforestation that took place was caused by such land clearing, which included both government-sponsored settlement schemes as well as gradual encroachment by individuals on forest lands close to village-forest boundaries.

Unfortunately, most discussions about deforestation overlook this aspect. Instead, it is repeatedly said that the high market value of timber products is driving the forest habitats to a gradual extinction. Such misconceptions and sometimes outright myths – not just on forests but about other types of natural resources too – distort public discussion and debate of environment related issues in the country. Sometimes, sadly, even the well-meaning environmental activists get their science and facts completely wrong, which, in turn, influences their advocacy positions and activism.

There is another dimension to this situation. Even when people realise the adverse impacts of their individual actions on the environment, some lack the technical know-how to act, or to choose a viable alternative. Followings are the examples:

1. Poor people who eke out a living from the land would always like to annex more land, even from nearby forests. If they were shown how to obtain better yields from the land already cultivated, they would be less inclined to grab more land.
2. In the central hill country, those who cultivate cash crops (e.g. tobacco, potatoes) or build houses on steep hill slopes would much rather be somewhere else than risk being buried alive by killer landslides. Yet, many have nowhere else to go and no other means of livelihood.
3. Those who engage in slash-and-burn type shifting cultivation would prefer to engage in more settled, irrigated agriculture – if only they had land of their own, access to irrigated water and other benefits.
4. People who mine the protective coral reef in coastal areas, and sell it to lime kilns for their subsistence, are well aware of the ecological damage they cause – yet they have not been offered a viable alternative to earn a decent living.

In such instances, blaming the local communities concerned or imposing unrealistically harsh restrictions or penalties on their actions, alone will not help protect the environment. Both legislators and law enforcement authorities in Sri Lanka know this only too well.

They concede that education and awareness are better antidotes than laws and regulations. At the same time, greater education and awareness will only aggravate people's frustrations if they are offered in a vacuum: there need to be opportunities and incentives for people to practice the solutions they learn about.

EE in the 1990s: Progress Made, but Challenges Remain

In the past 15 years, a number of steps have been taken to promote environmental education (EE) at both formal and non-formal levels. The state has recognised the value of EE in national policy documents, including the National Conservation Strategy (1988) and the National Environmental Action Plans (NEAPs) through the 1990s. In the formal education sector, EE has been introduced as an integral element at primary and secondary levels of school education, while at tertiary level, environmental studies is now a course offered in most universities. Elements of relevant environmental knowledge and attitudes have been included in the curricular of teacher training colleges, other vocational training institutes as well as in training courses and programs for civil servants, law enforcement officers and different categories of professionals. Postgraduate level opportunities have also increased within the country to provide the opportunity to study an aspect of environment in greater depth and detail.

Thus, Sri Lanka has in the 1990s achieved considerable *greening* of education and training in the formal sector. Parallel to this, the country's diverse range of NGOs and citizen groups have been active in promoting environmental education and awareness using non-formal approaches, with varying degrees of success. The print and electronic media are also taking a greater interest in environmental issues, and while they do not seek to educate their audiences on basic of environment, they play an important role in raising awareness on environmental issues, problems, solutions and alternatives.

However, the gaps between perception and reality mentioned elsewhere in the paper remain largely unbridged. Therefore, using a common analogy, I would like to see this as a situation where the glass is half full, and the other half empty. It's the empty half that concerns non-formal EE practitioners and activists such as myself.

In my view, environmental education can achieve tangible and lasting results in Sri Lanka only if it can make people think about trends and conditions that harm the environment, and also focus on action that individuals and communities can take at their

own level to make a change. In spite of considerable amounts of time, effort and resources invested in promoting EE, it seems that much of the formal EE approaches have missed this point: these have traditionally been aimed at discussing macro level issues in a detached manner. Such theoretical discussions of ecosystems, resources and their inter-relationships are undoubtedly important, but they often fall short of providing motivation or inspiration for positive action. This is why we have so many people – young and old – blaming the government or industry for all environmental problems and expecting all solutions also to emerge from these sectors.

Challenge for 2000 and Beyond: Bridge the Gaps

Now that Sri Lanka has in place the overall policy and institutional framework for EE, we can and should concentrate on bridging the gaps that remain. The following are a few of the key steps that are needed to be taken.

1. Encourage more ‘hands on’ type, field-based, outdoor activities for both school children and adult students currently being exposed to formal EE programs.
2. Increase the quantity and quality of home-grown environmental material (both print and audio visual) for formal as well as non-formal EE needs.
3. Improve the research base and understanding on public perceptions on environment and development issues through more surveys, studies and focus group discussions, and etc.¹⁰
4. Work with opinion shapers and opinion leaders, especially teachers and media professionals, to help them get facts, attitudes and perceptions right.
5. Strengthen fledgling collaborative efforts between government environmental agencies and NGO environmental activists who share the same ideals and objectives.
6. Encourage greater links between environmental researchers and environmental educators.
7. Foster better links between environmental activist and advocacy groups, and the professional educators and communicators.
8. Improve access to available environmental information – including statistical

¹⁰ The first and only survey of public knowledge, perceptions and attitudes towards environment was conducted in 1992 and results published in 1994.

data, research findings, traditional knowledge and local wisdom.

9. Improve skills and methodologies for environmental education related to monitoring and impact evaluation.

The key to achieving the above goals is to view environmental education as a much broader process than just a tag-on to the curriculum or an isolated piece of activism. For this, EE has to go beyond its current *green* confines and embrace the much wider spectrum of sustainable development, consumption patterns and lifestyles.

Learning from Recent Successes

We can also learn from, and be inspired by, impressive successes achieved by individuals or institutions in the past few years. From among many, I would like to cite just two examples where I have had some involvement.

Greening of Learning: Learning by doing is a preferred approach under non-formal education where students or participants are encouraged to engage in ‘hands on’ methods, for instance in investigating environmental issues through projects and through problem solving in the real world. The emphasis is on the inter-disciplinary approach. Since 1993, in the Central Province in Sri Lanka, a WWF (UK)-supported innovative environmental education program has been implementing an approach called *greening of learning*. In this program, involving over 750 schools in the Province, students are encouraged to beautify the school garden, start a plant nursery or engage in other ‘green’ activities within the school premises. It has been highly effective that the WWF has started introducing the same concepts and approaches in other countries in Asia and the Pacific, for instance in Viet Nam.

Using Television and Video: In 1995, the International Television Trust for the Environment (TVE) teamed up with the Open University of Sri Lanka (OUSL) to implement a multi-faceted initiative to strengthen local capacity to produce, adapt and use television and video programs for environmental education and awareness. This initiative, known as the Sri Lanka Environmental Television Project (SLETP), benefited considerably from the fully-fledged Media House that the Japanese government donated to OUSL that year to support audio visual material production for both formal and non-formal education. During the past five years, the SLETP has emerged as a key producer and disseminator of effective materials on environmental issues by bringing in some of

the world's best environmental programming into the country; adapting and versioning these foreign programs into local languages; producing new programs on locally relevant issues; offering these programs to television stations; managing a science and environmental video library with over 300 titles available to schools, NGOs and individuals, and organising a large number of public events – such as seminars, workshops and film festivals – that promote the environmental video films as a means of raising awareness.

The outreach and impact of the SLETP was slow at the beginning as most practitioners of EE were not yet accustomed to using audio visual material in their work. Even in universities and training institutes that are well equipped to use available teaching aides, most teachers and instructors still confine themselves to lectures and discussions. Breaking through these habits has been difficult, but we are now seeing a change of attitudes – especially among non-formal EE practitioners – with more and more using narrowcast video as an effective and integral part of their programs.

Suggestions for Collaborative Activities and Research

In this paper I have so far restricted my scope to Sri Lanka, but in this final section, I would like to offer a few suggestions for regional collaboration in environmental education and communication that goes beyond one country and looks at the potential for working at a regional level to strengthen EE capacity and programs.

My suggestions are based on my own recent assessment of environmental education, training, awareness and communication that was carried out for and on behalf of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), to be included as a separate chapter in the forthcoming State of the Environment in Asia and the Pacific 2000 Report, to be released at the Asia Pacific Ministerial Conference on Environment, to be held in Japan in next September. I have also drawn from my professional experience as a media professional working in the Region for the past several years.

1. ***Strengthen Existing Networking Mechanisms Rather Than Catalyse New Structures or Networks:*** Over the past few years, a number of networks concerned with environmental education, training and communication have been created. Some have withstood the test of time, while others have

disappeared or are inactive. It would make eminent sense to identify and strengthen the regional networks that have survived and thrived. One such network that I am personally aware of, and am proud to be part of, is the South and Southeast Asian Network for Environmental Education, the SASEANEE, in which the network co-ordinators at the Centre for Environment Education (CEE) in Ahmedabad have sustained for nearly seven years since it was launched in early 1993.

2. ***Recognise Environmental Communication As a Worthy Specialisation Within Environmental Education:*** Environmental communication has now emerged as a strong complementary practice to environmental education. A broad definition of environmental communication would be the sharing of information, insights and opinions on environmental issues, trends, conditions and solutions using any means of communications, ranging from inter-personal methods to means of mass communication using the modern as well as traditional media. In this sense, environmental educators constantly engage in environmental communication. However, while all environmental educators are communicators, not all environmental communicators are necessarily to be environmental educators.
3. **Support Research That Will Help Sharpen Ways to Assess Impact of Education and Communication Activities:** A continuing drawback, especially in environmental communications, is that the methodologies for assessing and evaluating impact are still not well developed. There is a need to support more such work in the Region, as well as to disseminate the findings and refined methodologies to the wider community of environmental educators and communicators. In this regard, the Communications Initiative – an alliance of several communications organisations working internationally in public interest sectors such as health, environment and human rights – has been amassing available information on evaluation methodologies (see their web site at www.comminit.com) – this may be of interest to us.
4. **Engage the Internet and World Wide Web more actively in EE work:** The Internet provides not only a low cost medium for networking and information dissemination, but – as bandwidths expand – it will also become an alternative broadcast medium. At a South Asian workshop on using the

internet more effectively for environmental journalism, organized in Colombo in September 1999 by the TVE's Asia Pacific office and the Panos Institute, participants recognized this potential and suggested that organizations like the TVE take the lead in putting the sustainable development agenda and information on the internet. In fact, One World online (based in Oxford, UK, and operating one of the best known and most successful development oriented super sites in the world: see **www.oneworld.org**) is already doing this on development issues. But the need is clearly felt for a pan-Asian web site that will disseminate information and analysis on environmental issues that are of relevance and interest to the Asia Pacific Region.

12. Environmental Education in Thailand

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Environmental education is considered as an essential subject for Thai youth and the general public to develop their environmental awareness and to get their active involvement in environmental protection. Environmental concepts were integrated into school curriculum from 1977, but this matter was not taken seriously until the last decade. It is now evident in *Science, Social Studies* and *Health Education*. The concept of ‘across curriculum’ has lately been emphasized but practiced in a limited manner. The Ministry of Education has made some strides to incorporate environmental themes at all levels of the education system.

The environmental education concepts that appear in the curriculum from Grade 1 to higher educational levels can be summarized as follows:

Levels	Subjects/Courses
Grade 1-2	Life Experiences (integration of science, social studies, health and moral education)
Grade 3-6	Life experiences, Thai Language Character Development
Grade 7-9	Environmental Science, Social Studies, Health Education
Grade 10–12	Environmental Science, Social Studies, Thai Literature, Culture, Current Events, Health Education

Higher Education	General Education
(Ministry of University Affairs-Chulalongkorn University)	-Man & Environment -Man & Nature -Our Environment -Nature Heritage & Culture -Natural Science

	-Psychology for Conservation of Nature
Ministry of Education	<ul style="list-style-type: none"> - Man & Environment - Conservation of Nature - Environmental Ecology - Natural Resource Management

Developing environmental awareness and consciousness to conserve and protect the environment is the primary objective of environmental education. Teachers employ various methods of teaching in schools. These methods include lecture, discussion, problem solving, inquiry, field trip, camping, case studies, project, etc. and deal with environmental issues, local problems and burning issues. In college, environmental concepts depend on individual instructor's interests and concerns. Instructors usually prepare materials by themselves. Materials and publications such as "*Summary on Environmental News*" are quarterly issued by the Department of Environmental Quality Promotion, the Ministry of Science, and the Technology and Environment. "*Health and Environment*" is issued by the Ministry of Education. The Green World Foundation's illustrious books on environment and environmental articles from dailies are used as supplementary materials.

Schools in Thailand are required to offer extra-curricular activities to students from Grades 1 to 12. Activities are designed to solve environmental problems and develop awareness and skills. Common activities include planting trees, growing pesticide-free vegetables for school lunch, and beautifying schoolyards by planting and tending shrubs and flowers. In colleges, conservation clubs and social studies are set up to promote environmental awareness.

Non-formal education programs have a variety of mass campaigns for the community. Some best-known campaigns include environmental camp, forest planting, tree planting in public parks and schools, planting pesticide-free vegetables, newspaper service campaign on energy and water consumption and recycle paper. NGOs also play important role in promoting public awareness concerning protection and conservation of natural resource. Successful cases on environmental education are projects managed by schools and NGOs. Forest planting, tree planting, energy saving and mangrove forest management in coastal areas are among the well-known projects that all schools in the Region have actively participated. Well-known activities initiated by NGOs include The Magic Eyes, The Green World, CARE international, Energy Save, Think Earth, Reforestation Project, Save Environment and Styrofoam Waste Reduction. Mass media

in Thailand have also played a key role in dissemination of environmental condition and crises and have been successful in conveying environmental messages to the public. “*Sunny Fields*”, “*Beautiful World*” and “*Little Bees*” are well-known TV programs, that are used to raise awareness about nature and environment.

As environmental education has been rapidly growing in Thailand, it can be said that children, youth and the general public are well aware of environmental problems at local, regional and national levels. However, ‘*whole school approach*’ in environmental education and ‘*across curriculum approach*’ in environmental education have not been fully practiced in schools. A set of principles that provide guidelines in infusing environmental education theme and concepts to the curriculum at all levels of formal education, from kindergarten to higher educational levels is urgently needed for curriculum development and environmental educators.

It has been globally accepted that environmental education is the key factor to develop people’s awareness and their commitments to protect their environment. In order to achieve this objective, teachers’ knowledge and abilities are critically important so that they can bring out desirable changes in learners through the use of appropriate techniques, skills, methods and materials. Thus there is a need of a competent teachers in environmental education. For this matter, teacher education should be given the topmost priority. Fellowships, exchange programs and training opportunity should be provided to advance professional development for environmental education. Funding and resources play an important role to support and trigger these endeavors.